Государственное образовательное учреждение
высшего профессионального образования
**«Томский государственный университет
систем управления и радиоэлектроники»**

ТЕМАТИЧЕСКИЙ РЕФЕРАТИВНЫЙ СБОРНИК № 44-2/2

“Light Emitting Diode”
(«Светодиоды»)

Публикации в трудах конференций

Источник: *Digital Library IEEEXplore*
Язык: *английский*
Глубина поиска: *2006 – 2008 гг.*
Дата формирования: *март 2011 г.*
Составитель: *В.И. Карнышев*

Томск – 2011

ТЕМАТИЧЕСКИЙ РЕФЕРАТИВНЫЙ СБОРНИК № 44-2/2

"Light Emitting Diode"
(«Светодиоды»)

Публикации в трудах конференций

"Optimization of ceramic packages including thermal via-hole for light emitting diode"

Thermal via holes must be designed to emit the high heat flux generated from high power light emitting diodes (HP LEDs) that are 1000 times smaller than conventional electronics devices such as central processing unit (CPU). Therefore, it is important to layout via holes in accordance with the kinds of the devices. In this paper, we compare the performance of the packages with the three classes of via holes by verifying thermal resistance by using MicRed T3Ster and FLIR IR Camera. It is demonstrated that the large via hole beneath high power light emitting diode is superior to many scattered via holes under condition of the similar amount of silver paste for via filling. Detailed thermal performance is analyzed using CFD (computational fluid dynamics) technology and then verified with thermal resistance and heat distribution in printed circuit board (PCB) where light emitting diode (LED) packaging without the encapsulating material is implemented and then, the evaluation and the compensation of the errors for the process factor of the simulation are simultaneously accomplished. Thermal resistance of the packages with HEP (heat emission pole) is 5 ~ 13.8 times smaller than the others. The calculation formula of thermal conductivity is improved into a new equivalent formula with the device size, package size and the overlap area. The optimized via hole decreases the manufacturing cost while it increases the efficiency of the heat emission. [C1528]

"Six sigma methodology in improving assembly yield of high-power and high-brightness ligth-emitting diodes packages for automotive application"

Six sigma methodology had been adopted by various companies such as Motorola, General Electric and Honeywell to improve quality of the product. Six sigma methodology is a systematic, well-disciplined and scientific-driven famous approach to improve process and reduce defeat. Package development and assembly of high power and high brightness LED for automotive application is a challenging task. It involves various new technologies and processes to enable the assembly of high performance LED package with stringent reliability, thermal, optical and quality requirement. The six sigma project improvement in this paper involves defects reduction in processes of multi-array thermosonic gold to gold interconnects bonding, ceramic substrate to lead frame AuSn eutetic bonding and aluminum ribbon bonding. This paper will discuss every steps involved in DMAIC approach for six sigma methodology. The yield of the processes involved in six sigma project charter scopes had improved after completion of the six sigma project. The result from yield compilation indicates six sigma approach can help company in term of quality management and business growth. [C1529]

"Developing bright and color-saturated quantum dot light emitting diodes towards next generation displays and solid state lighting"

We report in this conference of our recently developed red, orange, yellow, green and blue Quantum dot light-emitting diodes (Qdot-LEDs)-LEDs with high brightness, high efficiency, saturated color and long lifetime. [C1530]

"New field sequential color displays with transient LCD modes"

A new configuration called stressed splay twist (SST) mode is proposed. Such device has much stronger transient effect than conventional TN mode. By using this dynamic approach, the true steady state-to-steady state response time of the liquid crystal can be ignored. The transient response time is used, in conjunction with the pulsed light source. A QVGA FSC displays prototype using SST mode is demonstrated. [C1531]

"Exciton migration in organic LEDs and solar cells"

Triplet exciton migration is a very important process for both organic LEDs and photovoltaics. We have explored a number of new materials in both OLEDs and OPVs and examined triplet exciton migration in these solids. [C1532]

"Design of exponential stage for organic pixel addressing"

This paper presents a new approach for driving an organic light emitting diode (OLED) pixel circuit using organic thin film transistor (OTFT). Depending on the linear relation between the current passing through the OLED and its luminosity and relying on Weber's law which states that the sensation of the eye to the change in brightness is logarithmic to the change itself an improved column driver is proposed. An exponential stage is added to the column driver after the digital to analog converter (DAC) block to supply the pixel circuit with exponential current. The design is done with OTFT (n-type and p-type). The model is extracted according to the current technology of organic electronics. [C1533]

"Investigation of using the organic thin film transistors in the pixel circuit of the active matrix organic light emitting diode flat panel display"

Organic technology is having some limitations like threshold voltage variation and mobility degradation of the organic thin film transistors and the organic light emitting diode luminance degradation. In this paper, a voltage programming pixel circuit for active-matrix OLED display is investigated. The circuit is compensating for the OTFT threshold voltage variation and mobility degradation. Compensation for the OLED luminance degradation is also provided. The circuit is studied and simulated using PSPICE to verify the results. [C1534]

"GaN based active matrix light emitting diode array by flip-chip technology"

This paper reports the first GaN based active matrix light emitting diode (AMLED) array. The array, fabricated by CMOS compatible process and flip-chip technology, can control the LED pixel individually and exhibit excellent emission uniformity. [C1535]

"The structure optimization for high-efficiency white organic light-emitting diodes"

The authors have demonstrated the structure optimization for high-efficiency white organic light-emitting diodes (WOLEDs) using codoped blue emitting layers with different functional materials or hybrid-spacer between emitting layers. The optimized WOLEDs characteristics showed the maximum external quantum efficiency of 11.8%, the maximum luminous efficiency of 25.29 cd/A, and Commission Internationale de l'Eclairage coordinates of (x = 0.37, y = 0.38), respectively. [C1536]

"Optical and thermal analysis for a modified flip-chip Light Emitted Diode"

The proposed design for modified flip-chip LED (light emitting diode) has average coupling efficiency of 49.6% for misalignment of 0.4~3 mm. The designed ambient environment also improves the thermal efficiency by factor of 1.6. [C1537]

"ZnO nanorods/P3HT nanocomposite film light emitting diodes"

We report electroluminescence from ZnO nanorod-based devices prepared by the hydrothermal method. The devices composed of ZnO nanorods and P3HT, in which ZnO acts as an n-type material and P3HT acts as a p-type material. [C1538]

"Research of penetration radiation photomedically LED actuator into biological cloths"

In given work presented the results of experimental descriptions researches of direct medically-diagnostic light devices stream photo medically of technologies attached to passing by it of environment of typical biological cloths. [C1539]

"A fiber-and-LED based vehicle headlamp"

A novel vehicle headlamp structure is presented. It delivers light rays from plural LEDs via a fiber to the headlamp to form a legal low-beam pattern with a predicted optical efficiency of 45%. [C1540]

"Layout design of LEDs in an LED-based lighting system with a conventional Fresnel lens to optimize the illuminance and uniformity by using Genetic Algorithm and Tabu Search"

To let the economic and popular conventional Fresnel lens be available to a lighting system with multiple LEDs, we develop an efficient genetic algorithm to arrange LEDs' locations and a tabu search algorithm to adjust their orientations to optimize illuminance and uniformity of a multiple-LED lighting system. [C1541]

"The novel design of direct LED backlight with lens caps and parabolic reflectors"

A novel design of direct LED backlight is presented. The module is composed of white light LEDs, parabolic reflectors and novel lens caps. The predicted uniformity is up to 92%. [C1542]

"An AOI algorithm for PCB based on feature extraction"

With the development of the micro-electronic industry, electronical components assembled on the printed circuit board (PCB) become more and more microsize and its mounted density is increasing. It is out of date to depend on manual inspection to assure the joints quality. Instead, automated optical inspection (AOI) for solder joints based on the machine vision has become more and more important. In this paper, based on the image acquired from a 3-CCD color camera and a 3-color hemispherical LED arrays light resource (red, green, and blue), the place, shape, and logical features of solder joints of chip components are extracted. The place features are related to solder joint place. As for shape features, we divide solder joint into several regions and extract its shape features by its color, occupancy ratio of area, center of gravity and continuous pixels. The logical features come from their close relationships of different regions of shape features, color distributing and place features. On the basis of the features, an AOI algorithm is developed. The defects of lacking solder, surplus solder, no solder, pseudo joints, wrong component, damaged component, component absent, shift, tomb stone, wrong polarity, etc. can be identified properly by using the proposed algorithm. Finally, some experiment results are presented to show the validity of the algorithm. [C1543]

"Online non-contact fault detection of LED chips"

An online non-contact fault detection Method of LED chips is presented based on the photovoltaic effect in diodes. By observing the photo-generated current in the bonding lead frame of a LED chip, the LED chip and its electric connection with the lead frame during packaging are checked. The fault detection principle is described in detail in this paper. By using the method based on the law of electromagnetic induction, the photo-generated current can be measured without any touch. The experimental results show that the method can be easily realized, and thus can be used for online fault detection of LED chips in packaging. [C1544]

"Pulsewidth modulations for the comprehensive capacitor voltage balance of n-level diode-clamped converters"

In the previous literature, the introduction of the virtual space vector concept for the three-level three-leg neutral-point-clamped converter has led to the definition of pulsewidth modulation (PWM) strategies guaranteeing the dc-link capacitor voltage balance under any type of load, with the only requirement being that the addition of the three phase currents equals zero. This paper presents the definition of the virtual space vectors for the general case of an n-level converter, suggests guidelines for designing virtual-space-vector PWM strategies, and provides the expressions of the phase duty-ratio waveforms corresponding to this family of PWMs. Modulations defined upon these vectors enable the use of diode-clamped topologies with passive front-ends. The performance of these converters operated with the proposed PWMs is compared to the performance of alternative designs through analysis, simulation and experiments. [C1545]

"A wearable head-mounted sensor-based apparatus for eye tracking applications"

This work presents a novel approach to eye-tracking systems using eye-glass like apparatus equipped with relatively cheap IrDA sensors and IrDA LEDs connected to a computer. The proposed system produces very low dimensional feature vectors for processing as compared to its competitors that process video data acquired from a digital camera. Consequently, the computational requirements of the proposed system are low. Furthermore, the apparatus is lightweight and can be directly worn. A prototype system is developed in our laboratories and tested to observe its capabilities. Preliminary results show that the approach provides a promising human-computer interface system with plausible accuracy. [C1546]

"LED integrated miniaturized polymer MEMS display"

This study presents the process development and first experimental results of LED integrated polymer microelectromechanical systems (MEMS) for two-dimensional displays. Proposed integrated system is very cheap due to the fabrication simplicity and the choice of polymer material as the structural layer, and it is a strong candidate to show similar performance when compared with the existing flat panel displays. A process technology that enables the integration of the LED dies and the PCB-based MEMS structure is presented. The very first version of the MEMS structure is actuated by consuming 11.5 mW and resulting displacement is measured to be 9 mm. Along with the LED die size of 250 mum times 250 mum, 36 pixels of resolution can be achieved. [C1547]

"A real-time eye detection system based on the active IR illumination"

Non-intrusive real-time eye detection is widely used in vision-based man-machine interaction. These methods based on IR illumination have little sensitivity to lighting condition change and complicated background environments. In this paper, we present the realization of eye detection system based on active IR illumination. The inner and outer rings of IR LEDs illuminated the eyes and generated two kinds of pupil images: bright and dark pupil images. The IR LEDs were controlled by the even/odd video signal information. It was easy to get the eye position by difference the image of bright and dark pupil images. Experimental results using real images demonstrated the accuracy and robustness of the proposed solution. [C1548]

"Study on human-machine interface based on mouth open/close motions"

This paper describes a new human-machine interface based on mouth open/close motions. User attached the developed controller with the skin surface to observe the moth open/close states. The controller equipped a tiny magnet sensor by which the slight relative displacement between the upper and lower skin point of mouth could be measured. For a higher recognition ratio, the controller had a flexible structure to absorb the slight displacement caused not by operation but by mastication to eat something. Moreover, the misrecognition with speaking could be avoided by comparing the current mouth state with the previous one. Next, suggested method was applied for operation of the meal support equipment. The LED of four food trays automatically turned on and off in order at a constant period, and user could select the food on the tray by opening the mouth at a moment when the LED on target tray was illuminated. The manipulator scooped the selected food on the tray with the spoon and moved it to the front of the userpsilas mouth. As for the manipulation of scooping food, the humanpsilas manipulation could be divided into five processes, and the obtained humanpsilas characteristics was applied for the motion planning of the meal support manipulator. [C1549]

"Post fabrication electric field treatment of polymer light emitting and photovoltaic devices"

Conjugated polymers are semiconductors that offer flexibility, simplicity and lower cost in the fabrication of polymer light emitting diodes (PLEDs), polymer transistors and circuits, polymer photodetectors and solar cells. They have a potential to lead to a technology that can monolithically integrate all the semiconductor devices mentioned above as well as polymer sensors and actuators. This paper presents a novel method as a post-fabrication treatment and its improvements over the performance of the light emitting and photovoltaic properties of PLEDs. Investigated PLED is made of indium tin oxide (ITO), poly(3,4-ethylenedioxythiophene) poly(styrenesulfonate) (PEDOT:PSS), poly[2-methoxy-5-(2'-ethyl-hexyloxy)-1,4-phenylene vinylene] (MEH-PPV) and aluminum (Al). Following fabrication at room conditions, heat treatment is performed at 130Cdeg for one hour and electric field treatment is realized with voltage levels from 0 to -8 V under 0.2 atm vacuum. Heat treatment after fabrication restores the light emitting function of otherwise not functioning PLEDs, which degrade due to exposure to oxygen and water vapors at normal room conditions. Electric field treatment reduces the turn-on voltage of PLEDs when they are used as light emitting devices. Electric field treatment of -1 volt reduces the turn-on voltage to 3 volts from 10 volts, which is the case for the devices with heat treatment only. It also improves open circuit voltages and short circuit currents of PLEDs by an order of magnitude when they are used as photo-detectors or photocells. Devices treated with heat only show a short circuit current of around 0.5 nA and open circuit voltage of 5 mV under 500 mW/m2light intensity. These values improve to 5 nA and 55 mV respectively after the devices are electrically treated with -1 volt. Electric field treatment after the thermal treatment also improves the stability and uniformity of the devices. [C1550]

"Design considerations of a high power factor SEPIC converter for high brightness white LED lighting applications"

A current-shaper SEPIC converter for high brightness LEDs is presented. Due to the recent advancement in the light emitting diode (LED) technology, high brightness white LED becomes feasible in residential, industry and commercial applications to replace the incandescent bulbs, halogen bulbs, and even compact fluorescent light bulbs. In these offline applications, high power factor, and low harmonics are of primary importance. It is also important to step up/down voltage with simple single-stage conversion for low cost and high efficiency. A SEPIC converter is particularly suitable for non-isolated application since it is single-stage, and can step up/down, and of high power factor as it is run in discontinue conduction mode. In this paper, we proposed a high power factor SEPIC converter for the high brightness LED lighting applications with universal input voltages and dimmable LED light. The condition of discontinuous conduction mode is given. The harmonics of the input line current is reduced and power factor is high because the input inductor current follows the input voltage. A current feedback loop is proposed to control the LED brightness. The gate drive signal of the switch is generated by comparing the saw-tooth carrier signal of the PWM controller with the current feedback signal. This circuit has the

advantages of one stage of power conversion, no need to sense the input voltage, simple feedback control, voltage step-up and down, high power factor and dimmable LED current. It is particular suitable for the offline LED applications. The critical design constraints and equations for both the power stage and control loop are highlighted and detailed. A practical evaluation board is developed to verify the proposed design. [C1551]

"Session TH4: LED technologies II"

{no data available} [C1552]

"Power-efficient series-charge parallel-discharge charge pump circuit for LED drive"

A charge pump drive circuit for LED lighting is proposed. This circuit is realized with repeated use of a compact unit module consisted of a capacitor and diodes. The series-charge and parallel-discharge operation gives the efficiency better than the conventional converters with AC line input. This paper also shows how to minimize the number of modules for a given number of LEDs. A prototype implemented the charge pump drive circuit shows a maximum efficiency of 95% for 22 LEDs in series with the AC line voltage of 220 Vrms. [C1553]

"Series input modular architecture for driving multiple LEDs"

This paper introduces a modular power converter architecture based on series input connected converter cells with independent outputs that each drive a small series string of LEDs. The approach provides the benefits of operating from a high bus voltage while using low voltage cells that independently regulate LED currents for improved light uniformity and LED failure mitigation. Stability of the series converter string and independent regulation of the floating LED output currents are achieved using a two-loop controller that relies on chain control communications between cells to share system information. Experimental verification of input bus voltage sharing and independent cell current regulation is provided using a prototype of the proposed system with four series buck-boost converter cells, where each cell drives four 700 mA LEDs. [C1554]

"Low cost self-oscillating ZVS-CV driver for power LEDs"

This paper presents a self-oscillating zero-voltage-switching clamped-voltage (ZVS-CV) power electronics driver for LED strings. A simplified mathematical model of LED has been obtained and used to characterize the series resonant converter for the power LED driver. For a large voltage at the input, this converter does not need a current sensor to stabilize the average current through the LED string. By using the proposed converter the effects of the LED manufacturing tolerances and temperature drifts almost has no influence on the LED string average current, and this is analyzed with the application of the LED electrical model. The simplification of the control design, and of the converter, reduces the component number and the cost. The prototype utilizes a low cost series saturable transformer to drive the bipolar transistors (BJTpsilas). The saturable transformer is a component of the self-oscillating drives and determines the switching frequency of the resonant converter. Analytical results are verified by laboratory experiment. [C1555]

"A high accuracy current-balanced control technique for LED backlight"

This paper proposes a new circuit to regulate current in parallel LED (Light Emitting Diodes) strings. The new technique not only enhances the current matching in each string but also reduces device numbers and external resistance requirements. In this new circuit, the LED current has a low correlation to its forward voltage (Vf). The LEDs should have constant driving current as LCD backlight for two reasons. Firstly, keeping the maximum current and maintain the reliability. Secondly, obtaining expected luminous intensity for each LED. Furthermore, this circuit matches the current of eight LED strings and keeps high accuracy by using only two operational amplifiers. In other words, it reduces the power consumption and die size. There are two benefits for having just one resistance outside. Firstly, it can reduce pin numbers of the driving circuit. Secondly, it is easy for user to determine the maximum current of LED strings instead of predefined by the driving IC. The current accuracy of LED strings with a total forward voltage variation (DeltaV) around 1.1 V is less than 0.1%. [C1556]

"Reconfigurable and fault tolerant digital phase shifted modulator for luminance control of LED light sources"

This paper presents a digital phase shifted modulator (PSM) for luminance control of high brightness light emitting diode (HB-LED) based light sources. The design of the modulator is optimized to meet the growing demand for flexible, fault tolerant and hardware efficient dimming capability for LED lamps with a large number of series LED strings. Depending on the LED lamp specifications, the modulator can be configured to generate an arbitrary number of time synchronous as well as uniformly phase shifted output pulses. In case of LED string failure, two different online fault recovery techniques are introduced. After a fault event the modulator maintains

the total LED lamp luminance by scaling the duty cycle of the control outputs, {ci} or the forward current through the operating LED strings, Iref. The desired resolution (dimming ratio) is achieved by performing Sigma-Delta modulation of the input command and using a single high resolution DPWM module. Experimental results are presented for a system with 8 strings of series LEDs and an input command of 10-bit resolution. [C1557]

"High dimming ratio LED driver with fast transient boost converter"

In this paper, a high dimming ratio LED drive controller without color shift issue was proposed, fabricated and tested. It is composed of a boost power stage and some dimming control circuits. To fit high ratio dimming, it is necessary for the power stage to have fast enough transient response during the LED load switching. Therefore, a constant on time (COT) controlled boost converter was proposed. The boost switch on time is fixed by a current capacitor timer and the inductor current is just sampled during the off time modulation with COT control. This control scheme simplifies the current sensing since in this case the equivalent series resistor (ESR) of the output capacitor samples the inductor current directly. The chip is implemented with 1.5 mum BiCMOS process, and the final die area is 1.31 x 1.43 mm2. Simulation and experiment results have shown that the proposed LED drive system features the minimum LED dimming on interval as small as 1 mus and the corresponding dimming ratio is 1000:1 at 1K Hz dimming frequency. In addition, the PFM operation comes free at dimming off interval. [C1558]

"Integrated multifunctional fluorescence biosensor based on OLED technology"

This paper describes a fluorescence biosensor based on a microfluidic device where an organic LED is used as light emitting source. The device was able to detect fluorescence from a 0.012 mul volume chamber containing 3 ng of donkey anti-sheep IgG (Immunoglobulin G) conjugates tagged with Alexafluor 488 fluorophores. The minimum detectable concentration of the antibody was identified at an enzyme concentration of 200 mug/mL. This result shows that organic LED sources can be used as emitter/photodetector pairs to test biological samples. Based on our results, a multipurpose, integrated biological sensor that can identify and measure the concentration of fluorophore substances is dicussed.. [C1559]

"Recent progress of ohmic contact on ZnO"

ZnO as an excellent candidate for UV light emitters, varistors, transparent high-power electronics, surface acoustic wave devices, piezoelectric transducers, and chemical and gas sensors could be integrated in a SiP (system-in-package). The SiP could be a critical part in sensor nodes in a sensor network. Normally, the ZnO device in SiP is fabricated with nanoscale films which can be compatible with other materials and processing in a package. However, despite the great potential for electron and photonic applications, ZnO device fabrication is difficult to obtain good ohmic contact. The low resistance and thermal stable ohmic contacts is critical to realize high-performance ZnO-based devices. In this paper, the recent advances of ohmic contacts on ZnO are analyzed and reviewed. The mechanism of the energy band bending at the interface of the semiconductor and the metal is discussed. The factors of forming good quality ZnO films such as the choice of the substrate and the method to deposit ZnO film, the effect of the contact resistance and thermal stability of ohmic contacts are summarized. [C1560]

"Intelligent Systems and Applications The Predictions of Luminous Intensity and Wavelength of Light-Emitting Diode by Neural Network"

The aim of this research is to predict the luminous intensity and wavelength of light-emitting diode (LED) chip by using neural network technique. The data simulated was measured by electrical luminescence (EL) technique. The well trained neural model could be used to predict the optoelectronic attributes of LED chip in advance. The predicted results are expected to help the engineer can modify the parameters of epitaxy growth accurately to ensure the chip can be in conformance with the quality request. [C1561]

"Segmentation of 3D points from range camera data using scanlines"

This paper focuses on the segmentation of 3D points from range camera data. Range cameras can capture 3D information of a scene by sending out infrared light and then measuring the reflections. A segmentation algorithm for the detection of planar surfaces is presented which is robust against erroneous data from the range cameras. It uses a grid of horizontal and vertical scanlines as intermediate primitives for the final planar region segmentation. By using the scanlines, the task of planar segmentation can be separated into two tasks which are less complex: line segmentation and line combination. The usage of higher primitives improves the segmentation time compared to the direct operation on the 3D point data. The algorithm is described in detail and evaluated on a test scene. [C1562]

"Design and implementation of LED daylight lamp lighting system"

LEDs have becoming the most suitable candidate replacing traditional fluorescent lamps because of its energy-efficient, the introduction of high brightness LEDs with white light and monochromatic colors have led to a movement towards general illumination. This revolutionizes the optoelectronics market, enabling engineers to use LEDs for general lighting applications as well as medical, indoor lighting and automotive solutions. So variable LED array modules were developed, they are making great strides in terms of lumen performance and reliability, however the barrier to widespread use in general illumination still remains the cost or luminous efficiency, special requirements concerning optical properties and optomechanical layout have to be met. In order to meet the requirements of indoor illumination, a LED daylight lamp model was designed, it can replace traditional fluorescent lamp without insteading additional power supply establishment. The optical properties of the model were simulated using optical analysis software, its luminous efficiency is about 41 lm/W, the illuminance is about 50 lux when the distance is 1.5 m between the center of the model and measured spot, With the theoretically-optimized design of the LED model, experiments based on the results of the optimal simulation in the laboratory were conducted to verify the performance of the proposed LED model, it reaches a power factor of about 0.8 at 11 W. Results of the simulation are very similar with the measured values, it was testified that simulative method is one of the effective tools for LED lighting optical design. [C1563]

"Effects of phosphor's thickness and concentration on performance of white LEDs"

The state of phosphor will greatly influence the packaging performance such as luminous efficiency, quality of white light and color uniformity. The analysis presents that the small variations of thickness and concentration could significantly influence the light extraction efficiency and the correlated color temperature (CCT). With the increase of thickness and concentration, the light extraction efficiency is reduced, and the yellow blue ratio is increased, which means the color will tend to be warm white or yellow light. The reflector has slight influence on the performance, and the remote phosphor location is a better choice in packaging. When the thickness and concentration are determined, the manufacture tolerance for the variation are in the range of plusmn 0.02 mm for thickness and plusmn 5 mm-1for concentration. [C1564]

"A simplified thermal resistance network model for high power LED street lamp"

Light emitting diode (LED) street lamp heavily relies on successful thermal management, which strongly affects the optical extraction and the reliability/durability of the LED lamp. In this study, a thermal resistance network model was presented to estimate the maximum heat sink temperature of the street lamp, which could be utilized to further evaluate the thermal performance of the street lamp. Two high power LED street lamps, an 114 watts and an 80 watts LED street lamp were used to evaluate the present model. Their heat sink temperatures were calculated by the model, the results showed that the maximum heat sink temperature was about 61degC at the environment temperature of 25degC for the 114 watts LED street lamp. For the 80 watts LED street lamp, the maximum heat sink temperature was about 42.5degC at the environment temperature of 11degC. To prove the model feasibility, experimental investigations on the 114 watts and 80 watts LED street lamp were conducted. The results demonstrated that the heat sink temperature of the 114 watts LED street lamp remained to be stable at about 60degC after several hourspsila lighting at the room temperature of 25degC. The heat sink temperature of the 80 watts LED street lamp remained to be stable at about 42degC at the room temperature of 11degC. Comparing the results achieved by the thermal resistance model with the experimental results, it was found that the proposed thermal resistance model could be used for temperature estimation and thermal evaluation for the high power street lamp. [C1565]

"Effects of phosphor's location on LED packaging performance"

High power LED packaging is crucial for the development of solid state lighting. Different optical structures with various states of phosphor will greatly influence the packaging performance such as luminous efficiency, quality of white light and color uniformity. Through the analysis of five different optical structures, it is found that the location of phosphor layer has low impact on the light extraction efficiency, except structures in which phosphor is directly coated on the chip. However, the correlated color temperature (CCT) and luminous efficacy greatly depends on the structure and location of phosphor layer. The light extraction efficiency and CCT of curved phosphor layer is normally higher than those of plane shape. However, considering the variations of luminous efficacy, itpsilas suggested that the structure with plane and remote phosphor may be suitable for obtaining high performance LED modules. [C1566]

"Empirical research on the technology opportunities analysis based on morphology analysis and conjoint analysis"

This paper presents an empirical study on the technology opportunities potential analysis with a case example of LED by combining bibliometrics analysis, morphology analysis and conjoint analysis methods. At first, bibliometrics analysis and technology morphology matrix are used to establish all kind of technology configurations in possibility; then, the technology unoccupied configurations are identified by the documents keywords vectors; at last the priority of each technology configuration can be calculated by the conjoint analysis based on the citationof technology documents. The results reveal that this proposed method not only can solve the limitations of using single method, but also can prioritize the unoccupied territory of technology configurations, in order to identify and evaluate the technology opportunities more scientifically. [C1567]

"Smoothing human-robot speech interaction with blinking-light expressions"

We propose a method to enable smooth speech interactions between a user and a robot. Our method is based on subtle expression whereby a robot blinks a small LED attached to its chest. We performed experiments in which participants played a last-and-first games and counted the number of repetitions made by the participants and analyzed their impression of the game and the robot. The experimental results suggested that the blinking-light could prevent utterance collisions between a user and a robot and could create familiar and attentive impressions about the game on users. [C1568]

"Studying and implement of routing in wireless sensor network for the type of cluster tree"

ZigBee low power wireless networks, as the fittest plane for WSN in existing, are paid attention to increasing by people. In this paper, we present the topology of tree cluster network, by analyzing the algorithm for routing we propose a method that the first receiving are the best route to implement message routing. To demonstrate its effectiveness, we form a tree cluster network and validate process of message routing. Experimental results indicate that two device out of range could communicate each other successfully by using the method. [C1569]

"Electrical injection of a photonic crystal nanocavity"

The possibility of electrical pumping of a single QD and the integration of such a device in an opto-electronic circuit would be a fundamental step towards achieving an ldquoon demandrdquo single photon source. In this paper we describe the fabrication process and preliminary results of a Light Emitting Diode (LED) integrated with a photonic crystal (PhC) nanocavity on a GaAs membrane. We demonstrate effective electric pumping of the QDs embedded into the membrane by contacting the doped layers (p and n) of the thin membrane, and the excitation of cavity modes of the PhC nanocavity fabricated on it at telecom wavelength. [C1570]

"Production of nanocrystalline hydroxyapatite on collagen template during in vivo tooth and bone regeneration with use of collagen-Ca-phosphate preparations"

Hydroxyapatite (hydroxyfluorapatite)-collagen and composite materials are synthesized using directed diffusion of ions from solutions on collagen fibers. Computer tomography indicates that the salt component is rather uniformly distributed over the organic matrix. According to the electron microscopic data,the composite materials involve salt nanocrystals (less than 1m in size), which are uniformly distributed between collagen fibers. Biotransformation of material was studied after its implantation to different defects of bones of experimental animals. Nanocrystals of apatite plays a role of some catalytic agent accelerating the regeneration process in studied bone, tooth tissues and parenchymatous organs. [C1571]

"Design and Development of a Tactile Shape Display by Optical Switching"

We have developed a tactile shape display by optical switching. Conventional tactile shape displays have any problems. For example, complex control system, limit of display resolution, measurable amount of electrical power and so on. Our system resolves these problems by optical switching. This technology comes out to parallel processing, super highspeed processing and high density. In this paper, we show our test bed system and confirmation of the system performance. [C1572]

"Determining color and blinking to support facial expression of a robot for conveying emotional intensity"

In the field of HRI, to take advantage of peoplepsilas innate ability of communication, researchers have thus far concentrated on facial expression in facilitating human robot communication. However, for the robot to express emotional intensity, other modalities such as gestures, movement, sound, and color are also needed. This paper suggests that the intensity of emotion can be expressed with color and blinking, which are applicable on robots via LED. Although color and emotion have certain relations, it is difficult to implement the findings of previous research in this area due to a lack of quantitative data. In this paper, we determined RGB values of color and

blinking period to effectively express intensities of six basic emotions based on quantitative data. Color and blinking are implemented on an avatar and the intensities of emotions are evaluated through surveys with the avatar. It was found that color and blinking helped the avatar express emotional intensity of surprise, happiness, disgust, and anger. For fear, and sadness, the color and blinking did not play a significant role. [C1573]

"Experiment study on bonding tool of thermosonic transducer for flip-chip bonding"

The thermosonic bonding parameters on LEDs involve different bonding temperatures, different bonding force, different bonding time and different ultrasonic power. Improving the efficiency of ultrasonic transducers plays an important role in the bonding process. However, the place of the tool on the transducer has affected transducer work efficiency. Therefore, to analyse the transducer and tool provided reliable experimental basis by using the commercial package GID & ATILA software. Finding the resonance frequency of the transducer was measured with LCR HiTESTER. By using laser metrology measurement, the real displacement was measured. Finding the results of the optimization promoted the parameter combination of less force and lower bonding temperature. Using a simple thrust machine created the shearing force for bonding force investigation. Experiment results considering temperature, pressure, ultrasonic power and ultrasonic time are conducted using the Taguchi method for optimization. Experimental results illustrated the optimization are reached a promising aim for the flip-chip LED in thermosonic bonding manufacturing. [C1574]

"Antireflective sub-wavelength gratings fabricated by UV-NIL"

Sub-wavelength gratings (SWGs) have been widely used in many fields since the structure has the function of antireflection and increase the light transmittance. Many researchers are fabricating SWGs on the glass substrate hoping that it can be used in solar cells, display or light emit diodes (LEDs). Nanoimprint is an emerging lithographic technology that promises high resolution, high throughput, and low cost patterning of nanostructures. In this paper, an antireflective SWGs on a quartz substrate with transparent resist by UV nanoimprint lithography (NIL) is fabricated. The transmittance at the wavelengths from 1000 nm to 2000 nm were measured and compared with the same substrate without SWGs pattern. The results show that the SWGs pattern increases the transmittance by about 1.5%. [C1575]

"Luminous performance of YAG:Ce powder synthesized via self-propagating synthesis process"

White LED offers a useful technology for appropriate utilization of energy, relieving energy crisis and giving green lighting. In this paper, by using Y2O3, Al(NO3)3,Ce(NO3)3.6H2O, EDTA, etc. as raw materials, nano-YAG:Ce powder was obtained by self-propagating synthesis method. Samples were checked by X-ray diffractometer and flexstation II spectrophotometer. The self-propagating synthesis method lowed the calcining temperature and single-phase YAG:Ce powder was obtained at 900degC. The highest emission intensity and excitation intensity of as-calcined YAG:Ce powder reached 800 Mcd. Luminescence intensity of YAG:Ce powder decreased with the increasing of Ce content. Putting the gel in the drying oven can effectively restrain the agglomeration between the particles and thus improved the luminescence property, although the resulting particles became large. [C1576]

"ZnO nanorod heterojunctions and LEDs"

Zinc oxide (ZnO) nanorods are of great interest due to their potential use in optoelectronic devices. Hydrothermal synthesis and electrodeposition are two very promising techniques for ZnO growth as they are simple and inexpensive and also involve low fabrication temperature, favoring the use of large area and/or flexible substrates. In this work, we investigated the influence of the seed layer on the morphology and optical properties of ZnO nanorods, as well as the influence of post-fabrication treatments, such as annealing under different conditions. To further demonstrate the potential use of ZnO nanorods in optoelectronic devices, light emitting diodes (LEDs) were also studied in this paper. We have focused on heterojunction devices with ZnO as an n-type layer, since heterojunction ZnO LEDs typically exhibit better performance compared to homojunctions. We have investigated devices using GaN and NiO as a p-type material, and in addition hybrid organic/inorganic devices were also prepared. [C1577]

"Improvement of blue GaN-based light-emitting diodes with nanosphere layers"

GaN-based light-emitting diodes (LEDs) with nanosphere layers were fabricated by spin-coating method. It was found that the LEDs with and without nanosphere layers had the same electrical characteristics. With 20 mA current injection, the luminance intensities of the LEDs with nanosphere layers of 300 nm and 500 nm diameters exceeded that of the LED without nanosphere layers by 5.72% and 9.05%, respectively. The improvement of the luminance intensity is attributed to the periodic structure of nanosphere layers increasing the light extraction of photons. [C1578]

"Thin-film packaging of high-power LEDs by magnetron sputtering"

LED is called the fourth generation of lighting or green lighting. The total thermal resistance of high-power LEDs is mainly composed of the thermal resistance of the materials the interfaces. Inefficient heat release will directly influence on the performance and life of LEDs. Thus, the issue of heat release has become the biggest obstacle to the industrialization of high-power LEDs. To solve these problems, we proposed a new thin-film packaging for high-power LEDs. We produced samples by magnetron sputtering and measured its thermal resistance with the method of dynamic electrical method. Through the simulation and experiments we found that packaging thin-film packaging has the following advantages compared with the current PCB packaging: the heat-release performance is much better than PCB packaging, and it is more applicable with simple process and lower price. [C1579]

"Study of photoluminescence quenching and DC conductivity measurements in polymer-SWNT composite films for various SWNT concentrations"

Conducting polymer-SWNT composite films have a high potential in the area of Photovoltaic devices and Light emitting diodes. SWNTs have high electron affinity and high mobility for electrons. As a result of this, the separation of photoinduced charges in the solar cell is very fast and efficient. For LEDs, the polymer-SWNT composite films act as efficient electron transporting layer (ETL). In general the mobility for electrons in conducting polymers is much lower than that for holes due to efficient trapping of electrons by the impurities and traps in the polymers. Due to high mobility of electrons in SWNTs, using polymer-SWNT composite film as ETL is a good alternative. In the present work composite solutions of P3HT and SWNTs were prepared in 1,2-dichlorobenzene with nanotube to polymer mass ratios varied from 0 to 30%. To disperse the nanotube powder the solution was ultrasonically agitated for ~5 minutes. The solutions were left undisturbed for ~48 hrs to sediment out the present impurities. The upper half of the solution was decanted to obtain impurity free solution. The films from this solution were spin coated on a glass substrate with the help of spinner. The thickness of the film was measured with the help of Talystep and was ~100 plusmn 10 nm. The photoluminescence (PL) of the film was observed with the help of Shimadzu spectrophotometer. It was found that the PL intensity decreases by ~90% as the concentration of the SWNT is increased from 0 to 30%. This decrease is due to transfer of electrons from P3HT to SWNTs before the exciton in the polymer can decay radiatively to emit PL. For measuring do conductivity the composite films were spin coated on a glass substrate having Al coating. Six Al contacts having an area of 0.25 cm2were deposited on the upper surface of the film and conductivity was measured with the help of Keithley sourcemeter in sandwiched structures. It was found that conductivity increases by more than five orders of magnitude-- with the increase of SWNT concentration. The composite films can therefore act as good electron transporter for LEDs and efficient electron acceptor for solar cells. [C1580]

"Improved heat-dissipating silicone by Nano-materials for LED packaging"

Nano-diamond particles with the size of 5 nm were dispersed into silicone materials to form diamond/silicone nano-composite films. The films were characterized with scanning electron microscopy, UV-visible optical transmittance spectroscopy, and hot disk thermal constant analysis instrument. The results showed that the thermal conductivity of silicone was enhanced twice without much sacrifice of transmittance when silicone was doped with 0.02% nano-diamond particles. [C1581]

"Quasi-solid-state dye-sensitized solar cells prepared with a D 102 sensitizer and a polymer electrolyte"

Dye-sensitized solar cells (DSSCs) have been constructed by using quasi-solid polymer electrolytes containing polyethylene oxide (PEO). TiO2viscous pastes were prepared by grinding TiO2powder (P25) with terpineol, ethylcellulose and acetylacetone. Nanostructured mesoporous TiO2photoanodes were prepared by the screen-printing method on FTO substrates. TiO2porous electrodes were sensitized using a metal-free organic dye named D102. The quasi-solid-state electrolytes were grown by incorporating LiI-I2solutions into a polyethylene oxide (PEO) matrix supported by TiO2filler, and polyvinylidene fluoride (PVDF) was added to enhance the conductivity of the slurry. The morphologies of dried electrolytes were characterized by scanning electron microscope (SEM). The dependence of the conductivity of the system on the weight ratio of PEO to PVDF in the composite electrolyte was investigated. The polymer gel electrolytes were incorporated in dye sensitized solar cells and the measured energy conversion efficiencies were successfully correlated with their morphological and conducting properties. [C1582]

"On-Chip Fluorescence Detection Using Organic Thin Film Devices for a Disposable Lab-on-a-

Chip"

In this paper, we present a high-sensitivity approach for on-chip fluorescence-based measurements for disposable lab-on-a-chip (LOC) with an integrated organic light-emitting diode (OLED) excitation source and organic photodiode (OPD) detector. A simple and inexpensive cross- polarization scheme was used to filter out excitation light from the fluorescent dye emission spectrum. We incorporated a bi- layer OPD detector with responsivity 10 times higher than conventional single heterojunction OPD, resulting in a detection limit of 1 nM, which is a 1,000-fold improvement over previous publications. The dynamic experiment was conducted and the result shows promising application in realtime fluorescence analysis. The demonstrated on-chip fluorescence detection approach is ideally suited for integration with disposable LOC devices for point-of-care diagnostics and on-site environmental testing. [C1583]

"High-Sensitivity MEMS Based On-Chip Fluorescence Detection System: Measurement and Analysis of Ultimate Sensitivity Limits"

This paper discusses the concentration to detected photocurrent relationship of a high-sensitivity MEMS based on-chip fluorescence detection system consisting of a light source, sample chamber, and detector all integrated into a set of 3"xl" glass slides. A green organic light-emitting diode (OLED) has been used as the excitation source and organic photodiode (OPD) has been used as the fluorescence detector. A novel integrated cross-polarization scheme was used to filter out excitation light from the fluorescent dye emission spectrum. Two commonly used dyes in biotechnology applications, Rhodamine 6G and Fluorescein, have been detected down to ten's of nanomole which is several order of magnitude improvement in detection limits over existing literature using OPD. A theoretical model has been developed to study fluorescence signal variation with dye concentration for this particular system. A theoretical curve fitting has been performed based on the model. The theoretical fit matches closely with experimental data. Future modifications of the detection system have been suggested based upon results obtained from modeling. [C1584]

"Hong-Ou-Mandel interference with a LED"

We describe the first electrically-driven single-photon source which can demonstrate Hong-Ou-Mandel type interference. Experiments were performed under both pulsed and CW excitation, and we discuss the factors limiting visibility in both cases. [C1585]

"NanoBioMaterials-From BioLEDs to Tissue Engineering"

The next frontier in electronic and photonic devices is the use of biomaterials, either naturally occurring or artificially produced based on biological methods. Biomaterials with unusual properties not easily replicated in conventional organic or inorganic materials can provide another degree of freedom in terms of device design and produce enhancements in device performance. Furthermore, natural biomaterials are a replenishable resource and are inherently biodegradable. The emerging field of nanobiotechnology combines chemistry, biology and electronics to generate novel materials, devices and applications. [C1586]

"Detecting Emotions and Dangerous Actions for Better Human-System Team Working"

As situations change very often and extensively today, design is moving toward user-centric because designers cannot foresee the operating conditions and it is a user who knows the situations. Thus, what is called for in a system is to help a user understand the situation better and to help him or her to respond better. Thus, human characteristics must be considered more in a system design. But recent brain studies reveal that in an unexpected situation, humanpsilas brain capability decreases considerably, down to the level of about 30% of the normal state because a human becomes emotionally unstable. Therefore, it will be very important in our future system design to keep a user emotionally stable. We carried out a series of experiments and developed several methods to detect emotions from face, from voice and from body motion and to detect dangerous actions from body motion. Our immediate goal is to apply these techniques to realize safer driving. [C1587]

"Generic Model of SH-LED for Mid-infrared (2-5μm) Applications"

In this paper, we present a physics based model of a P+-InAs0.36Sb0.20P0.44/ n0-InAs/n -InAs single heterostructure light emitting diode (SH-LED) suitable for use as source in gas detection and futuristic optical fiber communication systems in the mid-infrared spectral region at 300 K. The model takes into account all dominating radiative and non-radiative recombination processes, interfacial recombination and self-absorption in the active layer of the SH-LED structure. The effect of various recombination mechanisms on the quantum efficiency, modulation bandwidth and output power of the LED has been evaluated. The proposed SH- LED has been studied for its utility in mid-infrared optical fiber communication by considering the modulation bandwidth

and its variation with active layer width of the SH-LED structure. The I-V characteristic of the SH-LED has been evaluated and cut-in voltage found to be 0.26 V. The output power of the SH-LED has been computed as a function of bias current and it is found to be in good agreement with the reported experimental results. [C1588]

"An integrated wrist-worn routine monitoring system for the elderly using BSN"

Wearable medical devices provide great convenience to the elderly for the monitoring of vital signs at home. This paper describes a novel wrist-worn vital signs routine monitoring system which can measure physiological signs including ECG, SpO2(Saturation of Arterial Oxygen) and systolic blood pressure in real-time and with almost no impact on quality of life. The proposed device is easy to wear and convenient to use. A miniaturized PCB integrates the ECG analog front-end and SpO2LED drive circuit and can be attached on a BSN node. By simply press the top ECG electrode on the device using any finger from the other hand, the measured physiological signals will be wirelessly transmitted to a PDA, where the heart beat rate, SpO2and systolic blood pressure is calculated and displayed on a hand-held device, such as PDA. [C1589]

"Home-Telecare of the elderly living alone using an new designed ear-wearable sensor"

This paper presents a new ear-wearable vital sign sensor designed for homecare of the elderly or other vulnerable people living alone. The device was comprised of a sensing body equipped with a pair of infrared LED and phototransistor and a dual-axis accelerometer, and an MP3 device-like control box with batteries. The sensing body was worn on the subjectpsilas ear and could detect the photoplethysmography (PPG) signals from the back of the subjectpsilas auricle. The PPG signals were sent to a computer wirelessly for heart rate calculation and abnormality detection. The program could automatically alarm and transmit the saved data to a center through modem when the heart rate was out of the normal range which decided by a time-wise baseline algorithm. The acceleration signals were used to eliminate the motion artifacts in the calculation of the heart rate. The comparison of the results obtained by this ear-wearable sensor and a commercially available fingertip sensor showed that the accuracy and reliability of it were acceptable. It was also found in the field test that the ear-wearable sensor could be worn comfortably and inconspicuously by the subject and the system could work continuously for approximately 120 hours without replacement of the batteries. [C1590]

"Efficient full-spectrum white polymer light-emitting diodes by plasma polymerization"

Efficient full-spectrum white polymer light- emitting diodes (WPLEDs) were fabricated using single- layer luminescent polymer produced by one-step plasma polymerization from naphthalene (PEN) (and carbazole (PENCB)) derivatives. WPLEDs based on the plasma polymers had demonstrated efficient pure white light electroluminescence that covers the full visible spectral range with excellent color stability. A new monomer injection method enables excellent structural retention and excellent device reproducibility. Monomers of good luminescent quality and charge transport behavior can be selected to synthesize the light-emitting polymer without considering their individual chemical behaviors. It provides an opportunity of one-step reaction with molecularly smooth, pinhole free and high quality films. Full- spectrum electroluminescence (EL) emission was originated f rom molecular excitons, intermolecular excimers and electromers. It was produced pure stable white light emission at CIE coordinates of (0.33,0.34). Excellent luminance efficiency of 9.8 cd/A and a power efficiency of 2.1 lm/W were obtained. The efficiency reported here was based on films and devices not yet optimized. This new method merits further study as it manifests great potentials for simplifying the WPLEDs proce ss to enable a new type of high efficient, low-cost, and large- area-compatible processes. [C1591]

"LED Permanent Emergency Lighting System based on a single magnetic component"

The use of high efficiency leds in low power lighting applications is growing continuously due to new advances in led features. The lifetime of low power fluorescent lamp is around 5.000 hours. This implies short lamp-replacement times and high maintenance costs. The use of high efficiency leds reduces drastically the maintenance costs due to the long lifetime (above 100.000 hours). One of the applications where using led is very interesting are Permanent Emergency Light Systems (PELS). Generally, these circuits are based on two-stage design, using two magnetic cores. This paper presents off-line power led driver and battery charger integrated in a one magnetic core topology. Besides, the converter allows driving the leds in case of a line failure and it complies with the IEC 61000-3-2 Class C Standard. [C1592]

"Discrete multitone for novel application areas of optical communications"

Discrete multitone (DMT) is a spectral-efficient multicarrier modulation technique, derived from the more general orthogonal frequency division multiplexing. In this paper, the use of DMT in novel optical communication applications such as wireless visible light communication and plastic optical fiber links is presented and discussed. [C1593]

"Design and realisation of apparatus to study capillary discharge in gas"

Summary form only given. We have generated Xe plasma in dense plasma focus device of coaxial electrode for extreme ultraviolet lithography (EUVL) and investigated an emitted visible light for electro-optical plasma diagnostics. We have applied an input voltage 4.5 kV to the capacitor bank and the diode chamber have been filled with Xe gas of pressure 40 mTorr. The inner surface of cylindrical cathode have been attatched by an acrylic insulator. The electron temperature and density of the coaxial plasma focus were obtained by the optical emission spectroscopy (OES). The electron temperature has been measured by the two relative line intensity and Boltzmann plot. In case of electron density, it has been observed by the Stark broadening method. This experiment shows that the electron temperature and density characteristics for a focused plasma can be influenced by the acrylic insulator length installed onto the cathode surface and materials of anode. The EUV emission signal whose wavelength is about 6-16 nm has been detected by using a photo-detector (AXUV-100 Zr/C, IRD). [C1594]

"Session WE1: LED technologies I"

{no data available} [C1595]

"A proposal of Led Lamp Driver for universal input using Cuk converter"

In recent years, light emitting diodes (LEDs) have become a viable alternative to conventional light sources. The LEDs are now approaching performance levels that make them attractive for use in several illumination applications. One of the main advantages of LEDs is their very long life that it is also related directly with the maintenance of the LED current, preventing the device overheating. To contribute with the advantages of the LEDs, the same ones need efficient drivers with optimized control circuitry. The main focus of this paper is to improve the LED driver characteristics using microcontrolled Cuk converter, therefore, greater durability and efficiency can be achieved and working for different nominal values of voltage, from an universal input voltage or battery. Mathematical analysis and experimental results are presented to the drive of an LED lamp of 11 W built with 10 power LEDs Creereg XLampreg XR-C. [C1596]

"An estimator of luminous flux for enhanced control of high brightness LEDs"

Usually, PWM operation is selected to drive High Brightness LEDs, because the dimming behavior is more linear than in DC operation. Nevertheless, to obtain an enhanced operation of the device (full output light control), the luminous flux should be measured. This paper proposes a control method based on an estimator of the luminous flux emitted by the LED. Firstly, the LEDs are characterized. Based on these characterization, an estimator of the flux emitted by the LED is defined. The estimator provides this flux value from only two temperature values (the case temperature and the ambient temperature). The estimator is defined and validated in steady state as well as in the transient stage. The flux estimator is then validated with actual measurements. Once the estimator is defined and validated, the electronic driver to supply the LEDs as well as the digital control scheme are presented. Finally, a built prototype is presented, and the experimental results are shown. Conclusions of this work show that with the presented estimator, both the steady state and the transient luminous flux can be accurately estimated. Thus, the output light control of the LEDs can be accomplished by sensing temperature rather than luminous flux. The final output characteristic of the system shows linearity between the output flux and the reference value, with a DC operation of the LEDs. [C1597]

"A simple digital current controller for solid-state lighting"

During the last two decades, the performance of solid-state lighting devices, such as light emitting diodes (LEDs) and organic LEDs (OLEDs) has improved rapidly. Hence, LEDs and OLEDs become very attractive for many applications. (O)LEDs are preferably current driven, because the relationship between current and luminance is linear. Typically, the implemented control algorithms are analog. This paper proposes the use of a very simple though extremely stable digital control algorithm, which enables the replacement of expensive "driver control" ICs by simple and cheap comparator ICs. Hence, the costs of the system can be reduced. Additionally, the system shows very high efficiency as well as a very high dynamic performance. The digital control method is characterized by the following features:-The control strategy is extremely easy to implement.-The control strategy eliminates the need for (expensive) converter control ICs.-System costs are reduced.-The control strategy is extremely robust, i.e. the control is stable.-The control offers a high dynamic response.-The switching frequency is not constant, but its maximum value is limited.-In most points of operation, subharmonic currents are generated by the controller, which may result in flicker effects. Nevertheless, if designed correctly, the sub harmonics can be avoided.-The control method is extremely suitable for buck converters, but can also be applied to other topologies. [C1598]

"Failure analysis matrix of light emitting diodes for general lighting applications"

Failure mechanisms of light emitting diodes (LEDs) have been investigated. Various failure patterns of LEDs for general lighting applications were simulated under high electrical and thermal stress test conditions. Using scanning electron microscopy related with I-V characterization before and after the stress simulation, a representative failure pattern of LEDs matrixed in terms of the electrical parameter shifts and physical conditions observed after decapsulation. By applying photo-emission microscopy it was found that local damage of LED surface was caused by excessive high temperature in the area of the pn junction of LEDs. [C1599]

"Design and characterization of LED-based scialitic source for operating rooms: Impact of uncertainty on surgery field"

The recognition of contours, colors and movements, with absolute precision and less uncertainty, is essential for surgeon. In order to guarantee the maximum visual force it is important the illuminating parameters could be perfectly adapted to current operating room conditions. While surgery fields of reduced dimensions require as much light, surgical interventions that take place in the deep cavities of human body and are characterized by surgery fields of higher dimensions, require extended light beams and high illumination. The current types of traditional advanced and smart scialitic lamp produce high level of uncertainty because of their illuminating quality and shadows. Consequently, surgeon is obliged not to be absent-minded during operation because of uncertainty. This paper describes a novel LED-based scialitic lamp for operating rooms designed and build in order to be capable of reducing uncertainty that has been evaluated by taking into account different parameters. Since LED technology is recent and, its application in surgery is a matter of continuous researches, it is not easy to determine the impact of uncertainty on surgery field, that, is the available space through which surgeon can operate. [C1600]

"Development of educational laboratory complex for microprocessor technology"

The universal educational laboratory complex is described. The complex is the device with three objects of studying: the x86 architecture microprocessor, the MCS51 family microcontroller, the CPLD class programmable logic device. Developed hardware allows studying objects and their interaction with periphery. The complex includes USB-programmer for Silicon Laboratories microcontrollers and loading cable Byte Blaster Multi Volt for Altera programmable logic device. [C1601]

"An LED-only BRDF measurement device"

Light emitting diodes (LEDs) can be used as light detectors and as light emitters. In this paper, we present a novel BRDF measurement device consisting exclusively of LEDs. Our design can acquire BRDFs over a full hemisphere, or even a full sphere (for the bidirectional transmittance distribution function BTDF), and can also measure a (partial) multi-spectral BRDF. Because we use no cameras, projectors, or even mirrors, our design does not suffer from occlusion problems. It is fast, significantly simpler, and more compact than existing BRDF measurement designs. [C1602]

"A design of basic gate circuit ICs detection system"

This paper presents a design method about the basic gate circuit ICs detection system based on microcontroller. We analyze the function of the detection system and give its design and implementation methods. We transmit high and low level to the inputs of 74LS series gate circuit IC, and acquire the signal of the outputs of the IC. Then we can know logical function of the IC is right or not by comparing the output of the gates with the theoretical value of the gates. In addition, we can know whether each gate's logical function is right. College students can improve the efficiency of experiments with the help of the detection system. [C1603]

"Near-field Scanning Optical Microscopy-Breaking the diffraction limit using nano light emitting probe tip"

We describe optical and topographic imaging using a light emitting diode (LED) monolithically integrated on a silicon probe tip for Near-field Scanning Optical Microscopy (NSOM). The light emission resulted from a silicon dioxide layer buried between a phosphorus-doped N+ silicon layer and a gallium-doped P+ silicon region created locally at the tip by a focused ion beam (FIB). The tip was employed in a standard NSOM excitation setup. The probe successfully measured optical as well as topographic images of a chromium test pattern with imaging resolutions of 400 nm and 50 nm, respectively. The directional resolution dependence of the acquired images directly corresponds to the shape, size and polarity of the light source on the probe tip. To our knowledge, this report is the first successful near-field imaging result directly measured by such tip-embedded

light sources. [C1604]

"Research and realization of LED display system based on combining CAN bus with DMX512 standard"

With the development of computer and LED technology, the market scale of landscape lighting is expanding rapidly. LED display system based on conventional DMX512 standard has such problems as poor reliability, slow speed, short distance communication, which can not completely meet the increasing demands of the current market. We put forward an integrated communication method that LED system combines CAN bus with DMX512 standard. This proposed method merges above two communication modes, makes full use of each advantage and improves systempsilas reliability, communication speed and distance. The improved method is applied to landscape lighting in Shanghai Global Financial Center (the highest building in the world), which can realize a new LED system with long distance, high speed, fully dependable communication and create special lamps according to the building design. The new system has already been used in this highest building and achieved enormous potential ability of the market. [C1605]

"Research and realization of innovative LED illumination system for DLP projector"

With the development of DLP projection technology, DLP is gradually occupying LCD projector market. To the limitations and faults of mechanical color wheel in conventional DLP projection system, we study illumination structure based on high-power LED system. An innovative method is proposed. Through establishing test platforms, parameters of illumination system and constant current modules for high-power LED are obtained. The results indicate that this method simplifies the structure of digital constant current source, reduces costs of system and improves accuracy. In the application of DLP stereo prototype projector, the proposed method meets the demands of high efficiency, rich color, long lifetime etc. Thus, more colorful and vivid image is showed, three-dimensional video performed by our innovative projector will become more fluent in the near future. [C1606]

"Design of a low voltage band-gap reference circuit for OLED-On-Silicon"

This paper presents a design of low voltage band-gap reference circuit for OLED-on-silicon. In order to make the op-amp working in the high-gain area, the boost technique is used in the amplifier to increase the gate drive ability. The reference source uses first-order temperature compensation design to eliminate the temperature influence to voltage source. Simultaneously, the power dissipation is greatly decrease because the amplifier designed is working in the weak inversion layer. The simulation is conducted in chartered 0.35 um 2-poly 4-metal 3.3 V/18 V high voltage process, and the results show that the proposed design meets the scheduled requirement and realizes the application of source voltage under 1.8 V. [C1607]

"Simulation of active regions for GaSb-based VCSELs"

The calculation of band structures and the carrier densities leads to new rules for the optimization of the active region in GaSb-based VCSELs emitting at 2.3 mum. The simulation was performed with Nextnano++. [C1608]

"Role of vapor-phase diffusion in selective-area MOVPE of InGaN MQWs"

Selective-area growth (SAG) of InGaN/GaN multiple quantum wells (MQWs) for multiple-wavelength LED is fabricated and characterized. As a result, the emission peak shifts to longer wavelengths and the wider mask leads to longer wavelength. [C1609]

"LED street lighting technologies with high human-eye comfortability"

For fabrication human-eye comfortable LED street lighting sources, specific optical beam shaping systems with rectangular illumination distribution were designed based on non-imaging optics. Furthermore, thermal dissipation and high efficiency and reliability driving solutions were presented. [C1610]

"GaN-based nanocolumn emitters and related technology"

Self-assembled InGaN nanocolumn LEDs emitting from ultraviolet to red were fabricated on n-type (111) Si substrates by rf-MBE. To achieve homogenization of nanocolumns, Ti-mask selective area growth was developed to fabricate uniform arrays of GaN nanocolumns. [C1611]

"Small-signal modulation bandwidth of Purcell-enhanced nanocavity light emitters"

We present a new analysis of the modulation bandwidth of nanocavity light emitters. The modulation bandwidth

is enhanced by the Purcell effect, but only if the device is operated below threshold. The maximum Purcell-enhanced 3-dB bandwidth scales inversely with the modal volume. [C1612]

"Growth and properties of InAlN nanocolumns emitting in optical communication wavelengths"

InxAl1-xN nanocolumns (0.71lesxInles1.00) were fabricated on Si (111) substrates by RF-MBE. The room temperature photoluminescence (RT-PL) in optical communication wavelengths from 0.95 to 1.94 mum with changing xInwas observed. InN/InAlN heterostructures were also fabricated. [C1613]

"Photonic crystal light-emitting diode fabricated with photoelectrochemical wet etching and phase mask interference"

We demonstrate the high light-extraction efficiency by using the photoelectrochemical etching technique for forming photonic crystal structures on an InGaN/GaN quantum-well light-emitting diode through phase-mask interference. More than 90% increase of output power is observed. [C1614]

"Influence of Si-doping in the barriers on optical and electrical properties of InGaN/GaN MQW LEDs"

InGaN/GaN MQW LEDs grown by MOCVD with undoped and Si-doped barriers were investigated. It is found that the electrical characteristics are influenced intensively by the diffusion and compensation of Si and Mg dopants. [C1615]

"Field induced disruption of a planar water-oil interface influenced by a close metallic sphere"

The problem of instability of a horizontal interface between water and an insulating fluid, electrically influenced by a metallic sphere located just above it, is considered here with its relevance to the basic electrocoalescence phenomenon of close water droplets suspended in an insulating medium. Results are presented of preliminary experiments performed using visualisation and shadowscopy techniques. The evolution of the interface shape is characterised for various applied step voltages and for different values of the initial spacing s0between sphere and interface. An order of magnitude analysis leads to good estimates of the characteristic parameters and time scales. [C1616]

"The Rutgers Arm II rehabilitation system"

The Rutgers Arm II trains primarily shoulder motor control, arm dynamic response, endurance and cognitive anticipatory strategies in virtual environments. It improves on our earlier Rutgers Arm by replacing magnetic tracking with a visual tracking and by the use of a training table that tilts. Pilot trials with a single subject showed clear dependency on table tilt angle. Further trials are ongoing. [C1617]

"Embedded systems course for potential automotive engineers"

This paper describes a practical training course for engineering students on embedded systems that are based on electronic control units (ECU) that use the Freescale HCS12 microcontroller. An evaluation board was designed as a single platform for academic purposes and it was implemented with a Freescale HCS12 microcontroller, sensors, a motor, an LED module, and communication modules. Among many microcontrollers, the Freescale HCS12 was chosen because it is widely implemented as an ECU in the automotive industry. The automotive industry was the exclusive domain of mechanical engineers in the past, but after ECUs began to be incorporated in automobiles, more electronic engineers have been required. The 68CH11/12 microcontroller has been very popular in the academic environment and the Freescale HCS12 microcontroller is derived from it. In order to provide engineering students with practical experience with embedded systems that are widely used in industry, an embedded system course has been organized. [C1618]

"Visible light road-to-vehicle communication using high-speed camera"

We have been proposing visible light road-to-vehicle communication at intersection, using LED traffic light as the transmitter and on-vehicle high-speed camera as the receiver. Visible light communication is a wireless communication method using luminance, transmitting data by emitting light. Thus when we use image sensor as the receiver, detection of the transmitter is required to enable the communication. In this paper, we propose transmitter detection algorithm supposed that the sequence is captured at 1000 fps. We also made experiments to verify our algorithm, using the sequence captured by a high-speed camera fixed on a vehicle which is running at 30 km/h. [C1619]

"Surface plasmon coupling for light emission/absorption/conversion enhancement"

Surface plasmon polariton and localized surface plasmon couplings with InGaN/GaN quantum wells in bluegreen light-emitting diodes are used for enhancing their emission efficiencies by 25-200 % depending on the used quantum well crystal quality. [C1620]

"Selective MOVPE grown semiconductor optical waveguide array and its application for optical devices"

Fabrication and application for wavelength demultiplexer, wavelength selective switch and light emitting diode of a novel GaInAs/InP MQW and InAs/InP QDs waveguide array with gradually varying bandgap wavelength by using selective MOVPE growth are presented. [C1621]

"Flexible docking mechanism using combination of magnetic force with error-compensation capability"

An auto-recharging system for a mobile robot can help the robot to perform its tasks constantly and without human intervention. For implementing the system, a docking mechanism is required. This paper presents a new docking mechanism with a localization error-compensation capability. The proposed mechanism uses the combination of mechanical structure and magnetic forces between the docking connectors. It is a structure to improve the allowance ranges of lateral and directional docking errors, in which the robot is able to dock into the docking station. Consequently, this mechanism reduces dependency of a robot control and allows easy docking with only mechanical configuration. In this paper, the superiority of the proposed mechanism is verified with experimental results. [C1622]

"A hardware based approach in designing infrared traffic light system"

Nowadays, a traffic light is currently used to control the traffic at the road. The trend is clear that the technology of the traffic light is growing rapidly. However, there is still problem for the emergency vehicles to bypass when the traffic light is red. This is because the emergency vehicle is unable to reach the destination in short as well as there is an emergency case. So, the purpose of this project is to solve this problem. This paper presents the design of traffic light system that response for emergency vehicles to immediately bypass the traffic light. Hence, the emergency vehicle can reach the destination at the right time to save lives. [C1623]

"Silicon LEDs with antifuse injection"

A novel carrier-confinement structure is proposed and realized to generate light in a silicon diode. A significant enhancement of the external power efficiency is observed compared to reference silicon diodes on SOI. [C1624]

"Electroluminescence of silicon-rich silicon nitride light-emitting devices"

Non-stoichiometric silicon nitride films with different excess Si concentrations were deposited by plasma-enhanced chemical vapor deposition (PECVD) under different NH3/SiH4gas flow ratios. Room-temperature electroluminescence (EL) was observed from the films. And the peak of EL spectra remains at 600 nm, irrespective of the increase of the Si concentrations. It was found that at high electric fields the electrons were injected into the SRSN film via Fowler-Nordheim tunneling and trap assisted tunneling, while at low electric fields the electrons were injected via Poole-Frenkel conduction. The observed EL can be attributed to the relaxation of injected carriers down the lower defect states before recombination due to their longer recombination lifetime. [C1625]

"Light emitting transistors using silicon quantum dots in an organic matrix"

Junction field effect light emitting transistors (JFELET) were fabricated using silicon quantum dots in a conducting polymer matrix. The quantum dots with photoluminescence emission centered at 650 nm were used. I-V and light emission characteristics for typical light emitting transistors are presented. [C1626]

"Electroluminescence from nanocrystalline-Si/SiO2 multilayers with an electron injection barrier"

The effect of an injection barrier placed on top of a nanocrystalline-Si/SiO2multilayered LED is discussed. Direct and alternating current injection schemes and time resolved electroluminescence are reported. [C1627]

"FPGA-Powered Embedded Vector Graphics"

Another kind of graphic adapter architecture is presented in that paper. The essential features are the absence of obvious video memory and alternative structure of the logic design, which is generally combinatorial. The graphic adapter is designed for programmable FPGA devices and their specific logic resources. A video time-base, which is one of the main logic components, generates the periodic sequence of X-Y screen coordinates. These coordinates then pass to several combinatorial logics, which produce the brightness/color information of the light beam. Thus the combinatorial logic is used for modulation of the video signal. [C1628]

"Electronic and transport properties of GaN/AlGaN quantum dot-based p-i-n diodes"

Quantum dot (QD) systems based on III-nitride have recently shown to be very promising nanostructures for high-quality light emitters. In this work, electronic and transport properties of AlN/GaN QDs are investigated by means of the TIBERCAD software tool, which allows both a macroscopic and an atomistic approach, with the final aim to couple them in a multiscale simulation environment. [C1629]

"Fabrication and characterization of hybrid DBPPV-CdSe/ZnS quantum dot light-emitting diodes"

We have demonstrated the fabrication and characterization of single-layered hybrid polymer-quantum dot light-emitting diodes (PQD-LEDs) with the emissive composite film of 2,3-dibutoxy-l,4-poly(phenylene vinylene) (DBPPV) and CdSe/ZnS core/shell quantum dots (QDs). The electrical and optical characteristics are significantly influenced by the thickness of the emissive layer. When the thickness of composite film is thinned to about 103 nm, the maximum luminance of 4100 cd/m2as well as maximum luminous efficiency of 1.35 cd/A can be achieved at 9.6 V and 7.6 V, respectively. However, the electroluminescence spectra reveal that the emission contribution is dominated by the emission from DBPPV. A maximum ratio of emission intensity of QDs to that of DBPPV is about 38 %, which indicates the contribution of QDs is minor. In addition, the post- annealing effect on device performance was also investigated. In contrast to previous reports, no obvious improvement can be observed by post-annealing. [C1630]

"PiggyBrothers: Emotional Communication Devices for Saving Habits of Children"

In this paper, we present PiggyBrothers for encouraging good saving habits among children. The PiggyBrothers are savings boxes that can show their feelings to children. These are interaction interfaces that can enhance common activities and use them as an educational interface between children. Finally, children can learn to save money through displaying of emotions as well as saving competition through the PiggyBrothers. Emotions of the PiggyBrothers and competition aim at promoting saving habits among children. We hope that the PiggyBrothers can assist parents in their kids to save money regularly. Good saving habits help children grow into financially responsible adults. [C1631]

"Small-signal modulation bandwidth of Purcell-enhanced nanocavity light emitters"

We present a new analysis of the modulation bandwidth of nanocavity light emitters. The modulation bandwidth is enhanced by the Purcell effect, but only if the device is operated below threshold. The maximum Purcell-enhanced 3-dB bandwidth scales inversely with the modal volume. [C1632]

"Proposal of BeZnSeTe/MgZnCdSe II-VI compound semiconductors on InP substrates for green laser diodes"

In this study, we have investigated the possibility of MgZnCdSe, BeZnTe, and BeZnSeTe II-VI materials for green LDs and LEDs. At first, we fabricated light emitting devices using these materials on InP substrates by MBE. The device was composed of a 10 nm-thick BeZnSeTe QW active layer sandwiched by MgSe/BeZnSeTe superlattice (SL) barrier layers, Cl-doped MgSe/ZnCdSe SL n-cladding, and N-doped MgSe/BeZnTe SL p-cladding layers. Pure green emissions around 537 nm were obtained by current injections. Aging tests of the devices under DC bias conditions at room temperature showed a long lifetime (more than 4800 h) operation without any rapid or catastrophic degradation. This is a great advancement in the device lifetime compared with precedent blue-green II-VI devices, in which the lifetimes were less than several hundred hours. This shows high reliability of the BeZnSeTe devices. [C1633]

"Wide-area external multi-camera calibration using vision graphs and virtual calibration object"

In this paper we address external calibration of distributed multi-camera system intended for tracking and observing. We present a robust and efficient method for wide area calibration using virtual calibration object created by two LED markers. Our algorithm does not require for all the cameras to share common volume; only pairwise overlap is required. We assume the cameras are internally calibrated prior to deployment. Calibration is performed by waiving the calibration bar over the camera coverage area. The initial pose of the cameras is

calculated using essential matrix decompositions. Global calibration is solved by automatically constructing weighted vision graph and finding optimal transformation paths between the cameras. In the optimization process, we introduce novel parametrization for two-point calibration using direction normal. The results are increased accuracy and robustness of the method under the presence of noise. In the paper, we present experimental results on a synthetic and real camera setup. We have performed image noise analysis on a synthetic wide-area setup of 5 cameras. Finally, we present the results obtained on a real setup with 12 cameras. The results obtained on the real camera setup show that our approach compensates for error propagation when the path transformation includes two to three nodes. No significant difference in reprojection error was found between the cameras on non-direct and direct path of the vision graph. The mean reprojection error for the real cameras was below 0.4 pixels. [C1634]

"GaSb-based electrically pumped VCSEL with buried tunnel junction operating continuous wave up to 50°C"

2.33 mum electrically pumped GaSb-based VCSELs with low threshold currents, continuous-wave and single-mode operation up to 50degC are presented. The devices are (electro-) thermally tunable over 10 nm. [C1635]

"Visible to infrared light emission from reverse defect engineered silicon junctions"

Experimental results of light emission by defect engineered silicon pn-junctions, operated at room temperature under reverse bias, are presented. The devices emit light from the visible up to the infrared. As will be shown the emission is enhanced by the usage of a defect engineered layer structure. For the present research an improvement up to 280% in efficiency is observed. Defect engineered layers also provide a highly focused light emission-emission spots of app. 1 mum in diameter are observable. The data of two different defect engineered samples will be compared with a defect free reference to show the advantages of defect engineered layers. [C1636]

"Strauctural properties of Si nanocrystals: implications for light emitting devices fabrication"

In this work we investigate and compare the structural and optical properties of silicon-rich silicon oxide layers obtained by different deposition techniques, namely plasma enhanced chemical vapor deposition (PECVD) and RF magnetron sputtering. We demonstrate that, in contrast to what generally believed, properties of films grown by different methods are indeed very different as a result of the agglomeration properties. These data have also great implications on the performances of light emitting MOS devices whose active layer has been prepared by the two different techniques. [C1637]

"Automated inspection of solder paste by directional LED lighting"

Screen printing of solder paste is often the very first step in an SMT line in the manufacturing of PCBs. Conventional inspection method would depend on an image acquired from a camera mounted from the top. This 2D inspection of solder paste based on images is fast but is limited to defect such as bridge or no solder. Defects related to the volume of the printed solder paste or unevenness of the paste cannot be treated from a top image. The proposed method of this paper would involve the use of special directional side lighting. A sequence of four images is acquired and image processing is carried out for the edge information of the printed solder paste. A fuzzy system is developed to give a score on the quality of the solder paste. The proposed method can handle other types of defects that cannot be treated by conventional top light images. [C1638]

"Optical tracking using commodity hardware"

We describe a method for using Nintendo Wii controllers as a stereo vision system to perform 3D tracking or motion capture in real time. Commodity consumer hardware allows a wireless, portable tracker to be created that obtains accurate results for a fraction of the cost of conventional setups. Consequently, tracking becomes viable in situations where cost or space were previously prohibitive. Initial results show an accuracy of plusmn2 mm over a large tracking volume. [C1639]

"Fast and high-precision 3D tracking and position measurement with MEMS micromirrors"

We demonstrate real-time fast-motion tracking of an object in a 3D volume, while obtaining its precise XYZ co-ordinates. Two separate scanning MEMS micromirror sub-systems track the object in a 20 kHz closed-loop. A demonstration system capable of tracking full-speed human hand motion provides position information at up to 5 m distance with 16-bit precision, or < = 20 mum precision on the X and Y axes (up/down, left/right,) and precision on the depth (Z-axis) from 10 mum to 1.5 mm, depending on distance. [C1640]

"White-light electroluminescence from ZnO nanowires/polyfluorene heterojunction diodes"

The characteristics of a nanocomposite consisting of the blue-emitting polymer polyfluorene and ZnO nanowires are reported. The electroluminescence spectrum of the white light emission is from about 400 nm to 750 nm. [C1641]

"Solving radiative transfer equation (RTE) in time-dependent mode"

This paper covers the analytical approach in solving time-dependent radiative transfer equation (RTE) for one-dimensional (1D) slab geometry. As light passing through a turbid medium, photons exhibit two main processes that are: absorption and scattering. It is not easy to characterize the propagation of light beam in a medium due to various optical properties for different types of medium. Thus by getting the solution from the equation of radiative transfer, we are able to study the characteristic of light distribution while penetrating through the concerned medium. Several assumptions and approximation have been implicitly used to solve the radiative transfer problems in order to avoid ambiguity. In this paper, we use isotropic diffusion approximation in the radiative transfer equation (RTE) and determine the light intensity as a function of time and space. [C1642]

"Micropatterned complex optical surface for wide angle illumination"

A direct-type LED based back-light-unit (BLU) in LCD displays requires wide angle illumination with high uniformity. As a single lens surface, a micropatterned complex optical surface can provide wide angle LED illumination angle over 150deg by designing the micropattern arrays on the hemispherical surface. [C1643]

"Optical mouse sensor for detecting height variation and translation of a surface"

A new sensing system based on an optical mouse sensor is developed. The optical mouse sensor is traditionally used as a 2D motion sensor, and in this study it is creatively used for detecting the height variation and translation of the object surfaces at the same time. Based on the experimental characteristics of the sensing system, it can be seen that the sensing system is useful in many fields such as robot odometry. The sensing system is based on a low-cost photoelectric sensor, which is a commercial LED-based optical mouse sensor, and thus it is easily available and generalized. Specially, the outputs of the sensor are intuitively displayed on the computer screen and recorded on the hard disk, which greatly improves the convenience of the system. A periodically-square-shaped rubber surface and a periodically-arc-shaped rubber surface are studied in the experiments. Experiments show that the shape information of the object surfaces and the translation direction of the object surfaces can be obtained at the same time. Besides, in the experiments, it is found that the sensitivity of the optical mouse sensor in different translation direction is different. [C1644]

"Spectrum flattening of white OLED with photonic crystal patterned capping layer"

A photonic crystal patterned capping layer is proposed to enhance the extraction and flatten the spectrum of white organic light-emitting diode. Spectrum with efficiency variation of only 0.48 dB in the entire visible range is obtained. [C1645]

"Near-field scanning nanophotonic microscopy"

We fabricated nanoscale light emitting diodes (NANO-LED) at the tip of silicon probes. Simultaneous optical and topographical images were acquired using the probes with the nano-LED in a standard near-field scanning optical microscope. [C1646]

"Simulation of a novel detecting algorithm for cascade shunt active power filter"

In this paper a novel algorithm for detecting voltages of capacitors of cascade shunt active power filter (CSAPF) is presented based on Carrier Phase Shift-SPWM (CPS-SPWM). This work is motivated by the fact that the number of voltage sensors is largely increased by CSAPF with cascade topology which has been put into practical use for years especially in high voltage and high power drivers. Following the novel algorithm, the number of voltage sensors can be greatly decreased and only one sensor is needed for each phase which leads to a reduction of the cost of CSAPF. Computer simulations verify the validity and effectiveness of the proposed novel method. [C1647]

"Optical analysis of a 3W light-emitting diode (LED) MR16 lamp"

Optical analysis is critical to the evaluation of an LED MR16 lamp, especially when the lamp is still in its early stage of development and applications and when optimization is needed for making use of unique characteristics

of LEDs. In this study, optical research of a 3W LED MR16 lamp was conducted. The experimental results demonstrated that the LED MR16 lamppsilas angle of full width at half intensity was about 30 degrees and the luminous efficiency reached as high as 53.5 lm/W, which was accepted for the illumination requirements. Numerical simulation was also conducted. The feasibility of the numerical model was proven by comparison of the simulations with the experimental data. Through the simulation and the corresponding analysis, it was found that tested 3W LED MR16 had high optical efficiency (90.2%) into all angles, but had poor beam pattern design, especially for the low uniformity of the beam pattern and low optical efficiency of light into main beam (less than 60%). To improve the illumination performance, a modified non-imaging optical design method was suggested to enhance the uniformity of beam pattern, to enhance the optical efficiency into main beam and to reduce the optical system volume. A novel high power LED MR16 with high beam pattern uniformity and high optical efficiency was designed as an example. [C1648]

"Simulation on thermal characteristics of LED chips for design optimization"

As thermal performance is importance for high-power LED devices, there exists a need to build a validated model to clarify the thermal transfer mechanisms in the LED chip in terms of the chip materials and structures. High-power LED was numerically investigated using the finite element method. A series of substrate materials with different thermal conductivity and thicknesses were studied. The impact of varying cooling capacities on chip junction temperature is also presented. [C1649]

"Analysis of factors affecting color distribution of white LEDs"

The color uniformity is a critical index in the evaluation of high quality white light emitting diodes (LEDs). The main factor affecting the color distribution is the state of the phosphor. The secondary factor is the optical structure. This paper analyzes two parameters of the phosphor layer (thickness and concentration) and six optical structures. Results indicate that the structures with reflector have lower color uniformity. The hemispherical shape of phosphor layer could improve the performance of color distribution and make the variation smaller. Between the two parameters of phosphor, the concentration has the greatest impact on the color uniformity, the second one is the thickness. Through the analysis, it is suggested that the thickness and concentration should be precisely controlled. Otherwise, the color uniformity will be varied significant and may generate serious yellow rings. [C1650]

"Development of OLED demonstration system based on SD card"

In this paper, it proposed a feasibility project to the realization of portable AM-OLED display. For the request of the portability of OLED display, we developed a demonstration system based on Alterapsilas FPGA using Nios II soft-core and SD Card. At first, it introduces some backgrounds about OLED display and SD card. Then it shows the AM-OLED driving method. After that, it also briefly imports some information about the SD card and its internal FAT file system structure, finally analyzes the entire system. [C1651]

"Dynamic mechanical properties of the transparent silicone resin for high power LED packaging"

Aiming to study dynamic mechanical properties of the transparent silicone resins for LEDs packaging and the effects of dynamic mechanical properties on the reliability of high power LEDs, dynamic mechanical analysis (DMA) has been adopted to study one silicone resin used for packaging high power white light LEDs. The viscoelastic behavior of silicone resin was obtained from multi-frequencies dynamic mechanical temperature spectra measured by dynamic mechanical analysis instrument in compression mode. The order of storage modulus was 106whether in the glassy state or rubbery state, storage modulus in glassy state was about 50 times more than that in rubber state. Glass transition was found at 40degC and the frequency had increased accompanied by growing of temperature of glass transition. The activation energy of glass transition was also calculated. A master curve of storage modulus was generalized according to time-temperature superposition principle and WLF equation. Furthermore, characteristics of storage modulus, loss factor, glass transition, etc. were used for exploring how to increase the reliability of LEDs and the reasons which led to the failure of LEDs. [C1652]

"A study on application of N&K Analyzer in OLED failure analysis"

The thickness of each layer of the OLED (Organic Light Emitting Diode) with the multi-layer structure of ITO/NPB/Alq3/LiF/Al was studied by N&K Analyzer before and after aging experiments. Through comparing the film thickness when kept in ambient atmosphere with different exposure duration and failed samples, main thickness changes occur in the Alq3 and LiF layers while the ITO and NPB layer had no dramatic changes in thickness. The trend is Alq3 layer decrease and LiF layer increase in the process of failure. Before electrical failure, the devices exhibit good uniformity in film thickness; but when electrical failure occurs, this uniformity has

obviously been destroyed. So it is proved that N&K Analyzer is an effective new method for OLED failure analysis especially in the condition that it is very difficult to characterize the OLEDpsilas multi-ultra thin-layer structure by traditional means. [C1653]

"Wafer level LED packaging with integrated DRIE trenches for encapsulation"

A novel encapsulation process for wafer level LED arrays is presented. In this process, 4 inch P-type single crystal silicon wafers served as the substrates for flip-chip mountable LED chips. The wafer substrates were fabricated by wafer level lithography and plating process. An UV curable epoxy was applied as the encapsulant. The encapsulation process takes advantage of square trenches fabricated by deep reaction ion etching (DRIE) process as barriers to limit the spread of the epoxy encapsulant, and can adjust the geometry of the encapsulation via controlling the volume of the epoxy and the dimension of the trenches. The packaging and encapsulation process of LED arrays were completed on wafer level. LED packages can be directly obtained after wafer dicing. [C1654]

"Encapsulation of organic light-emitting devices for the application of display"

Organic light-emitting diodes (OLED) is being considered as one of the most potential technology for the application of flat panel display (FPD) due to the low driving voltage, high luminance and high efficiency. Furthermore, OLED displays with plastic substrate also have many attractive features, such as ultra-thin and light in substrate. However, short operation-time hinders the process of OLED technology to industrialization due to its extremely sensitive to the operation environment. The key issues in achieving such displays are how to protect flexible OLED (FOLED) from moisture and oxygen. In this paper, some recent progresses in OLED packaging have been described and compared, such as the characteristics of oxygen and water permeability in different species of plastic substrates, the merits and demerits of chemical, physical and hybrid encapsulation methods. Finally, effects of the barrier film onto a plastic substrate and passivation film on the performance (efficiency and lifetime) OLED device have been discussed. In addition, in order to observe the roughness of passivated film, the oxygen and water permeability, and the fabrication method of FOLED, some widely-used measurement technology have also been reviewed. [C1655]

"A Robotic Spectrometer System for LED Display Measurements"

Modern display systems use expensive light emitting diode (LED)s, which eventually may fail or not perform as expected due to harsh weather and other environmental factors. A robotic spectrometer system is developed for measuring the output characteristics of each LED in every pixel and store them in a lookup table. This allows the system to adjust the output of each LED based on the results of the lookup table and helps to maintain the picture quality of the display. This system also allows the use of off the-shelf LEDs, whose operating characteristics are measured by the robotic spectrometer system in order to identify the optimal operating point. This system facilitates a viable method to improve existing displays, obtain better picture quality, and build displays with off-the-shelf components. [C1656]

"Fabrication and Characterization of White Light Emitting Diodes Based on ZnO Nano-Rods Grown on p-Si"

Recently zinc oxide (ZnO) has drawn attention as it exhibits promising properties for making optoelectronic devices, biosensors. In this paper we will present our recent results from research work on the fabrication of light emitting diodes (LEDs) based on n-ZnO nanorods grown on p-Si by a low temperature chemical approach. The ideality factor of the p- Si/n-ZnO junctions was found to be 5.47+0.67. The high value is probably due to the presence of surface state. Structural, electrical and optical characterization from different processed LEDs will be presented and analyzed. [C1657]

"Detection Algorithms for the Nano Nose"

The nano nose is an instrument with an array of nano sized optical sensors that produces digital patterns when exposed to radiation passing through a gaseous mixture. This paper outlines an algorithm using a combination of neural networks and partial least squares (PLS) regression, Kalman filter capable of processing these digital patterns and generate an output. This output would not only show the detection of the individual constituents in the gaseous mixture but also the prediction of their concentrations. The developed algorithm in the experiments conducted, has performed detection and prediction of quite low concentrations of constituent gases successfully with a prediction error of less than 10% in the presence of noise. [C1658]

"A Novel RGBW Pixel for LED Displays"

In display technology, pixels are composed of three primary colors: red, green, and blue (RGB). Using the primary colors provides the ability to generate variety of hues including achromatic point (AP) (white light). This concept is applied in light emitting diode (LED) displays where each pixel consists of RGB LEDs. Although using compact RGB light in LED displays provides a wide color gamut, many issues arise due to dissimilarities in optical and physical characteristics of LEDs such as: uniform spatial light mixing and distribution of AP, and AP maintenance and thermal management. Power consumption is also a major concern in LED displays. In this paper, the issues with current RGB pixel architecture such as non-uniform mixing and distribution of AP, energy efficiency and a solution to these issues by introducing a new pixel configuration consisting of red, green, blue and white (RGBW) are discussed. Experimental results as well as theoretical analysis of the new configuration are presented and discussed. [C1659]

"Near-Field Scanning Optical Imaging with Monolithic Silicon Light Emitting Diode on Probe Tip"

We describe optical and topographic imaging using a light emitting diode (LED) monolithically integrated on a silicon probe tip for near-field scanning optical microscopy (NSOM). The light emission resulted from a silicon dioxide layer buried between a phosphorus-doped N+ silicon layer and a gallium-doped P+ silicon region created locally at the tip by a focused ion beam (FIB). The tip was employed in a standard NSOM excitation setup. The probe successfully measured optical as well as topographic images of a chromium test pattern with imaging resolutions of 400 nm and 50 nm, respectively. The directional resolution dependence of the acquired images directly corresponds to the shape, size and polarity of the light source on the probe tip. To our knowledge, this report is the first successful near-field imaging result directly measured by such tip-embedded light sources. [C1660]

"White Light Electroluminescence from Zinc Oxide Nanowire Composites"

We report the white light emission of the zinc oxide (ZnO) nanowires/insulator composite films by low-cost hydrothermal method. The hybrid composite film consists of ZnO nanowires and insulator materials of polymethyl methacrylate (PMMA) and spin-on-glass (SOG) respectively. The ZnO EL device with PMMA shows a peak at 595 nm and the one with SOG shows a peak at 560 nm under bias of 9 V. The above emissions are contributed by the high concentration of ZnO surface defects (oxygen vacancies). The bandwidth of the white light emission spans as wide as 400 nm, which is attributed to the interaction between the surface of ZnO nanowires and insulator components of the hybrid film. We further investigate the morphology of the hybrid film by field emission scanning electron microscope (FESEM). [C1661]

"Towards an Electro-Optical Driven Single Photon Device"

As a prototype towards a single photon source we present a quantum-dot-based device, which is tunable and fully electrically pumped. Both the electrical pumping process and the manipulation of the emission wavelength of the quantum dots are independently achieved in this three-terminal device. We realized this approach by electro-optically pumping the quantum dots via a light-emitting diode which is monolithically integrated underneath the quantum dot layer. Independently from the pumping process, electrical tuning of the emission wavelength of the quantum dots is achieved by the quantum confined Stark effect using a third contact. This device structure is fully extensible with high quality resonators based, for instance, on photonic crystal structures targeting high extraction efficiencies via the Purcell effect. [C1662]

"Fabrication of Tungsten Photonic Crystals for High Efficacy Incandescent Light Emitters"

Tungsten "woodpile" 3D photonic crystals in the visible wavelength scale can potentially suppress light emission in the infrared range and, when used as black-body filaments, enhance black body emission in the visible range. Such a device would act as an ideal light bulb providing high luminous efficacy and perfect color rendering index, Here five hundred nanometer period tungsten photonic crystals are fabricated using a novel holographic lithography and wafer bonding method to realize a layer by layer stacked woodpile structures. Reflection characterization of two layer structures shows evidence of enhanced reflection and suggests a bandgap starting at 900 nm. [C1663]

"Equalisation for high-speed Visible Light Communications using white-LEDs"

The performance of visible light communications (VLC) system that uses white LEDs is limited by the bandwidth of the LED emitters. In this paper we report LED equalisation techniques that can improve the data transmission rate in VLC systems significantly. Equalisation is employed in the VLC transmitter and receiver and both experiment and simulation results show a significant improvement in the OOK-NRZ data rate when compared with the unequalised devices. This increases from 15 Mbit/s to 75 Mbit/s, whilst maintaining a low bit error rate (BER). [C1664]

"Bandwidth-efficient indoor optical wireless communications with white light-emitting diodes"

With white-light LEDs one can combine lighting and wireless communication functionalities in one source. We investigate feasible transmission rates in a moderate-size office room illuminated with commercially available phosphor-based LEDs. Due to prevalent high signal-to-noise ratios and negligible inter-symbol-interference maximum data rates of 300 Mbit/s are shown to be achievable with the use of pulse amplitude modulation (PAM) or discrete multi-tone modulation (DMT). Also, we present first experiments with white-light LEDs and demonstrate wireless net data rates of up to 101 Mbit/s. [C1665]

"Molecular electronics inside optical fibres"

The fabrication of organised porphyrin thin films inside structured fibres is demonstrated. Coupling between the molecules and the surface is reported. [C1666]

"Recent research progress in hybrid fiber-optic in-building networks"

Advanced optically-emulated x-QAM techniques and the modal dispersion-robust radio-over-fiber OFM technique enable the delivery of high-capacity data via a single multimode (silica or polymer) optical fiber in-building network to wired as well as wireless terminals. [C1667]

"DOA estimation of space light communication sensor network with exponentially amplitude modulated LED"

In sensor networks, the location measure is one of the most important information. In this research, we propose a new method of DOA (direction of arrival) estimation for localizing in sensor networks with space light communication. Each sensor node embedded with three offset mounted IR sensors and an IR LED detects DOA of other nodes's LED light. 3D location of the network can be obtained from a set of the DOA data. The power of LED is modulated exponentially, so as to be distance-independent of DOA measurement. From simulations and experiments with a test-bed sensor, we confirm that it can detect 3D location information with the proposed 3D localization model in a real scene. [C1668]

"CMOS photo-transistor array detection system for visual light identification (ID)"

Visible light communication is a wireless communication method modulating the light of visible LED. In this study, high sensitive photo-transistor array has been developed for the visible light identification (ID) using CMOS 0.35 mum process. The response sensitivity of photo-transistor is over 0.8 A/W. The photo-transistor is selected by the outer signal in order to separate the signals from multiple light sources. The image of light sources is scanned by CCD module, and the brightest position is determined by C++ software. [C1669]

"Orthogonal frequency division multiplexing for indoor optical wireless communications using visible light LEDs"

Visible light LEDs are being used for indoor optical wireless systems as well as room lighting. In indoor diffuse optical wireless links multipath dispersion limits the maximum transmission data rates. In this paper we investigate OFDM system where multipath induced intersymbol interference (ISI) is reduced, enabling higher data rates. Pilot signals are uniformly inserted into data symbols (subcarriers) and are extracted at the receiver for channel estimation. Predicted and simulated results for the symbol error rate (SER) for an OFDM employing BPSK, QPSK and M-QAM for line of sight (LOS) and diffuse links are presented for a range of pilot signal. [C1670]

"Implementation of Hierarchical GAF"

We implemented a power saving mechanism hierarchical GAF (HGAF) on MICAz-Motes. HGAF introduces a layered structure into GAF (geographic adaptive fidelity) which uses location information of nodes in wireless sensor networks (WSNs) for grouping of nodes. We demonstrate HGAF operation with the implementation on MICAz-Motes. [C1671]

"Combination with Gas Flotation Preconcentration Based on Ternary Association Complexes and Flame Atomic Absorption Spectrometry Detection for Trace Heavy Metals in Complicated Water Samples"

A ternary association complex [MIn+1]-[MB]+, which were formed by metals (Mn+), iodine anion (I-) and basic

dye methylene blue (C16H18ClN3S-3H2O, MB), was applied in the preconcentration of trace heavy methylene blue (Ag, Cu, Cd, Pb) in complicated water samples, such as high salty solution, by gas flotation. The ternary association complexes was floated and absorbed into 5 mL of toluene, and the toluene phase was directly determined by the flame atomic absorption spectrometry (FAAS). Several parameters, including flotation pH, volume of KI and methylene blue solution, and selection of organic solvent were studied. Under the optimum conditions, the enrichment factor for 200 ng/mL interest elements almost equal to the ratio of the aqueous solution volume to organic solvent volume. The detection limits for Cu, Pb, Cd and Ag were 0.9, 0.8, 0.5 and 0.4 ng/mL, respectively. The interference of coexist elements to the determination were also studied. The developed method was applied in the determination of trace Cu, Pb, Cd and Ag in artificial seawater, the average recoveries of interested metals were about 89.1%-92.9%. [C1672]

"Study of Immobilization and Removal Efficiency of ZnI+ from Wastewater by Anabaena Sp."

Methods and materials of immobilization of Anabaena sp. used in wastewater treatment were studied in this work .The results showed the polyurethane foam (PUF) could be an excellent organic polymer immobilization matrix, which can hold as much as 15 mg dry weight of Anabaena sp. by 1 cm3PUF. 70.2% efficiency of Zn2+cleansing in flowing wastewater at the speed of 3 mL/min could be reached. [C1673]

"Porosity Prediction with Settlement and Biodegradation in Municipal Landfill"

The landfill settlement induced by biodegradation and mechanics compression contribute to changes in rearrangement of waste porosity. Based on the fluid-solid interaction mechanics theory, a new coupling model has been developed to describe the interacting of porosity- displacement-gas pressure with combine to the waste deformation and micro-biological degradation. And the numerical scheme of the model is given. The settlement strain, porosity, permeability and diffusivity is presented by numerical simulation. The simulation results show that the porosity values increase is due to the waste itself decomposition. The waste settlement is the key to the decrease process of porosity. The variant effect of organism content on porosity is different. The maximal amplify of permeability and diffusivity by organic decomposition is 40 % and 23 % in the dispose duration. Predicting the transport process in landfill, the effect of the porosity can not be neglected by comparison the changes of intrinsic permeability and De/Dg. [C1674]

"The Study of a Handheld Digital Microscope for Biomedical Applications"

In recent years, biotechnology is a highly developed and popular research topic. Microorganism behavior measurement is an important method for biotechnology experiment. Microscope is often used to measure microorganism behavior. The disadvantages of using the tradition microscope are expensive, heavy when the magnification is too large it's not easy to tracking microorganism. In this research, we focus on the development of a low-cost and convenient hand-held digital microscope platform. Based on digital microscope technology, we can observe and record any tiny object's behavior and movement, like Paramecium behavior etc. The platform is not only low-cost, easy to operation, but it can also connect to a computer for further data processing and analysis it let the digital microscope can be used in many applications. [C1675]

"55V Integrated Power and Non-Volatile Technology for Solid State Lighting Applications"

This paper presents a process in which a 55 V-class of power devices is added to baseline 0.25 um 2.5 V/5 V/ 20 V CMOS technology by forming asymmetric extended-drain device structures in which an inverted well design concept is utilized to form an extended-drain dielectric region. The RsP-BVdS figure-of-merit is consistent with best-in-class (0.65 mOhm cm2/ 70 V NMOS, 1.60 mOhm cm2/ 70 V PMOS), and the voltage handling is drift-length scalable from 20 V to over 75 V. Three classes of non-volatile memory are modularly implemented in the process flow consisting of single- polysilicon hot-carrier programmed OTP, single polysilicon 2T FN-FN MTP, and double-polysilicon 2T EEPROM. The combination of high-performance integrated power devices with non-volatile memory results in cost-effective implementation of features necessary for solid-state lighting systems. [C1676]

"Model-based respiratory motion correction using 3-D echocardiography"

In this paper we investigate the use of 3-D echocardiography (echo) data for respiratory motion correction of MRI-derived roadmaps in image-guided interventions. By a combination of system calibration and tracking the MRI and echo coordinate systems are aligned. 3-D echo images at different respiratory positions are registered to an end-exhale 3-D echo image using a registration algorithm that uses a similarity measure based on local orientation and phase differences. We first assess the use of the echo-echo registration alone to perform motion-correction in the MRI coordinate system. Next, we investigate combining the echo-echo similarity measure with a MRI-derived motion model. Using experiments with cardiac MRI and 3-D echo data acquired from 2

volunteers, we demonstrate that significantly faster and more robust performance can be obtained using the motion model. [C1677]

"Improvement of Date Rate by using Equalization in an Indoor Visible Light Communication System"

In this paper, an optical wireless communication system that uses white LEDs is described. Equalization is employed at the receiver to improve the data rate. Simulation shows a highly reliable communication channel with an SNR of up to 81 dB. Moreover, the data rate can be improved from 16 Mb/s to 32 Mb/s NRZ-OOK at a BER of 10-6. [C1678]

"A Dual-Receiving Visible-Light Communication System for Intelligent Transportation System"

Wireless communication has been identified as the key enabling technology in Intelligent Transportation System (ITS). Visible-light communication (VLC) presents an alternative to other existing wireless technologies to enable infrastructure-to- vehicle communication in ITS. In this paper, we identify the major limitations in implementing VLC on outdoor environment. Next, we introduce a new and innovative receiver design with dual reception and effective ambient-light rejection capabilities. Simulation results show that our newly proposed receiver is able to achieve greater communication range and receivable information with an average improvement of 20 m and 10 Mbits during daytime, respectively. [C1679]

"Electro-optic polymer modulators for telecommunications applications"

Progress in electro-optic (EO) polymer materials and hybrid device designs have led to the demonstration of electro-optic modulators with unprecedented bandwidth (>100 GHz) and drive voltage (~ 0.5 V). We will discuss our development of hybrid EO polymer/sol-gel waveguide modulators that achieve sub-volt drive voltages and superior photostability, while using a low-cost wet etch fabrication process. We also present a figure of merit that assists in the comparison of different EO po/ymer/cladding systems. [C1680]

"Low-Cost and Robust 1-Gbit/s Plastic Optical Fiber Link Based on Light-Emitting Diode Technology"

1-Gbit/s transmission is demonstrated over 50 m of step-index PMMA plastic optical fiber (1-mm core-diameter) using a commercial light-emitting diode. This is enabled by use of discrete multitone modulation with up to 64-QAM constellation mapping. [C1681]

"Sapphire-removed induced the deformation of high power InGaN light emitting diodes"

Thick copper films on vertically structures InGaN LEDs play a critical role after sapphire removed. The most commonly used GaN thin film growth technique is metal-organic chemical vapor deposition (MOCVD), which provides a high growth temperature, as a result, high intrinsic stress takes place between sapphire and InGaN surface. If the aforementioned metal supporter experiences a large warpage induced from intrinsic stress after sapphire removed, the subsequent processes would be very difficult to carried out. To solve the above issue, a finite element (FE) numerical simulation was employed for stress-strain behavior analysis of the LED device, the results reveal that, increasing the thickness of metal layer or implementing a pre-metal deposition buffer layer can apparently reduce the device warpage after sapphire removal. Based on the above design concepts, the experimental result depicts that, the warpage of LED wafer can be effectively reduced by 25% when metal layer increased from 62.5 um to 82.5 um, which shows good agreements with FE result, hence validates the established research methodology. And more importantly, based on the process modelling and sapphire-removal simulation-technique developed in this study, an optimal novel LED structure is designed for the reduction of process induced warpage. To conclude, a LED chip structural design-process modeling-fabrication methodology was successfully developed, and can be further contributed to the LED industry. [C1682]

"Micro Unmanned Aerial Vehicle Visual Servoing for Cooperative Indoor Exploration"

Recent advances in the field of micro unmanned aerial vehicles (MAVs) make flying robots of small dimensions suitable platforms for performing advanced indoor missions. In order to achieve autonomous indoor flight a pose estimation technique is necessary. This paper presents a complete system which incorporates a vision-based pose estimation method to allow a MAV to navigate in indoor environments in cooperation with a ground robot. The pose estimation technique uses a lightweight light emitting diode (LED) cube structure as a pattern attached to a MAV. The pattern is observed by a ground robot's camera which provides the flying robot with the estimate of its pose. The system is not confined to a single location and allows for cooperative exploration of unknown environments. It is suitable for performing missions of a search and rescue nature where a MAV extends the

range of sensors of the ground robot. The performance of the pose estimation technique and the complete system is presented and experimental flights of a vertical take-off and landing (VTOL) MAV are described. [C1683]

"Communications and Sensing of Illumination Contributions in a Power LED Lighting System"

In recent years, LED technology emerged as a prime candidate for the future illumination light source, due to high energy efficiency and long life time. In addition, LEDs offer a superior flexibility in terms of colors and shapes, which leads to a potentially infinite variety of available light patterns. In order to create these patterns via easy user interaction, we need to sense the local light contribution of each LED. This measurement could be enabled through tagging of the light of each LED with unique embedded IDs. To this end, we propose a new modulation and multiple access scheme, named as code- time division multiple access-pulse position modulation (CTDMA- PPM): a form of PPM which is keyed according to a spreading sequence, and in which the duty cycle is subject to pulse width modulation (PWM) according to the required lighting setting. Our scheme considers illumination constraints in addition to the communication requirements and, to our best knowledge, it has not been addressed by other optical modulation methods. Based on the proposed modulation method and multiple access schemes, we develop a system structure, which includes illumination sources, a sensor receiver and a control system. Illumination sources illuminate the environment and transmit information, simultaneously. According to our theoretical analysis, this system structure could support a number of luminaries equal to the size of the CDMA codebook times the dimming range. [C1684]

"Information Illuminating System for Healthcare Institution"

At some hospitals and nursing homes, people have already thought about improving healthcare quality, efficiency and accuracy by bring in the technology of wireless local area network (WLAN), which possesses the advantage of high mobility, flexibility and high speed. However, this idea always takes the risk that medical equipment may get disturbed by the invisible electro magnetic interference (EMI). It has been proved by many cases that some precision medical instruments could not work properly when they are under radiofrequency radiation. In this paper we will describe a new wireless communication system with no RF radiation, no EMI but safety and convenience. This design takes the advantage of optical modulation based on hospital illuminating network. High brightness light-emitting diodes (HB-LED) are used in this system as illuminating source which take priority over conventional gas discharge fluorescent lamp or other low luminous efficient lamps. The information is modulated on the visible light emitted by HB-LED lighting source. A portable device is also designed to receive and demodulate the information, offering mobile data service. [C1685]

"Design of a LED street lighting system"

LED technology has rapidly developed in recent years to the point that LEDs can be seriously considered for replacing conventional halogen and incandescent lamps in general illumination, e.g. street lighting. Before wide spread adoption of this technology can be embraced, there are a number of outstanding issues that need to be addressed. The opportunity is now available for the implementation of innovative concepts for heat transfer, thermal management, optimised LED power drivers and communication systems. This paper consists primarily of three parts. Firstly, current UK street lighting regulations and requirements are outlined, shortfalls are identified and highlighted. In the second part, thermal management of the LEDs and their drivers are detailed. It is imperative that the LEDs are kept within their maximum operating temperature to ensure maximum stated lifetime and performance. Finally the third part proposes suitable topologies for providing unity power factor and regulating current through the LED arrays. [C1686]

"Mobile Charge Induced Breakdown Instability in 700V LDMOSFET"

One chip solution for SMPS (switch mode power supply) has been drawing great attention of the designers with its green mode standby power and high efficiency in the AC-DC adaptor and LED lighting applications. The UHV (ultra-high voltage) foundry process, which enables the integration solution for green compliance SMPS, is proposed in this paper. The technology integrated low voltage CMOS (5 V), medium voltage (40 V) and UHV (700 V) devices in one single process. The UHV technology provides a novel UHV device structure with RESURF (Reduce-SURface-Field) effect to sustain ultra-high breakdown voltage and not to affect the original low/medium voltage devices performance in the same time. Thus, the concept of this novel structure is easily to apply to the other technology nodes and extend its voltage-sustaining range by adjusting the drift length for the RESURF structure. In this research, the 700 V technology has realized the performance that the BVdss (breakdown voltage) is 800 V with Ronsp (on-resistance) of 270 mOhm-cm2. In the same time, the process challenge to optimize 700 V device performance against un-balanced mobile charge issue was also discussed. [C1687]

"Scanning Led Array Based Volumetric Display"

A novel quasi-holographic display concept is developed using light emitting diode (LED) arrays on scanning platform. The display system is capable of providing smooth motion parallax and solving the accommodation-vergence rivalry. Each scanner module contains 1D LED array mounted on a polymer scanner with a lens for imaging the LEDs onto a special diffuser screen. The scanning modules are actuated electromagnetically and the LEDs are driven with an external LED driving field programmable gate array (FPGA) circuitry designed for the purpose. The scanners have a natural frequency of 12.7 Hz, scan line of 21.5deg total optical scan angle (TOSA) and a quality factor of 20. The three dimensional (3D) display concept is proved with two of these modules by displaying two points sequentially at two different depths. [C1688]

"European Research into Head Tracked Autostereoscopic Displays"

Stereoscopic displays that do not require the wearing of special glasses (autostereoscopic), enable a large degree of freedom of viewer movement and show the minimum amount of information have been developed within several European Union-funded projects. In the ATTEST and MUTED projects a stereo image pair is produced on a single liquid crystal display (LCD) by simultaneously displaying left and right images on alternate rows or columns of pixels. Novel steering optics is used to direct regions, referred to as exit pupils, to the appropriate viewers' eyes. The positions of these are controlled by the output of a head position tracker. In the HELIUM3D project an autostereoscopic image is produced with the use of a light engine and illumination is provided by an RGB laser. Exit pupil locations are determined by a head tracker controlling a spatial light modulator (SLM). [C1689]

"LED Lamp Flicker Caused by Interharmonics"

The current IEC flickermeter standard only considers light flicker of incandescent lamps. Hence, the standard flicker-meter has limitations regarding assessing flicker of lamp types other than the incandescent lamp, particularly in the presence of interharmonics. In this paper, the flicker responses of various lamps (e.g., incandescent, compact fluorescent, and LED (light-emitting-diode) lamps) are investigated using a laboratory interharmonic flicker station and a photo detector. The experimental results demonstrate that LED lamps exhibit flicker response similar to that of compact fluorescent lamps, which are sensitive to high-frequency interharmonics located close to the odd order harmonics. Our analysis indicates that a diode bridge rectifier, which converts AC to DC for both compact fluorescent and LED lamps, is a source of flicker due to high-frequency interharmonics. [C1690]

"Characterization of Optical Sensors for Real-Time Measurement of Motorcycle Tilt Angles"

An effective optical sensor for real-time measurement of the tilt angle in high-speed motorcycles was developed and tested. The basic idea and target of this work is to create a compact, reliable and also low-cost optical triangulators capable of accurate in-field measurements, in the harsh environment of sport motorcycles. Calculations of the required system sensitivity and allowable accuracy are described for this kind of optical sensor. The first prototypes, based on LED emitters, demonstrate the viability of such optical solution but they suffer from significant performance degradation due to solar interference, moved at high Fourier frequency by the combined effect asphalt roughness and motorbike speed. A second-generation instrumentation is under study, relying on laser emitters. Such novel triangulators promise good and reliable performance for the proposed application, keeping low costs and encumbrance and overcoming the problem of solar interference. [C1691]

"1200dpi thin film LED array by silicon photonics technology"

Higher density single crystal thin film light emitting diode (LED) arrays have been studied. Bonding of epitaxial thin film (epifilm) LEDs of about 2 mum in thickness has been achieved on CMOS IC drivers and other dissimilar material substrates by intermolecular force ("Epi Film Bonding (EFB)" technology). The epifilm LED array provides good enough characteristics to apply in LED printheads (small variation of emitted light power (< plusmn 5%) and long lifetime (>1000 h)). Fabrication test of two dimensional (2D) epifilm LED arrays shows that 2D 1200 dpi epifilm LED arrays (a small light emitting region of 10 mum times 10 mum and a fine array pitch of 21.2 mum) achieves good performance to display characters. Bonding of 1200 dpi epifilm LED arrays on diamond-like carbon (DLC) thin films having high thermal conductivity has been tested for the first time. The test result shows that good bonding of small epifilms (10 mum times 10 mum) on the DLC thin film can be achieved. The LED array that is bonded on the DLC thin film formed on the Si substrate shows higher thermal conduction character; rough estimation of LED temperature suggests about 50 degrees centigrade even at a very high LED current density of 20 kA/cm2. [C1692]

"Decay mechanisms of lumen and chromaticity for high-power phosphor-based white-light-emitting diodes in thermal aging"

The high-power phosphor-based white-light-emitting diodes (LEDs) with different thicknesses and concentrations of silicone YAG phosphor after thermal aging at 150 degree C and 500 hours are studied experimentally. The results showed that the lumen loss and chromaticity (CIE) blue shift of the high-power white-light LEDs increased as the silicone YAG phosphor thickness and concentration increased. These were due to that the transmittance loss of the silicone YAG phosphor increased and the spectrum intensity of the white- light LEDs decreased as the aging time increased and resulted in lower emission efficiency of the high-power white-light LEDs. The likely cause for transmittance reduction is the refractive index decreased in the silicone YAG phosphor after thermal aging. As a result, the key module package related degradation mode under thermal aging was identified as the decay of the silicone YAG phosphor. Therefore, in order to maintain lumen power and minimize color shift of the high- power white-light LEDs modules for use in low-cost lighting and commercial applications, the optimized thickness and concentration of the YAG phosphor are 2 mm and 2%, respectively. [C1693]

"Multi-View 3D TV Sub-Pixel Coding for Stress Free Perception"

At the beginning of this paper a visual 3D cognition investigation is described which is basic for a new perception oriented coding and 3D pixel design for future stress-free 3D displays. As a result new visual physiological measurements on the accommodation conflict are presented. To increase the horizontal resolution of TFT displays for 3D applications a new sub-pixel coding has been developed and is described here. The optical imaging method is shown which achieves a high number of views. At the end a new 3D pixel design is suggested for future 3D TVs, suitable for an OLED technology (Organic Light Emitting Diode). [C1694]

"Feasibility of Imaging Photoplethysmography"

Contact and spot measurement have limited the application of photoplethysmography (PPG), thus an imaging PPG system comprising a digital CMOS camera and three wavelength light-emitting diodes (LEDs) is developed to detect the blood perfusion in tissue. With the means of the imaging PPG system, the ideally contactless monitoring with larger field of view and the different depth of tissue by applying multi- wavelength illumination can be achieved to understand the blood perfusion change. Corresponding to the individual wavelength LED illumination, the PPG signals can be derived in the both transmission and reflection modes, respectively. The outcome explicitly reveals the imaging PPG is able to detect blood perfusion in a illuminated tissue and indicates the vascular distribution and the blood cell response to individual wavelength LED. The functionality investigation leads to the engineering model for 3-D visualized blood perfusion of tissue and the development of imaging PPG tomography. [C1695]

"LED drivers with PPD compensation for achieving fast transient response"

A trade-off performance between static error and dynamic response is made by the combination of proportional (P) and proportional derivative (PD) compensations. Owing to the fast transient response provided by the P compensator, the static error is also reduced by the PD compensator within a reasonable response time. The proposed control circuit is entirely implemented by voltage mode and has better line and load regulations. An asynchronous 1.8MHz DC/DC boost converter was fabricated by UMC 0.35mum to generate 35V output voltage to turn on more than 10 LED at the same time for the notebook's backlight. [C1696]

"Characterization of PEDOT:PSS dilutions for inkjet printing applied to OLED fabrication"

This paper presents results of different dilutions of PEDOT:PSS on the uniformity, pattern definition and conductivity of inkjet printed films. PEDOT:PSS was diluted in water, ethylene glycol (EG) and dimethyl sulfoxide, (DMSO) in order to achieve the required viscosity in the range of 2 to 30 cps. In order improve the surface tension a surfactant Tritonreg X100 was added to some of these dilutions. Deposited films were characterized to obtain their refractive index, thickness and resistivity. As a final result, a polymeric light emitting diode (PLED) structure was fabricated using copolymer (BEHP-PPV)-co-(MEH-PPV) as active layer. [C1697]

"A handheld fluorometer for measuring cellular metabolism"

We demonstrate the application of a handheld fluorometer optimized for UV excitable assays. We demonstrate the measurement of metabolic products as yeast cells germinate in dextrose solution. In particular we measure NADH which is produced during cellular respiration. The handheld fluorometer consists of a CMOS active pixel sensor with in-pixel CDS, coupled with a custom chromophore-polymer emission Alter and a UV LED as the excitation source. The handheld fluorometer is able to detect as little as 10 muM of NADH, and in its present

format should be applicable to any fluorescence assay with UV excitation and visible emission wavelengths. [C1698]

"Two color asynchronous event photo pixel"

The paper presents a dichromatic asynchronous event pixel for use in an address event representation (AER) vision sensor. The pixel has been produced with the AMS 0.35 mum CMOS process. The sensitivity to two distinct color spectra is achieved by the concept of stacked photo diodes, PN-junctions at different depths below the surface of the silicon chip, which results in different absorption spectra. The pixel emits short pulses at a frequencies proportional to the photo currents of the junctions. The pixel is shown to clearly distinguish light sources of two different colors. [C1699]

"LED-Based Sensing System Control for Photocatalytic Biomedical Gas Purification"

An efficient and portable photoacoustic multi-gas monitor for biomedical application is needed in hospital in order to protect the health of workers, patients and, somewhat, visitors. If highest precision is not required, especially for continuous monitoring of anaesthetic gases, a LED (light emitting diode) based-detecting system can be employed in order to estimate an attention threshold level of gas. But when a gas purification facility is used in order to exhaust biomedical gas present in a surgery room, it can be suitable to employ a different sensing technology to reduce costs and to increase efficiency, since the quality and the quantity of gases decrease, a new affordable instrumentation based on LED technology is proposed in the present research. The idea behind this work is to control LED sources by a cheaper system in other to get acceptable results that are valid for an interesting range of frequencies. Particular care has been given to conditioning subsystem because of mixing RGB colours. [C1700]

"On the use of deep UV-LEDs for monitoring dialysis"

The new UV-C LEDs have been characterized to evaluate their potential applicability in the development of a simple, low-cost optical adequacy sensor for continuous, on-line measurements on spent dialysate. This approach would allow us to avoid the use of bulky and expensive spectrometers in the monitor systems. The reported results could be useful for the system development; nevertheless, different critical aspects such as LEDs reliability, mean life time and emitted and transmitted power-monitoring should be taken in consideration. [C1701]

"Multi-element Free-Space-Optical spherical structures with intermittent connectivity patterns"

Due to its high bandwidth spectrum, free-space-optical (FSO) communication has the potential to bridge the capacity gap between backbone fiber links and mobile ad-hoc links, especially in the last-mile. Though FSO can solve the wireless capacity problem, it brings new challenges, like frequent disruption of physical link (intermittent connectivity) and the line of sight (LOS) requirements. In this paper, we study a spherical FSO structure as a basic building block and examine the effects of such FSO structures to upper layers, especially to TCP behavior for stationary and mobile nodes. [C1702]

"The single emission spectrum densitometry for radiochromic films by flat-bed document scanner with transparency unit employing light emitting diode"

We developed an infrared flat-bed scanner with a transparency unit (IR-4000, iMeasure, Inc.) in order to increase the sensitivity of the measuring density of Radiochromic film, Gafchromic film EBT model. Radiochromic film has been used for many years as a two-dimensional radiation detector for dosimetry in radiotherapy. One of the commercially available Radiochromic films today is the Gafchromic film EBT model (EBT) manufactured by ISP (International Speciality Products, Wayne, NJ). EBT has the absorption spectrum with a maximum absorption band centered at 636 nm. Consequently the response of EBT will be enhanced by measuring with a red light. The transparency unit of IR-4000 for EBT has a light emitting diode (LED) with apeak wavelength of 630 nm, and was produced by replacing a white light in the transparency unit for the flat-bed scanner (ES-2200, Seiko Epson Corp) with the LEDs. IR-4000 could improve the sensitivity for EBT in all dose ranges. However, we had to consider the methods for decreasing noise. We examined for IR-4000 how to keep the high sensitivity and reduce noise. Multiple scans and the reduction of the image resolution by pixel averaging, which was effective in noise reduction, were employed. IR-4000 is a useful densitometry device to GAFs since optional transparency units which have various single emission spectra are prepared. [C1703]

"Interfacial and Nanostructural Enhancements in Organic Semiconductor Sensors and Diodes"

Interfaces often control the performance and activity of organic devices and can be harnessed for new and

enhanced functions. Interface engineering has enabled us to modulate the threshold (turn-on) voltage of a field effect transistor made from a solution-deposited semiconductor, and to increase the switching speed of an organic semiconductor diode by three orders of magnitude. Interfacial chemistry provides capabilities for using organic transistors as sensors for vapors of military and security interest, especially nerve gas simulants. As the devices become thinner and thinner, to the point where they are almost entirely interfacial, sensitivity enters the parts-per-billion regime and response speeds decrease from minutes to seconds. Selectivity and sensitivity are enhanced through the use of receptor functionality on surfaces. Receptor chemistry and electrostatics both contribute to the sensing mechanism. [C1704]

"Development of Plasma-Damage Free Neutral Beam Sputtering System; High Performance Indium Tin Oxide Films at Room Temperature with Application to Top Emmission OLED"

A neutral beam system has been developed to produce hyperthermal neutral beams (HNB) sputtering system. ITO thin film with good performance has been developed by the HNB sputtering system at the room temperature. The optimized conditions as neutral beam acceleration bias of -30 V and In & Sn composition ratio of 99:01 gives lower resistivity as 4.22 times 10-4Omega-cm and higher transmittance over 90% near wavelength of 550 nm. The room temperature-processed ITO films applied top electrode of OLED without plasma related damage. [C1705]

"Inorganic-Organic Barrier Coatings for Flexible OLED Applications"

When flexible organic substrates are used for organic light emitting diodes (OLEDs), a barrier layer is required for the substrate to protect the enclosed functional materials from oxygen and water penetration. In this study, barrier coatings consisting of organic and inorganic films were developed for the organic substrate to ensure sufficient hermetic protection. As a model system, we chose the 'Parylene-C/TiO2' grown on the polyethylene terephthalate (PET) substrates. Parylene C films, which were vapor deposited at room temperature, have been known for a superior conformal coverage. The oxide films were biomimetically formed from in- situ precipitated particles in aqueous solutions and displayed nanoparticulate, dense structures. Since these oxides are processed at very low temperatures (< 70degC) in aqueous solutions, the processes can be applicable to organic structures, cheap and environment-friendly. Further, plasma treatments were employed to adjust the functionality of the organic surfaces and their effects on microstructure evolution of subsequent depositing layers are discussed. In order to evaluate the mechanical properties and film adhesion of the inorganic-organic hybrid coatings, in-situ AFM coupled nanoindentation techniques were introduced. Preliminary results on the dye penetration test indicated that the hermeticity of the barrier coatings was improved by having the hybrid films consisting of parylene-C and TiO2. [C1706]

"Photolithographic Patterning in Supercritical Carbon Dioxide: Application to Patterned Light-emitting Devices"

Photolithography is a high-throughput, cost-effective patterning technology. However, the application to organic electronic devices has been restricted because of its chemical compatibility issue with delicate organic materials. In this study we propose a new photolithography technique which utilizes supercritical carbon dioxide (scO2) as an organic electronic materials-benign development solvent. Supercritical carbon dioxide is a fluid that exists above its critical pressure and temperature (Pc=73.8 bar and Tc=31.1degC). Apart from the environmental advantages, useful process benefits result from the fact that most non-fluorinated organic materials are not damaged in contact with scCO2. A polymeric material composed of perfluorodecyl methacrylate (FDMA) and tert-butyl methacrylate (TBMA) was synthesized as a negative-tone photoresist, processible in scCO2. Micron-sized resist patterns on a Si wafer were successfully processed under i-line (lambda=365 nm) exposure conditions. The resist showed a capability to make patterns on the conductive poly(3,4-ethylenedioxythiophene): poly(styrenesulfonate) (PEDOT: PSS) film. The resulting resist pattern was finally applied to fabricate patterned polymer light-emitting devices. [C1707]

"The development of Portable digital microscope inspecting instrument"

A new design is the concept of using digital camera embedded with magnifier lens and LEDs adapter as a portable digital microscope inspecting instrument to recorder tiny target under quality assurance on production line. The apparatus is demonstrated and presented the difference between the other portable digital microscope. [C1708]

"Study on Gripping Large-size FPD Glass Substrates"

The mother glass substrate in FPD is needed to be enlarging for raising its productivity itself as well as the

realization of the world-widely TV. Especially the mother glass in OLED is needed uniformly distributed gripping force to handle deflection of the glass. Because large-size glass substrate has some difficulties regarding its deflection during handling operation due to its thinness (0.5-0.7t) which is not even enough to stand its mass itself. This study aims to demonstrate a new solution of these difficulties through clamping and bending boundary conditions of the hinge type, which help to minimize the deflection of the glass substrate. The experiments had also been carried out to verify the proposed method for minimizing the glass-deflection. This new design of glass substrate handler may be useful in manufacturing the large OLED displays. [C1709]

"InGaN/GaN multiple quantum wells with silicon delta doping in GaN barriers for light-emitting diodes"

In this paper, silicon delta doping was incorporated in the GaN barriers of InGaN/GaN multiple quantum well (MQW) structures for blue light-emitting diodes. High-order satellite peaks from X-ray diffraction suggested indium incorporation in the hetero-structures. The indium content has been 0.171 and 0.192 for the silicon delta doped and undoped samples, respectively, by Vegard's rule. Thermodynamic analysis by Arrhenius plots of the temperature-dependent photoluminescence spectra revealed the enhancements in radiative recombination. The activation energy was shown to be 130 meV for the InGaN/GaN MQW structures with silicon delta doping. It was 110 meV for the undoped samples. The increase in the thermal activation energy was attributed to the supply of electrons from the silicon delta doping barrier region into the InGaN quantum wells. The hole-capturing by higher energy barrier in the valence band was also increased. Silicon delta doping suppresses carrier leakage by increasing exciton confinement, and therefore improves the quantum efficiency. [C1710]

"A New Tracking Method using Image Sensor and Photo Diode for Visible Light Road-to-Vehicle Communication"

We propose a new tracking method using image sensor (IMG) and photo diode (PD) for visible light road-to-vehicle communication. Proposed method uses an IMG with wide FOV, which receives tracking signal, and a PD with narrow FOV, which receives communication signal. As FOV of the IMG is wide, service range, where communication signal can be received, is larger than conventional methods. Moreover, as FOV of the PD is narrow, PD is less affected by background noise and high speed communication can be possible. [C1711]

"A cyborg beetle: Insect flight control through an implantable, tetherless microsystem"

We present an implantable flight control microsystem for a cyborg beetle. The system consists of multiple inserted neural and muscular stimulators, a visual stimulator, a polyimide assembly and a microcontroller. The system is powered by two size 5 cochlear microbatteries. The insect platform is Cotinis texana, a 2 cm long, 1-2 gram Green June Beetle. We also provide data on the implantation of silicon neural probes, silicon chips, microfluidic tubes, and LED's introduced during the pupal stage of the beetle. [C1712]

"Finger-top total protein analysis system based on new biochemical IC chip"

This paper presents a novel miniaturized chemical system for electrophoretic separation and collection of protein. The system was made into a module of "Bio-chemical IC". "Bio-chemical IC" is a finger top size device for diverse chemical experiment. By using the new module, the whole micro-scale protein analysis system can be miniaturized into a finger-top size. The module has realized real-time monitoring of protein electrophoresis, and on-demand collection of target proteins during the electrophoresis. Separation of mixture of five different proteins and collection of the target protein were successfully demonstrated with this module. Moreover, we have succeeded in collecting a part of proteins from PC12 cells. [C1713]

"Single monolayer nanocrystal LED on probe tip for near-field molecular imaging and patterning"

We report a novel light emitting nano-diode structure consisting of a single monolayer of CdSe nanocrystals deposited on a scanning probe tip for near-field scanning optical microscopy (NSOM). P-doped silicon which forms the probe body was utilized as an anode of the LED. A Langmuir-Blodgett (LB) trough was used to deposit on-probe a monolayer of nanocrystals (5-10 nm thickness), which were then examined with a SEM/TEM to show uniform deposition, and a fluorescent microscope to demonstrate light emitting properties. Both photoluminescent and electroluminescent emissions were observed from the fabricated probe with monolayer LED. Preliminary imaging and patterning using functional light emitting silicon probes were demonstrated in a standard NSOM setup. Resolutions of 50 nm and 400 nm were acquired for topographic and optical imaging, respectively. [C1714]

"A new method of driving an AMOLED with MEMS switches"

We newly propose an active-matrix organic light-emitting diode (AMOLED) pixel circuit composed of MEMS switches and its digital driving method for grayscale modulation using time ratio gray scale (TRGS) scheme. Developing a spice compatible model of the MEMS switch, the proposed driving method has been successfully verified by circuit simulation. Current driving capability of the fabricated MEMS switch is evaluated with wiring them to the OLED pixel which is separately fabricated. We could obtain the ON current of 11.4 muA from the wired OLED and MEMS switch with a VDDof 10 V. The fabricated MEMS switch with length of 50 mum and width of 10 mum showed the pull-in voltage of 58 V and total on-state resistance (with leads) of 20 Omega. We successfully demonstrated the grayscale changes of an OLED by modulating the duty ratio of the control signal at 60 Hz. [C1715]

"Optical sensor platforms by modular assembly of organic electronic devices"

Organic electronic devices are ideal for incorporation in sensor devices due to their reduced thickness, weight, and flexibility. Here, we show that organic light emitting diodes (OLED) and organic photodiodes (OPD) can be used in a wide range of optical sensors. Printing technologies allow for cheap production of devices. Using a modular build up of these and additional components such as organic circuitry and/or embedded thinned silicon dies will allow for an almost 2 dimensional design with a variety of resulting products. The emphasis will be given on the design and the fabrication of modules for a pulse-oximeter device and integration into a wireless smart bandage. Results will be shown of a proof of concept device. [C1716]

"Flexible wireless power-transmission system fabricated by 13.56 MHz polymer rectifier"

Printed electronics have attracted increasing attention in recent years due to its flexible format, easy process and potentially low cost features. Achieving good performance organic Schottky diode as the key component of a rectifier for printed RFID applications became a critical task. The electrical performances of an organic Schottky diode can be improved by inserting an intermediate layer between the semiconductor and electrode surfaces. This interface plays an important role in improving rectification ratio and lifetime of a polymer diode. In this work, a 13.56 MHz rectifier based on a polymer Schottky diode will be demonstrated and a wireless energy transmission built on flexible substrates will be proposed. [C1717]

"Organic semiconductor based strain sensors for input system on flexible oleds"

We developed an organic semiconductor based strain sensor sheet for an input system on flexible OLEDs. As resistors for strain gauges, we used a conductive polymer of poly (3, 4-ethylenedioxythiophene) (PEDOT):polystyrenesulfonate (PSS) which is useful for touch input devices. This is because PEDOT: PSS has the advantages of flexibility and transparency. The strain sensor array was fabricated with the Parylene peel-off process. The resistance change of the fabricated PEDOT-based sensor was measured on diverse radii of curved surfaces. Finally, we demonstrated the capability to accept input by touching the sensor sheet both on flat and curved surfaces. [C1718]

"High-accuracy positioning system using visible LED lights and image sensor"

We propose a new positioning system using visible LED lights and image sensor. GPS is widely used, but its measurement error gets dozens meters worse at indoor or urban canyon where radio wave is hard to reach. On the other hand, visible light can reach users easily since visible light devices are established at indoor and urban canyon. Our proposed system can determine the receiver's position where each LED in a lighting sends differential three dimensional space coordinate and image sensor can receive the signal. We show the availability of our proposed method by numerical analysis. [C1719]

"A novel LED driver with adaptive drive voltage"

This paper presents an LED driver circuit consisting of a voltage pre-regulator and multiple linear current regulators with an adaptively-controlled supply voltage. The proposed driver circuit powers all LEDs in a string with a constant current and provides consistent illumination and optimal operating efficiency at low cost. The performance of the proposed driver was verified experimentally. [C1720]

"An analysis of current accuracies in peak and hysteretic current controlled power LED drivers"

This paper provides an analysis result of current control accuracy in driving power LEDs from widely varied DC input voltage. The detail analysis results show that the RMS LED current with Buck converter by using Peak Current Control (PCC) decreases according to increasing input voltage. Since the LED driver needs to be simple and low cost, the Buck converter is popular because it can allow continuous flowing current operation without an output bulky capacitor. Based on the simulation and experimental result, it is discussed how to improve current

accuracy by using large a inductor size with PCC in Buck converter over wide input voltage variations. The result of PCC in Buck converter is also compared with Hysteretic Current Control (HCC) LED driver. Experimental results with PCC and HCC show that the RMS current accuracy with HCC is much better than that of PCC in Buck converter. In the experiment, the peak current level is set to 800[mA] both in PCC and HCC with the varied input voltage from 14V to 28V DC. 262 [KHz] fixed switching frequency is used in PCC and 1.2 [MHz] switching frequency is obtained with 33 [muH] inductor in HCC. The PCC and HCC are tested to drive two HB-LEDs rated of 750 [mA]. Finally, the current accuracies of 1% with HCC and 10% with PCC are obtained in the test range. [C1721]

"LED backlight power system with auto-tuning regulation voltage for LCD panels"

This paper proposes a light emitting diode (LED) backlight power system for liquid crystal display (LCD) panels. The proposed power system is regulated by error quantities of feedback circuit from which variation value of the voltage across LED driving IC in each driving LED channel is attained due to changes of temperature on LEDs. With this compensation algorithm, the proposed LED backlight power supply can regulate its output voltage with auto-tuning to compensate a forward drop voltage of multi-LED-string and to maintain a constant voltage across each driving IC when temperature on LEDs is changed Compared with the conventional LED backlight power system, the proposed power system can reduce the temperature on LEDs about 6degC~8degC under driving IC operated in a safety of area. As a result, the proposed power system can reduce the temperature on LED driving IC to increase life cycle of components and reduce color shift significantly. Hardware measurement obtained from experimental prototype has been verified its feasibility. [C1722]

"A Digital boost converter to drive white LEDs"

A constant off-time boost converter with digital control was proposed and implemented with a field-programmable-gate-array (FPGA) to power white light emitting diodes (WLEDs) for hand-held applications. In the application, a lithium-ion battery with voltage ranging from 3.3 V to 4.2 V was used to light a serial connection of 4 WLEDs drawing current levels from 2 mA to 20 mA. A constant off-time digital PWM controller was chosen to increase the dimming resolution. For the compensator design, a small-signal control model for the constant off-time converter was presented. A digital PI compensator with programmable gain was used to stabilize the control loop for different LED current levels.Experimental results are presented. Same design considerations apply to other applications if a digitally-controlled boost or buck/boost converter with high conversion gain is used. [C1723]

"A Microsystem for Time-Resolved Fluorescence Analysis using CMOS Single-Photon Avalanche Diodes and Micro-LEDs"

Although microfluidics and microarray technologies are revolutionizing the throughput, sensitivity and cost in many areas of biodiagnostics, they are still reliant on bulky and expensive fluorescence analysis instrumentation. Conventional fluorescence intensity measurements are prone to misinterpretation due to illumination and fluorophore concentration non-uniformities. Thus, there is a growing interest in time-resolved fluorescence detection, whereby the characteristic fluorescence decay time-constant (or lifetime) in response to an impulse excitation source is measured. [C1724]

"A Direct-Type Fast Feedback Current Driver for Medium-to Large-Size AMOLED Displays"

The current or voltage driving schemes are employed for pulse-amplitude modulation (PAM) in AMOLED displays. Current driving methods have advantages over voltage driving schemes including improvement of luminance uniformity at display panels and compensation of TFT characteristics at pixels. degrade the driving accuracy. This paper introduces a direct-type fast feedback current (DFFC) driver that offers fast settling time with good accuracy by comparing the data with the pixel current directly. An optimum compensation method for the feedback loop is suggested as well. [C1725]

"A Dc-Dc current source power supply with novel load current signal extraction"

Applications such as high power light emitting diode (LED) and laser diode need a high output current source power supply. Low power dissipation and fast response are essential requirements for these solutions. Usually, accurate and fast direct output current sensing adds cost and power loss to the supply. This paper proposes a novel indirect load current signal extraction method for current source power supply. By doing so, the load current dynamic tracking performance is not compromised while the converter has improved efficiency and thermal performance. [C1726]

"Medical & Displays"

First Page of the Article [C1727]

"LED Light Emission as a Function of Thermal Conditions"

LED diode performance is a function of the device thermal conditions. The forward voltage and light emission of the LED vary with temperature and current. This paper discusses how to choose the desired operating temperature, by examining the effect of varying the thermal boundary conditions on the light emission. The relationships are important to making design decisions about the LED thermal packaging. A generalized calculation process is given for implementation. An example compares different thermal design constraints. [C1728]

"Wireless sensor transmission range measurement within the ground level"

The maximum transmission range of crossbow wireless sensors are considered and discussed for sensor to sensor on ground level communication, and sensor on ground level to base station on lamppost. Two different crossbow wireless sensors kits operated at 900 MHz and 2400 MHz bands were used. Both indoor and outdoor sensor to sensor communication ranges were performed for one and five different types of environments respectively. The performance of the crossbow mote with four different types of antennas, in term of transmission range was considered. Several measurement results for fixed power transmission of the two operated frequencies were recorded for comparisons. [C1729]

"Fluorescence Thermometer Based on 2-Dimensional Photoluminescence Imaging"

Two-dimensional photoluminescence (PL) image from sensor material is evaluated for fluorescence thermometer application. Two dimensional PL image is observed using CCD video camera under blue and/or UV LED illuminations. Red colored PL image can be observed from ruby sensor under illumination of blue LED. Brightness of red signal of PL image from ruby sensor varies linearly with temperature from 20 to 100degC Temperature can be measured based on brightness of PL images from fluorescence thermo-sensors. Video images processing technique (line scanning of intensity, histogram and integration of signal intensity) is found to be effective for fluorescence temperature measurement using phosphor sensors. [C1730]

"PC Board Thermal Management of High Power LEDs"

Increasing requirements of closely packed high power LEDs pose challenges for PC board thermal management. This paper presents a cost-effective thermal solution using FR4 based PCB technology and filled and capped vias. This robust technology enables superior thermal performance on board level for closely packed power LEDs. No solder joint or board level reliability failures were found during a temperature cycling test (TCT) from -40degC to 125degC after 1000 cycles. Moreover no solder joint and board level failure was found after 4000 cycles for open via FR4 when monitoring changes of board thermal resistance. Trade-offs are given for board thermal resistance versus packing density, various board designs, PCB technology, solder joint reliability and PCB board level reliability including open vias and filled and capped vias. [C1731]

"A very simple control strategy for power factor correctors driving high-brightness light-emitting diodes"

This paper presents a new control strategy for Power Factor Correctors (PFCs) used to drive High-Brightness Light- Emitting Diodes (HB-LEDs). This control strategy is extremely simple and it is based on the use of a conventional peak current- mode controller with a suitable selection of the compensation ramp waveform. In these conditions, an almost perfect sinusoidal line current is obtained at full load in the case of a topology based on the Boost converter. If the converter belongs to the Flyback family (Flyback, Buck-Boost, SEPIC, Cuk and Zeta), the line waveform appears notably distorted if the compensation ramp is a linear ramp, but becomes almost sinusoidal if the linear ramp is substituted by a properly chosen exponential waveform. The line waveform is slightly distorted when dimming control is implemented or when the converter works in either over-voltage or under-voltage conditions. However, the waveform maintains a very high Power Factor even in these conditions. Moreover, the line current is cycle-by-cycle controlled due to the peak current- mode control and, therefore, the input current feedback loop is extremely fast, thereby allowing this type of control to be used with high frequency lines (above 400 Hz). [C1732]

"Effects of parametric uncertainty in designing a high-brightness LED light system"

One way to create white light is with a RGB color mixing system, in which light from multiple monochromatic

LEDs (red, green and blue) is mixed. Unfortunately, there are several variations/uncertainties between individual LEDs that can create unwanted problems, such as variations in: forward voltage drop, peak wavelength, spectral radiant intensity, and the width of the spectral power distributions (SPD) of the LEDs. This paper will explain, through experiments, behavioral models and probability theory, how the variations affect the design of LED based lighting system. We especially describe the effects such as the influence of SPD variation and Forward Voltage drop variation. [C1733]

"Real time monitoring of the leakage current of 230 kV insulator strings under washing"

This paper reports the real time behavior of the leakage current flowing on insulator strings of a 230 kV substation tower during washing. Monitoring of two insulator strings in the tower is achieved by use of a pair of optical fiber sensors that detect samples of the leakage current waveforms and transmit those samples to a processing module via an optical link. It is observed that leakage current during washing may reach high peak levels, and the effectiveness of the washing can be inferred by the degree of leakage current after drying of the insulator strings. Direct monitoring of the leakage current can thus be used as an important guideline for proper washing procedures during this type of intervention as well as for determining the effectiveness of the procedure. [C1734]

"Session 16 lighting applications / LEDS"

{no data available} [C1735]

"A light emitting diode's chip structure with low stress and high light extraction efficiency"

Undesired residual stress always exists in light emitting diode (LED) after the process of metalorganic chemical vapor deposition (MOCVD) due to difference in thermal expansion coefficient of different layers, doping, and lattice mismatch. Residual stress would mostly induce defects in the process of LED chips, the packaging, accelerated testing and their applications. The influence of strain/stress on the optical properties of GaN based light emitting diode's (LED) chip is studied by molecular dynamic modeling. By simulation with finite element method (FEM), it is found that the stress caused by differences in thermal expansion coefficiency could be decreased by micro groove structures. The light extraction efficiency of LED chip could enhance with suitable micro structures. [C1736]

"Silicon based colloidal quantum dot photonic crystal light emitters at telecom wavelengths"

A high-density colloidal quantum dot film emitting at telecom wavelengths is evanescently coupled to a Si photonic crystal cavity, and the possibility of making a laser from the structure is discussed. [C1737]

"Reduced blue shift in screening the quantum-confined stark effect of an InGaN/GaN quantum well with the prestrained growth of a light-emitting diode"

We demonstrate the reduced spectral blue shift in increasing injection current of an InGaN/GaN quantum-well light-emitting diode with prestrained growth and show that this effect is stronger when the prestained GaN barrier layer is thinner. [C1738]

"PbS quantum dot photoluminescence quenching induced by an applied bias"

We demonstrate that a DC voltage applied on a PbS quantum dot embedded organic light emitting diode can partially quench the quantum dot photoluminescence and propose a way to avoid this quenching. [C1739]

"Room-temperature spin-controlled optoelectronic devices"

We present three spin-dependent optoelectronic devices for spin controlled photonics working at room temperature. A spin controlled light emitting diode is demonstrated which exhibits spin injection through Fe/Tb-multilayers at room temperature and in remanence. Furthermore, we show that a classical vertical resonator laser can amplify spin information even at room temperature due to its nonlinearity at threshold. Accordingly, in combination with the injectors mentioned above it can be used as a spin-controlled emitter, allowing efficient spin-controlled polarization switching of its optical output. Due to the stability of light polarization in comparison to the spin orientation in a semiconductor, spin information can thus be transmitted over long distances and at room temperature with such devices. For detection of such spin information, we present a spin detector. It consists of a pin-diode with Fe/Tb-multilayer contacts and we show that it can create a polarization dependent spin-current also at room temperature and without applied magnetic fields. [C1740]

"Photosensitizer-doped organic light-emitting diodes for near infrared to visible optical upconversion"

The optical upconversion of infrared light to visible light has been achieved in infrared photosensitizer-doped organic light-emitting diodes. This work brought forth a prototype design for novel flexible organic optical upconversion device. [C1741]

"Enhancing the light extraction of InGaN light-emitting diodes by patterning the dicing streets"

Patterning the dicing streets technology was used to define the high extraction efficiency region of InGaN-GaN multiple-quantum-well light-emitting diodes (LEDs). The external quantum efficiency (EQE) of the LEDs at 20 mA increased by 12.9% because of the roughening of the passive region which enhanced the escape cone. [C1742]

"High enhancement in light output of InGaN-based micro-hole array LEDs by photoelectrochemical (PEC) oxidation"

InGaN micro-hole-array LEDs (mu-LEDs) with and without oxide-film on it were fabricated. Compared with conventional LED, output power of mu-LEDs without and with oxide film have enhancement of 38% and 82% at 20 mA, respectively. [C1743]

"Effects of gamma irradiation on optical properties of CdSe/ZnS colloidal quantum dots"

Effects of 137Cs gamma irradiation on photoluminescent properties of CdSe/ZnS colloidal quantum dots are reported. Optical degradation was evaluated by measuring dependence of photoluminescence intensity on irradiation dose. CdSe/ZnS quantum dots show poor radiation hardness. [C1744]

"Size effects and light extraction efficiency optimization of III-Nitride light emitting diodes with SiO2 / polystyrene microlens arrays"

Optimization studies of InGaN quantum wells light emitting diodes employing SiO2/polystyrene microlens arrays are conducted. The use of microlens arrays leads to increase in light extraction efficiency by 2.7-times, in agreement with simulation. [C1745]

"OLEDs for solid state lighting"

Organic light emitting devices represent an exciting potential technology for solid state lighting. In this tutorial, key areas of progress in performance and low cost fabrication are described and compared to solid-state lighting needs. [C1746]

"Enhanced light extraction of light-emitting diodes with photonic crystal pattern fabricated by nanoimprint"

A hexagonal array of sub-micron sized holes was fabricated on InGaN/GaN quantum-well light-emitting diodes using nanoimprint lithography. Photoluminescence measurement confirms that light extraction of the LED was enhanced with two-dimensional photonic crystal patterns. [C1747]

"Fabrication of photonic crystal light-emitting diode with photoelectrochemical wet etching and phase mask interference"

We demonstrate the high light-extraction efficiency by using the photoelectrochemical etching technique for forming photonic crystal structures on an InGaN/GaN quantum-well light-emitting diode through phase-mask interference. More than 90% increase of output power is observed. [C1748]

"Anisotropy light extraction with high polarization ratio from photonic crystal light-emitting diodes"

The azimuthal anisotropy of GaN photonic crystal light-emitting diode is investigated using an annular structure. The extracted light distribution has P/S ratio of 5.5 for light propagating in GammaX direction and 2.1 for GammaM direction. [C1749]

"Investigating high-speed modulation characteristics of quantum dots in red emitting quantum dot-light emitting diodes"

We investigate the high-speed modulation characteristics of quantum dots in red emitting quantum dot-light emitting diodes, in which the -3dB cutoff frequency for 6-mm2device is 1.5 MHz under optimized conditions. The introduction of a positive offset DC bias voltage greatly increases the modulation speed at low applied voltage range. [C1750]

"Highly efficient, charge balanced blue phosphorescent OLEDs employing wide band gap host with p-i-n architecture"

In this study we report the use of a wide band gap host host p-bis (triphenylsilyly) benzene (UGH2) for Iridium (III) bis [(4, 6-difluorophenyl)-pyridinato-N, C2'] picolinate (FIrpic) based devices. The wide band gap host serves to confine the charge carriers in the emitting layer. Also the high triplet energy of the host efficiently confines all the excitons on the dopant molecules. A systematic effort is made to enhance the performance of blue phosphorescent organic light emitting diodes using the UGH2 host. The device performance of the intrinsic device was further enhanced by incorporation of a p-i-n architecture to tune the charge balance in the device. [C1751]

"Triplet energy confinement effect in blue phosphorescent organic light emitting devices"

The effects of triplet energy confinement and charge balance by hole and electron transport layers are investigated on blue phosphorescent organic light emitting devices (PHOLEDs). [C1752]

"Measurement of mid-infrared alinsb light-emitting diodes with surface patterning"

3D FDTD modelling is employed to design a surface pattern for mid-IR LEDs. Measured enhancement factors over an un-patterned device of 8% and 14% are found at 300 K and 25 K respectively. [C1753]

"Blue and yellow electroluminescence of MOSLED made on Si-rich SiOx grown by PECVD with detuning buried Si nanoclusters size"

Blue and yellow electroluminescence of MOSLEDs made on Si-rich SiOxwith buried Si nanocrystals of different sizes controlled with minimum hydrogen passivation are demonstrated by PECVD at different N2O/SiH4ratio and total fluence. [C1754]

"Stimulated emission of laser dyes in opal-like matrix (photonic crystal) under nanosecond pulsed laser excitation"

Transformation of fluorescence to stimulated emission in synthetic opals with voids filled by ethanol solutions of organic dyes is studied. Simultaneous shift of fluorescence and laser spectra maxima because of Bragg reflection is observed. [C1755]

"High efficiency white LEDs with 2D photonic quasi-crystal and patterned sapphire substrate"

A high emitting efficiency GaN-based white LED with 2D PQC on surface and PSS were successfully fabricated. After packaging, 21% enhancement in emitting luminous flux was achieved under the driving current 20 mA. [C1756]

"Microscale flexible image projection device for spatiotemporal excitation in the research of visual system development"

We have developed a microscale flexible image projection device, integrating a matrix addressable blue/green two-dimensional LED array to a multicore imaging fiber. Spatiotemporal patterns of illumination have been used to study amphibian visual system development. [C1757]

"Enhancing efficiency of electroluminescence using individual metal nanoparticles and ordered nanoparticle arrays"

We apply the ldquoeffective mode volumerdquo theory to evaluate the enhancement of the efficiency of electroluminescence of the semiconductor placed in the vicinity of isolated metal nanoparticles and their arrays and show that using random assembly of isolated particles holds an advantage over the ordered arrays. [C1758]

"High-power emission of Nd-vanadate thin-disk lasers in-band pumped at 0.88 μm directly into the emitting level"

In-band pumping at 0.88 mum was used to realize Nd-vanadate thin-disk lasers with maximum continuous-wave output power of 14.9 W at 1.06 mum, and to generate 9.1 W output power of green light at 0.53 mum. Results on deep-blue generation are discussed. [C1759]

"A prototype miniaturized chip for bio-imaging applications"

We demonstrate a prototype miniaturized chip for bio-imaging based on semiconductor LEDs. The Epifluorescent images under direct LED illuminations are comparable to the images captured with commercial systems employing solid-state-laser illumination through standard filter sets. [C1760]

"Degradation of organic light-emitting diodes: Dependence on deposition rate"

The dependence of device degradation of organic light-emitting diodes (OLEDs) on film deposition rate is presented. The OLEDs made by lower deposition rates exhibit short device lifetime, which is attributed to the formed ordered aggregates. [C1761]

"InGaN light emitters: A comparison of quantum dot and quantum well based devices"

In this paper, we have studied the band structure of InGaN based quantum dot devices. The valence force field model and k middot p method have been applied to study the band structures in InGaN quantum dot devices including the piezoelectric polarization effects. A comparison with InGaN quantum wells shows that InGaN quantum dots can provide better e-h overlap and reduce the radiative lifetime. The dot size and the relation to the effective bandgap have been studied in this paper. The results suggest that InGaN quantum dots would have superior performance in white light emitters. [C1762]

"Bright and color-saturated emission from blue light emitting diodes based on solution-processed colloidal nanocrystal quantum dots"

We report a bright and color-saturated blue light-emitting-diode based on colloidal core/shell-CdS/ZnS quantum-dots. Broad-band, long-wavelength emission from the deep-traps in QDs is, for the first time, minimized to less than 5% of the total emission. [C1763]

"Optical anisotropy in InGaN/GaN quantum-well light-emitting diodes with a general crystal orientation"

We have studied the crystal orientation effect on optical anisotropy in InGaN/GaN quantum-well light-emitting diodes. The absolute value of the anisotropy is found to increase rapidly with increasing crystal angle. [C1764]

"Controlling the radiative rate of electrophosphorescent organometallic complexes by engineering the singlet-triplet splitting"

We address the role of singlet-triplet splitting in controlling the radiative rate for deep-blue electrophosphorescent metal complexes. An enhanced radiative rate correlates with a small splitting, highlighting the road map to efficient electrophosphorescence. [C1765]

"Enhanced vertical extraction efficiency from a thin-film InGaN/GaN photonic crystal light-emitting diodes"

An InGaN/GaN thin-film light-emitting diode with the photonic crystal (PhC) on the surface and a TiO2/SiO2omnidirectional reflector on the bottom was fabricated and found the line-width emission spectrum of 5 nm by the PhC. [C1766]

"High extraction efficiency GaN light-emitting diode with photonic crystal patterns and angled sidewall deflectors"

We integrated into GaN LEDs both two-dimensional photonic crystal patterns and angled sidewall deflectors. The resultant devices exhibited about three-fold enhancement in vertical emission intensity when compared with the planar reference LED device. [C1767]

"Crystal fiber based white light source using Ce,Sm:YAG as the active medium"

White light source using double-clad Ce,Sm:YAG crystal fiber was fabricated for the first time. The color-rendering index and color temperature are estimated to be 75 and 4610 K, respectively. [C1768]

"A New Method for Bryophyte Canopy Analysis Based on 3D Surface Reconstruction"

Recent studies concerning bryophyte canopy structure applied various modern, computer analysis methods for determining moss layer characteristics drawing on the outcomes of a previous research on surface of soil. Surface roughness index Lr was hereby used as a monitor of quality (and condition) of bryophyte canopy. We explored stereo photogrammetry, a non-contact passive method of collecting distance information about surfaces, as a method to acquire 3D model of bryophyte layer and thus Lrand compared it with methods already performed by other authors-contact probe, LED scanning and 3D laser scanning. In contrast to active methods, this method relies on detecting reflected ambient light, therefore, it does not emit any kind of radiation, which can lead to interference with moss photosynthetic pigments, nor does it affect the structure of its layer. This makes it much more suitable for usage in natural environment. [C1769]

"Combined optical and electrical analysis of AlGaN-based deep-UV LEDs reliability"

This paper describes an analysis of the reliability of AlGaN-based deep-UV Light-Emitting Diodes (LEDs) emitting in the range 280-340 nm. LEDs have been aged at their nominal operating current, and during treatment their electrical and optical characteristics have been continuously monitored. Measurement results show that (i) constant current stress can induce degradation of the optical power emitted by the devices; (ii) degradation is more prominent at low measuring current level, thus suggesting that efficiency decrease is related to the generation of non-radiative paths; (iii) degradation does not imply a significant variation of the operating voltage of the devices, thus indicating that the characteristics of the ohmic contacts are stable over stress time; (iv) optical power decrease takes place together with modifications of the C-V apparent charge profiles, indicating that the generation of non-radiative paths is related to charge instabilities in the QW region. [C1770]

"Simulation blocks for TOSSIM-T2"

We develop several hardware and software simulation blocks for the TinyOS-2 (TOSSIM-T2) simulator. The choice of simulated hardware platform is the popular MICA2 mote. While the hardware simulation elements comprise of radio and external flash memory, the software blocks include an environment noise model, packet delivery model and an energy estimator block for the complete system. The hardware radio block uses the software environment noise model to sample the noise floor. The packet delivery model is built by establishing the SNR-PRR curve for the MICA2 system. The energy estimator block models energy consumption by Micro Controller Unit(MCU), Radio, LEDs, and external flash memory. Using the manufacturerpsilas data sheets we provide an estimate of the energy consumed by the hardware during transmission, reception and also track several of the MCUs states with the associated energy consumption. To study the effectiveness of this work, we take a case study of a paper presented in [1]. We obtain three sets of results for energy consumption through mathematical analysis, simulation using the blocks built into PowerTossim-T2 and finally laboratory measurements. Since there is a significant match between these result sets, we propose our blocks for T2 community to effectively test their application energy requirements and node life times. [C1771]

"A Framework for Modeling, Simulation and Automatic Code Generation of Sensor Network Application"

Showing functional correctness by simulation before implementation, and preserving it by automated code generation, is extremely useful to reduce the development time for an embedded application. This is even more true for wireless sensor networks, since their nodes often provide very rudimentary debugging facilities, and sufficiently large networks for realistic analysis may be expensive to deploy. While this approach, also known as model-based design, is becoming quite standard for several domains that have similar constraints as wireless sensor networks, such as automotive electronics, there is a lack of tools for this purpose in the WSN world. In order to fill this gap, in this paper we present a framework (based on Simulink, Stateflow and Embedded Coder) in which an engineer can create sensor network components (both at the application and at the protocol level) that can be used as building blocks to model, simulate and automatically generate code for different underlying platforms and operating systems. [C1772]

"Global green energy conversion revolution in 21st century through solid state devices"

Rising demands of energy in emerging economies coupled with the green house gas emissions related problems around the globe have provided a unique opportunity of exploiting the advantages offered by solid state devices (photovoltaic devices, thermoelectric devices, light emitting devices etc.) for green energy conversion. Similar to cell phones, power generation by photovoltaics (PV) can reach over two billion people worldwide who have no access to clean energy. Only silicon based PV devices meet the criterion of clean energy conversion (abundance of raw material and no environmental health and safety issues). Using larger size glass substrates

and manufacturing techniques similar to the one used by liquid crystal display industry, the manufacturing cost of amorphous silicon thin films of $1/wart can be achieved in the next one or two years. This will open a huge market for grid connected PV systems and related markets. With further R&D, this approach can provide a manufacturing cost goal of $0.50/watt in the next 10 years. At this cost level, PV electricity generation is competitive with any other technology and PV generation can be a dominant electricity generation technology in the 21stcentury. In the areas of thermoelectric devices and light emitting diodes, more focused research is required to penetrate the market in a dominant way. Based on silicon CMOS technology, ambient energy harvesting will create its own niche market driven by the desire to produce communication, sensing and computing integrated systems with small form factor and no battery. [C1773]

"Optimal resolution of LBIV/LBIC methods for diagnostics of solar cell homogeneity"

Both LBIV and LBIC methods (light beam induced voltage and light beam induced current) are based on measuring either short circuit current Iscor open circuit voltage Vocunder conditions of local illumination by monochromatic light of a proper wavelength. By positioning the illuminated spot, a map of either Iscor Voccan be obtained, from which it is possible to find the distribution of the recombination rate over the area of the solar cell. A map of either Iscor Voc, from which the distribution of recombination in individual layers of the cell structure can be found, should be measured within a relatively short time, and high resolution is desirable. This paper deals with the possibility of resolution adjustment for the LBIV method, and maps of crystalline silicon in these resolutions are presented. [C1774]

"Acomprehensive compact SCR model for CDM ESD circuit simulation"

We have presented a comprehensive SCR compact model for CDM simulation. The work illustrated the useful and effective macromodeling approach of integrating the various industry standard models to describe the different devices imbedded in the SCR and treating the CDM-relevant operation states. In additional to the prediction of TLP results, the presented model demonstrates the effectiveness in analyzing CDM response of the I/O circuits and successfully explains why the input pins have lower CDM robustness than the output pins. [C1775]

"Energy-efficient broadband data communications using white LEDs on aircraft powerlines"

Broadband powerline communication has advanced through last decade and it is going to be a mature access technique in near future. Meanwhile, optical wireless communication through energy-efficient lighting LEDs has been investigated, recently. In this paper, it is shown that marriage of these two techniques creates an efficient delivery mechanism for fulfilling the promise of broadband access onboard an aircraft, while providing efficient and low-cost lighting. The potential capabilities of these two emerging techniques are examined. [C1776]

"Design optimization on the heat transfer and mechanical reliability of High Brightness Light Emitting Diodes (HBLED) package"

In this study, high brightness LED package is considered. Steady state heat transfer process analysis is firstly carried out using 3-D finite element method. Temperature distribution and thermal resistance of the package are then determined. The FEM results are evaluated by thermal resistance measurement on the package by T3STer system. In addition design study on the thermal performance of the packaging structure is also performed. The analysis results show that die attachment (solder material) plays the most important role in the thermal resistance of LED package. Thermal resistance of the package is mainly caused by the interfacial thermal resistances. It can be found out that Al2O3isolation ring increases the thermal resistance of the package and pure Aluminum substrate achieves a better performance in the respect of thermal behavior of packaging designs. Mechanical reliability analysis has also been carried out. Failure of the package occurs in the anodized Al2O3isolation ring during die bonding process due to the material defects of Al2O3in the manufacturing process. 3D mechanical FEM is used to figure out the failure mechanism. Design optimization on the packaging structure is also performed to improve the mechanical reliability. A few new structure designs are proposed, analyzed and compared. Design with the best reliability among the candidates is chosen and the corresponding manufacturing processes are proposed. [C1777]

"Directly synthesizing CNT-TIM on aluminum alloy heat sink for HB-LED thermal management"

Vertically aligned carbon nanotube (VACNT) arrays were synthesized directly on aluminum alloy substrates by thermal chemical vapor deposition (CVD). Iron nitrate (Fe(NO3)3ldr9H2O) was used as the catalyst. Parameters influencing CNT synthesis were studied and optimized. Several surface treatment methods were proposed to improve the quality of CNTs synthesized on aluminum alloy substrates. The grown CNT arrays were used as thermal interface material (TIM) while the aluminum alloy substrate used as the heat sink in high brightness LED

packages. The measured thermal resistance of the grown CNT-TIM was 38 mm2-K/W. The output light power testing demonstrated CNT-TIM is an attractive thermal management solution for HB- LED packages. [C1778]

"Multi-chip integrated high-power white LED device on the multi-layer ceramic substrate"

In order to solve the thermal issue and improve the thermal resistance of LED, a device with multi-chip packaged on multi-layer composite ceramic substrate is successfully packaged. The top layer of the substrate is low temperature co-fire ceramic (LTCC), while the base layer is aluminum nitride (AINx) ceramic. 18 chips(one watt) are used in the device, and all of them are simultaneously packaged on a composite ceramic substrate which is 55 mm in length and 20 mm in width. The 18 chips are designed into two rows, and three chips in series for six parallels. At the same time the same chips are packaged on aluminum (Al) substrate and alumina (AlOx) substrate. After wire bonding photoelectric parameters of the three package modules are tested, the results show that the properties of the AINx-based package has the best performances, the thermal resistance of the device is far smaller than the other devices packed on the Al substrate and the AlOx substrate. After phosphor coatings the AINx-based multi-layer ceramic substrate package has 896.1 lm (43.4 lm/W) loading 350 milliampere (mA) to each chip, and has 1081.3 lm (35.4 lm/W) loading 500 mA. The multi-chip module has little light degradation adding 500 mA to each chip after working in the room temperature for one afternoon. At last the module is simulated by ANSYS software, the highest junction temperature of the chips in the module is about 70.8degC when 1.8 watts electric power is loaded to each chip, this temperature is far lower than 125degC which will damage the chip, and he highest simulation temperature of the aluminum heat slug is about 39.3degC. The temperature of the aluminum heat slug is about 41.0degC which is tested by thermocouple in the experiments, and it is closely to the simulation temperature 39.3degC. At last the relationship between pn-junction temperature and thermal conductivity coefficient of the silver (Ag) paste, the relationship between pn-junction temperatures and convection coefficient ha- ve been researched, the results show that the pn-junction temperature can be decreased a lot while increase the thermal conductivity coefficient of the adhesive layer or increase the convection coefficient a little. [C1779]

"Thermal management and novel package design of high power light-emitting diodes"

Thermal management and package materials in high power light emitting diodes (HPLEDs) are now critical design issues to limit their luminous intensity, reliability, and applications. In this paper electroless and electroplating techniques (EET) were both applied in fabrication of the red, green, and blue HPLEDs (RGB HPLEDs) chips. The HPLEDs with conventional package structures were fixed on the lead frames by adhesives, but the HPLEDs using EET were fixed on copper substrates without any adhesive resin. In our work, the results show that the thermal resistance of HPLED using EET is much less than one of the HPLED using adhesive resin. The maximum luminous intensity of the single chip HPLED using EET is larger than HPLED with resin/MCPCB (metal core printed circuit board) in room temperature. [C1780]

"Thin film encapsulation of OLED displays with organic-inorganic composite film"

Organic Light-Emitting diode (OLED) display is considered as one of the most potential display technology. Since it has the advantages of low-driving voltage, high luminance and high efficiency, the OLED can perform large area panel full-color display and flexible organic electroluminescent display. OLED display has been extensively studied and become a hot spot in international research recently. However, the short operation lifetime due to the sensitivity to vapor and oxygen limits the process of OLED technology to industrialization. Hence effective encapsulation technology is the best way to solve the problem. High-performance Thin Film Encapsulation (TFE) should be fabricated to realize long-time driving OLED display. First, a high-quality TFE should have a good diffusion barrier to water and oxygen penetration, high flexibility or mechanically robust to avoid cracking during bending. Secondly, a TFE should have good heat diffusion effect. This is because the device may degrade when the current is turn on, resulting from the electro-chemical process. The heat accumulation will promote the growth of pinhole in the cathode area and the formation of darkspot in the emissive layer. Finally, damage effect on device should be lower enough to avoid the degradation of organic layers during passivation deposition, since the organic materials cannot withstand high process temperature and also require an inert processing environment. OLED displays can be fabricated as thin as the substrate if thin film packaging is used. We propose a novel multilayer stack of organic-inorganic composite film encapsulation. The results on the barrier properties of this stack and a working passive matrix polymer OLED demonstrator are presented. The focus of this paper is to investigate the relationship between deposition parameters and its properties in order to prepare excellent organic-inorganic composite film for OLED. The compatibility with the OLED structure itself and results on device- operation will be shown. By analyzing the observation and data, the influence of deposition parameters of organic-inorganic composite film for OLED is systematically discussed. At last, more tests are needed in order to get a more precise investigation. [C1781]

"Enhancement of light efficiency of LED using a novel high refractive encapsulant"

In this study, we conversed Bisbromomethyl-biphenyl and thiourea to a new biphenyl dithiol (BPDT) and used it as a co-curing agent. Its structure was confirmed by means of FT- IR, 1H-NMR, and MS spectra. We co-cured the conventional diglycidyl ether of Bisphenol A (DGEBA) epoxy resin with BPDT and aliphatic tetra-thiol (Pentaerythritol tetrakis(3- mercaptopropionate)) to get a colorless encapuslant (HRIL). After 80deg.C/2hour and 120deg.C/2hour curing process, the optical properties of the cured HRIL were measured. The refractive index was 1.64 which is the highest refractive index among the current existed LED encapsulant, and the transmittance of the cured HRIL was above 85% on the visible wavelength. Furthermore, the effect on light efficiency of LED was evaluated and found that the light efficiency of HRIL encapsulated LED was promoted 14%, compared with the conventional epoxy encapsulated LED. This result certainly reveals that the high refractive index encapslant can effectively enhance the light efficiency of LED. We also analyzed the thermal mechanical property and thermal stability of the cured HRIL which contained a hindered amine light stabilizer (HALS) by TMA and TGA. The Tg of the cured HRIL was 85.2deg.C and the thermal decomposed temperature was 327.7deg.C. After HOdeg.C/lOOOhour thermal aging test, the decrease of transmittance was less than 5% and the thermal resistant result unveils that the novel high refractive index encapsulant is suitable for high performance LED applications. [C1782]

"High brightness matrix LED assembly challenges and solutions"

Solid State Lighting is pervasive and will continue to grow in popularity as performance and costs mature. Products include camera phone flashes, televisions, display backlighting, automotive lighting, medical products, architectural lighting, projectors, and others still in development. Reaching performance and cost targets will require continuous improvements in LED devices and packaging to extract ever increasing lumens per watt. Several new products use a matrix of LED devices packaged together. These matrix LED packages present challenges for both die attach and wire bonding compared to single die packages. A brief overview of market applications and the package options is presented. A case study is presented to highlight the challenges and solutions when producing matrix LED packages. Pulsed heat eutectic die attach and wire chain bonding are explored for application to matrix LED assembly. [C1783]

"Thermal analyses and measurements of low-Cost COP package for high-power LED"

The high-power light emitting diode (LED), which features low-power consumption, longer life time and shorter response time, has a potential to replace the conventional general lighting, such as incandescent and fluorescent lamps. However, the LED issues, associated with high cost, high junction temperature, low luminous efficiency, and low reliability, have to be solved before gaining more market penetration. With special features of low-junction- temperature and low-cost design, a novel package for high- power LED, so called COP (chip on plate) package, is proposed in this study. The thermal behaviors of the COP package with and without a heat sink are investigated by experimental measurements (with LED junction temperature tester and thermal couples), a thermal resistance circuit (TRC) method, a finite element method (FEM) and a computational fluid dynamics (CFD) approach. The junction temperature (Tj) of the COP package was measured by the junction temperature tester and found to be comparable with those from commercial products, such as Cree's, and Lumiled's packages. Furthermore, the TRC and FEM were used for addressing the thermal fields of the COP package with and without a heat sink. The results of the thermal fields including the Tj from the experiments, FEM and TRC were found to be reasonably consistent under various input powers for the COP package, but not for the package with a heat sink. Moreover, the under-estimated thermal fields of the package with a heat sink from both FEM and TRC analyses were evaluated again by the CFD approach. The results indicate that the heat convection coefficients on the heat sink used the FEM and TRC analyses are higher than those calculated from the CFD. Finally, the reasonable and validated FEM and TRC models were used for parametric studies and their results show that the thermal conductivities of the die attach, chip substrate and package substrate (rather than the heat sink, chip, thermal grease and encapsulant) ha- ve an obvious effect on the Tj. In addition, for reducing the Tj, increasing the radius of the heat sink was found to be more beneficial than increasing the height. [C1784]

"Spontaneous recombination rate and luminescence efficiency of staggered InGaN quantum wells light emitting diodes"

Spontaneous emission characteristics and power-dependent cathodoluminescence (CL) of staggered InGaN quantum wells (QWs) light emitting diodes were analyzed. The measurements indicated ~4-times improvement in integrated CL intensity and ~50% reduction in non-radiative recombination rate. [C1785]

"The origin of efficiency droop in GaN-based light-emitting diodes and its solution"

The physical origin of efficiency droop in GaN-based light-emitting diodes when driven with high current is systematically investigated. Based on our simulations and experimental results, a polarization-matched active region is proposed as the solution. [C1786]

"Using eye contact and contextual speech recognition for hands-free surgical charting"

In this paper we discuss ongoing research into applications for multimodal Attentive User Interfaces in hands-free charting during surgical procedures. Although speech recognition has matured enough that it can now be used for some software and hardware control, speech recognition solutions still have trouble filtering ldquocommand speechrdquo from ldquoambient speech.rdquo Our research builds on previous research that couples eye contact sensing with speech recognition to gauge intent. Users enable a voice activation system used for surgical time charting by fixing their gaze on a small camera before speaking command words. [C1787]

"Time-resolved optical studies of InGaN LED structures grown on semipolar and nonpolar bulk GaN substrates"

We present time-resolved photoluminescence on InGaN/GaN multiple-quantum well LEDs grown on nonpolar and semipolar bulk GaN substrates and investigate increasing indium concentrations toward higher power, longer wavelength light emitters. [C1788]

"InGaN-GaNAs type-II 'W' quantum well lasers for emission at 450-nm"

Type-II InGaN-GaNAs quantum well gain media is analyzed for lasers emitting at 450-nm. Optical gain analysis, using 6-band k.p formalism, show 3-times improvement and 40% reduction in threshold current. [C1789]

"OLEDs on fibers and AFM cantilevers"

This talk will discuss recent work on novel device architectures that include ITO-free OLEDs deposited on fibers, on highly corrugated surfaces and sharp tips for for solid-state lighting and microscopy applications. [C1790]

"Efficiency of InGaN LEDs incorporating Surface Plasmon Polaritons"

We estimated the influence of surface plasmon polaritons on the internal efficiency of LEDs by 3D FDTD calculations. It turns out, that SPP LEDs outperform standard LEDs if non-radiative losses are high. [C1791]

"Improving quantum efficiency with nanostructured semipolar III-nitride light emitters"

We demonstrated nanostructured semipolar III-nitride light emitters on low cost c-plane GaN templates using one-step epitaxy. The total light emission efficiency is improved by a factor of 2.6 compared to polar emitters at room temperature. [C1792]

"Bidirectional transmission over standard step index PMMA polymer optical fiber"

Plastic optical fibre (POF) is the most promising candidate for short-range high debit communication networks links in application scenarios, such as, for instance, industrial automation, automotive, in house networking, inside office buildings, airport terminals, hospitals. This paper describes a low cost bi-directional POF communication system using wavelength multiplexed LEDs (light emitting diode). [C1793]

"Three-dimensional parallel FDTD simulation of light-emitting diodes"

Three-dimensional FDTD simulation of light-emitting diodes is undertaken with the use of a high-performance parallel computing cluster. It is envisaged that much larger structures was simulated resulting in an improved design process for emission enhancing structures. [C1794]

"Failure analysis of high power white LEDs"

Moisture-induced silver reactions have been identified as a fast degradation mechanism in commercial plastic packaged white LEDs, that passed a standard incoming lot inspection but resulted all degraded at the switching-on after mounting on the final boards. The source of the contaminant (Sulphur) is not explained by any part of the available history of the devices in the lot. Anyway, each one of three possible scenarios depicts a reliability issue that escaped the process monitors and reached the shelf. [C1795]

"A compensation threshold voltage shift pixel circuit for active matrix organic light emitting diode"

In this paper, we propose a new Voltage- programming pixel circuit using hydrogenated amorphous silicon (a-Si:H) thin-film transistors (TFTs) for an active matrix organic light-emitting diode (AMOLED). The proposed a-Si:H TFT pixel circuit, which consists of four p-type switching TFTs, one n-type driving TFT, two additional control signals and one storage capacitor, successfully compensated the OLED current fluctuation caused by threshold voltage shift of a-Si:H TFT and the drop on the supply voltage, the propose pixel circuit has been verified by the simulation work using HSPICE software, the simulation result show that this pixel circuit has high immunity to the variation of a-Si:H TFT characteristics. [C1796]

"Neural Network Modeling for Retrieval of Water Quality of Lake Taihu from Field Spectral Measurement"

How to effectively monitor water quality of Coastal and inland waters by optical remote sensing has always been a difficulty. This study develops a neural network model to improve the accuracy in monitoring water quality of Lake Taihu, China, a large shallow subtropical lake. A three-layer back-propagation neural network is built up to estimate concentrations of chlorophyll-a, total suspended matter and dissolved organic carbon at the same time from in-situ measured water surface spectra. The neural network is trained by the simultaneously in-situ measured water surface spectra and water quality parameters (including concentrations of chlorophyll-a, total suspended matter and dissolved organic carbon) in 39 sampling stations of Lake Taihu in the campaign in winter of 2007. Then, the neural network model is tested by the data measured in both the left 9 sampling stations in the campaign in winter of 2007 and the 9 sampling stations in the campaign in winter of 2006. The estimated errors of the three kinds of water quality parameters are less than 30% in both campaigns in winters of 2006 and 2007. The results show that this neural network model has high seasonal applicability, and is very useful in monitoring of water quality of Lake Taihu from water surface spectra measured in future winters. [C1797]

"Sleep circuit for SRAM core with improved noise-margin"

Data retention power gating is a commonly used method for leakage reduction in deep submicron SRAM. However, application of such methods result into reduced stability of the SRAM bitcell. Moreover, reducing supply voltage and increasing process variation put a limitation on such usage in deep submicron processes. Present scheme describes a method to enhance stability while applying such data retention power gating to SRAM memory core. Method improves stability under cross-corner/high-leakage conditions using a feedback mechanism. Minimum functional voltage under data retention power gating is reduced up to 11% of VDD using the described scheme, while using 90 nm CMOS process. The scheme enables the memory usage under low voltage operation, where we observe data retention failures using normal gating methods. [C1798]

"Advances in hazardous location lighting-Past, present and future"

The rate of change of industrial & hazardous location lighting is accelerating. This paper looks at the evolution of hazardous location lighting with emphasis on new technologies in use today throughout the world. It will also explore future trends & technological advances. [C1799]

"Poor confinement of e-h recombination zone in blue oleds"

The possibility of making large light-emitting area with low cost has stimulated the research work on organic-based light-emitting devices (OLEDs). OLEDs with emission color covering almost the entire visible range have been realized. This was achieved by simultaneously synthesizing new materials and optimizing the device structure itself by adding/getting rid of different layers. Recently, OLEDs performance has improved and has become adequate for many display applications. However, the main problem still to be solved, concerns the short lifetime of the devices. Surprisingly, there are only few fundamental works on the degradation mechanisms of OLEDs. The mechanisms behind the light decay and the color shifts, especially for blue colour, are still not fully understood. Earlier studies have suggested that the poor balance between the number of electrons and holes in the emitting layer, is one of the main factors in limiting the lifetime of the device. [C1800]

"RGB LED backlight driving system with area control"

Higher luminance efficacy, faster response, longer operation life, wider color gamut and environmental issues makes RGB LED backlight driving system suitable for high end LCD applications. In this paper, a RGB backlight driving system for LCD panels with individual area control is proposed. Using the topology proposed in this paper, the backlight can be divided into 96 individual areas, and can easily be expanded to higher number of areas. In order to verify the effectiveness of the proposed system, a developed prototype will be presented and experiments will be carried out. According to the experimental results, the power conversion efficiency is 90 % and individual area control can be achieved. [C1801]

"Buck converter associated with active clamp flyback converter for PV power system"

This paper presents an LED lighting system with a PV source. The circuit structure of the proposed system separately adopts buck converter and flyback converter as the charger and discharger. With this circuit structure, buck converter can vary its duty ratio to regulate charging current of battery, while flyback converter with active clamp circuit can recover energy stored in leakage inductor of transformer to drive LED lighting. To simplify the circuit structure, switches of two converters are integrated with a synchronous switch technique. With this approach, the proposed system has several merits, which are a less component counts, lighter weight, smaller size and higher conversion efficiency. As compared with the conventional converter with hard-switching circuit, the proposed one can improve conversion efficiency of 7% and achieve efficiency about 83% under full load when the proposed system is operated in the driving LED condition. Experimental results obtained from a prototype with the output voltage of 10 V and output power of 20 W have been implemented to verify its feasibility. [C1802]

"Robust LED backlight driver with low output voltage drop and hig output current accuracy"

Constant current regulator for LED backlight system is more and more popular. Some methods are proposed to achieve low voltage drop on output power MOSFET. However, inaccurate output current due to channel length modulation or the oscillation phenomenon of the output current due to instability may occur. In this paper, we analyze the conventional LED driver and disclose the reasons causing the oscillation problem. Furthermore, a new robust circuit to drive LED strings is proposed to avoid the oscillation and to reach very low voltage drop on output power MOSFET. The efficiency of the driver is enhanced. When the output MOSFET is operated in the saturation region, the channel length modulation of the power MOSFET can also be alleviated and the sinking current remains constant as the drain-to source voltage varies. [C1803]

"Development of an energy efficient street light driving system"

As the LEDpsilas lumen efficiency increases rapidly in recent years, many new LED illumination applications are emerging. LEDs have features such as long-life, small and low power consumption. Therefore, they are used in various occasion such as full color large sized LED displays, traffic lights, and etc. In this paper, an energy efficient street lighting system is proposed. The presented system consists of a LED lamp module, a digitally-controlled multi-phase driving system for LED lamp and an Ethernet-based communication interface. A developed prototype system will be presented in this paper and experiments will be performed to verify the correctness of the proposed system. According to the experimental results, the lighting efficiency is 85 % and the conversion efficiency is 90 %. [C1804]

"Accurate localization in short distance based on computer vision for mobile sensors"

In order to maximize the utilization of mobile sensor network, formation of sensor set and localization of each sensor node must be implemented. It is required that localization is one of the most important functionality of mobile sensor nodes. In this paper, we present a technique which improves the relative location of the MSN with a computer vision technology. This technique effects only in short distance but only with low price sensors, we achieved precise localization in the resolution of 10 centimeters. The well known perspective-3-point problem have been exploited for the precise short distance localization. By experiment we present an interrelation between angle of camera view and a LED pattern interval. We measures the distance of the counterpart vehicle and vehicles shares distance information of obstacle and the relative vehicles with possible cooperation of vehicles. The angle of a vehicle can be identified by digital compass. Finally, with a share of location information we can achieve localization of mobile sensor nodes with high accuracy. [C1805]

"Fabrication of Ultraviolet range Light Guide Plate"

The light guide plate, as part of the backlight unit in a cell-phone or liquid crystal display, has evolved to meet market demands for low power consumption, high-luminance and high-quality displays. Along with the advance of the light guide plate, LEDs have undergone development as light source for light guide plates. Surpassing the limitations of LED emission in the visible light range, LEDs that emit ultraviolet light have been developed. In recent years, the ultraviolet light are used as a source of light of the air cleaner, and it is used as a source of light to activate the titanium oxide which is photocatalyst. Common ultraviolet light sources are either line or point light sources. There are no surface light sources capable of providing uniform lighting. The laboratory studies surface illuminators that incorporate diffusers in the visible light range. Applying our existing technology, we constructed an unprecedented ultraviolet surface illuminator (surface light source) and measured it using a photocatalyst. The experiment results are presented in this report. [C1806]

"A high-sensitivity CMOS-compatible immunosensor based on the HRP/TMB/streptavidin system"

In this report, a CMOS-compatible colorimetric biosensor based on HRP/TMB/streptavidin system is proposed. HRP activity is used for labelled target quantification by photometric detector. The modulation of light intensity due to enzyme reaction can easily be detected in 96-well microarray plate by providing 650 nm light source (LED). There is good correlation between absorbance in 650 nm and the concentration of HRP-streptavidin with detection limit in 1.33 pM. This device is reusable and suits for various targets by microarray plate modification rather than biochip. With the advantage of portable, low cost, and reusable, this new designed immunosensor could be widely used for both research and diagnostic purposes. [C1807]

"Wavelet variance differences in atrial fibrillation during anaesthetic effect"

Effect of anaesthetic agents in restoration rhythm procedures during atrial fibrillation (AF) has not been fully investigated. We evaluated the effects of a widely used anaesthetic agent (propofol) in the fibrillation patterns. Intra-atrial recordings belong to 18 patients diagnosed with AF were analyzed ldquobeforerdquo (baseline) and ldquoduringrdquo anaesthetic infusion. The goal of this study is to characterize the variation in atrial properties along the atria in both states. The wavelet variance decomposes the variance of a time series on a scale by scale basis and hence has considerable appeal when physical phenomena are analyzed in terms of variations operating over a range of different scales. Moreover, the variance estimates are more accurately determined with a maximal-overlap version of the wavelet transform (MODWT). As mother wavelet was used the Haar wavelet where the signal was partitioned over seven scales. Wavelet analysis highlights a significant lower changes during the anaesthetic infusion respect to the basal conditions in the right atrium, with an opposite effect and non significant values in the left atrium. The proposed methodology provides an additional approach to the understanding of the role of the anaesthetic, showing a decrease in the variance inter-scales during the anaesthetic infusion in the right atrium, with the opposite effect in the left atrium. [C1808]

"High Selective Ultra-Wideband (UWB) Bandpass Filter with Wideband Harmonic Suppression"

This paper presents a novel ultra-wideband (UWB) bandpass filter (BPF) with wideband harmonic suppression and high selectivity on liquid crystal polymer (LCP) substrate. In the design, radial stubs are adopted to suppress out-of-band harmonic response and increase selectivity. A 10-pole proposed prototype with 120.6% fractional bandwidth is designed with equivalent circuit and full-wave simulator. The designed UWB BPF is fabricated on organic liquid crystal polymer (LCP) substrate and measured using vector network analyzer. Good agreement between simulation and measurement results is presented. Measurement results show that the fabricated filter exhibits ultra wide passband from 2.7 GHz to 10.9 GHz, a low insertion losses of 0.43 dB at 6.8 GHz, wideband harmonic suppression and high selectivity. [C1809]

"Ultra Sonic Sensor Based Blind Spot Accident Prevention System"

A blind spot detection device for protection against misshapenness such as automobiles collisions, obstacles, and accident that leads to great loss of human lives and can have disastrous results.Technology used for this purpose worked by detecting the other automobiles, obstacles and bystanders. Upon detecting, the device triggers a timer that delays the activation of alarm circuitry for a brief period of time.This time delay is instituted to minimize the triggers of nuisance alarm by a momentary intrusion in the hazard zone. If the obstaclepsilas presence is still detected after the delay time, LED's and audible alarms are triggered to alert the system operator of the dangerous situation. The alarms remain activated for a time period, allowing the operator to clear the hazard zone. [C1810]

"Fuzzy Comprehensive Estimation Model for the Anaerobic System Operation State Based on Fuzzy C-Mean"

The fuzzy comprehensive model was established with fuzzy c-mean cluster method. Based on this fuzzy model, the operation state of anaerobic system, divided into stable, relatively stable, relatively unstable and unstable, was estimated. The results showed that the fuzzy comprehensive evaluation model is suitable to judge different operation state in anaerobic system, and to discover the relationship among factors of system parameters and evaluation results. The fuzzy model is objective and gives all-round and more accurate reflection of operation state. It is help for improving the management and control effect of anaerobic system. [C1811]

"Study and AISC design of a high efficiency OLED scan controller"

As a novel display material, OLED attracts more and more attention in recent years. This paper researches on the OLED scanning control circuit, and puts forward a novel adjustable grayscale scan method which adopts random weight algorithm after studying different scan schemes. Considering the efficiency of scan buffer unit, a

dual radix interleaving clock architecture is proposed in the paper, and the ASIC design of scanning control chip is also carried out. The experimented result convinces that the efficiency of the novel scan circuit is enhanced approximately 50%. Meanwhile, the innovational gray control method for FPD with independent intellectual property rights is also obtained. [C1812]

"Optical emission from organic light-emitting diodes"

The results presented herein are associated with an analytical model for the electromagnetic radiation emitted from a nanometric organic light-emitting diode (OLED) device. This is obtained via asymptotic evaluation of the resultant radiation integral in conjunction with coherence considerations, resulting in closed-form analytical expressions. For the sake of simplicity and clarity, we focus on a two-dimensional prototype model excited by an impulsive (line) source. The resultant expressions can be most effectively utilized by engineers for improved design, as they enable the calculation of the deviceГ‚Вїs physical parameters, such as electrical to optical conversion efficiency and emission angular distribution, as a function of device structure. It should be pointed out that the incorporation of both rigorous electromagnetic analysis and coherence effects is addressed in our report, to the best of our knowledge, for the first time. This results in a precise model capable of repeating and interpreting experimental and simulated data. [C1813]

"A Study of Car Park Control System Using Optical Character Recognition"

This paper presents a study and design of car park control system using optical character recognition (OCR) devices. The system uses client server environment. The administrator will monitor the system and the database from the server side. Furthermore the parking information will be displayed static based on the database shared by the server. Server application and database will be stored in the server. The result shows the system is capable to save log record that will ease tracking parking user, updating user and parking credit database as well as monitoring availability of parking spaces. [C1814]

"Dynamic current limitation circuit for white LED driver"

In this paper, we propose a dynamic current limitation circuit which can adjust the driverpsilas output current corresponding to the white LEDpsilas current-temperature curve. Its topology is based on PTAT and CTAT current generator, and it can detect the safe threshold temperature Tth0which is decided by the maximum allowable forward-current of white LED. Moreover, when temperature rises above Tth0, the circuit also can adjust the driverpsilas output current corresponding with the exact slope of the current-temperature curve. By adopting this circuit, the white LED driver can acquire the maximum safe output current within wide temperature range. Such driver is implemented by BCD 0.5 mum process. And the simulation results show that when temperature varies in the range of -25degC~85degC, the circuit can precisely detect the threshold temperature and promptly regulate the output current according to the white LEDpsilas current-temperature curve. [C1815]

"Electronic Shelf Label System based on public illuminating network"

Electronic shelf label system (ESLS), usually working in an infrared or radio frequency network, has been brought in by some retailers in order to get real time wireless updating of shelf-edge information. However, such system can be realized by using the existing indoor lighting infrastructure with advantages over above solutions. In this paper a new ESLS based on public illuminating network was proposed. As white light-emitting diodes (WLED) take priority over conventional low luminous efficient lamps and is considered to be the most potential illuminating source in the future, they are used in place of fluorescent lamps and offer extra performance. An analysis of the characteristics of WLED and semiconductor color sensor was given to show the principle of the physical layer of this system. Unlike the broadcasting manner of common ESLS, PN codes and internal serial numbers are used to differentiate between terminals which enable labels receive messages simultaneously. In network layer, a special combination of space division and time division multiplexing is applied to increase system capacity and decrease refresh time. At the end of this paper, a comparison between common ESLS and this system was discussed. [C1816]

"Browsing 3D Media Using Cylindrical Multi-touch Interface"

We describe interaction techniques for browsing 3D media using our cylindrical multi-touch interface (CMTI). CMTI uses a cylinder wall as its controlling surface. Because the control area of the interface is in cylindrical polar coordinates, the use of the depth along the surface enables the user to interact in 3D space even though the controlling surface is still a 2D surface. Moreover, the nature of the multi-touch interface enables the user to manipulate objects and the viewpoint with both bare hands. The user can easily examine complex 3D media using the interaction techniques described with the power of CMTI. [C1817]

"Photocathodes for Compact Optical Triggering of Back-Lighted Thyratrons"

Light-activated pseudospark switches, also called back-lighted thyratrons (BLTs), are low pressure (typ. les0.5 Torr), high voltage (typ. 10-50 kV), high current (1-ges100 kA) glow-mode switches. It is of interest to develop ultra-compact BLTs with reliable and practical optical triggering systems for applications of compact pulsed power. The present work investigates the utility of photocathode materials inside mini-BLTs to enhance the switch performance, improve the trigger characteristics (delay, jitter and reliability), and provide optimal conditions for compact optical triggering, including the use of light emitting diodes. Photocathode material properties, including low work function, high quantum yield under the mini-BLT operation pressure (0.1-1 Torr), and sufficiently robust to maintain a reasonable lifetime, are critical in material selection. We present results of investigations of a variety of cathode materials as potential candidates for BLT cathodes. Photoelectron yields of candidate cathode materials are measured in a test bed under relevant vacuum conditions with and without applying positive bias at the collector. [C1818]

"A Novel direct AC/DC converter for efficient low voltage energy harvesting"

In this paper, a direct ac-to-dc power converter is proposed for efficient energy harvesting from the low voltage inertial microgenerators. The conventional power converters use diode bridge rectifiers and condition the microgenerator outputs in two stages. Hence, they are inefficient and may not be a feasible option for very low voltage microgenerators. Moreover, they are not conducive for optimum energy harvesting. The proposed converter avoids the use of bridge rectifiers, and directly converts the ac input to the required dc output. This converter uses a boost converter and a buck-boost converter to process the positive and negative half cycles of the ac input voltage, respectively. Furthermore, using this converter, maximum energy harvesting can be implemented effectively. Analysis of the converter is carried out. Based on the analysis, two schemes are proposed to control the converter. Simulation results are presented to validate the proposed converter topology and control scheme. Experimental results are also presented for verification. [C1819]

"A virtual imaging system for colour research"

A visualization system has been constructed to provide an accurate representation of a group of surface colours under a range of different light sources. The impetus for this work has come from the burgeoning supply of new high-output LED (light-emitting diode) sources now entering the market. The system will be used to test the validity of the CIE (International Commission on Illumination) colour rendering index (CRI) for these and other sources. The system computes and displays each colour from a knowledge of the light-source spectrum and the spectral reflectance of each surface, and can simultaneously display the resultant colours from two different sources as well as computing the colour differences for the two sets of colours. Subjective tests are being undertaken to validate the computed results. [C1820]

"Nonlinear signal and noise analysis of arbitrary number of anti-parallel diode mixer for 3G mobile"

A sub harmonically pumped (SHP) diode mixer suitable for direct conversion receiver based on WCDMA standard is presented. In this paper, first we presented a simultaneous signal and noise analysis to analyze a circuit consists of N anti-parallel diode pairs in self-biased structure. Then the results of this CAD routine are confirmed with other method. The mixer is optimized to obtain a maximally flat conversion gain and minimum noise figure over various LO powers. The proposed CAD is used to obtain the optimum number of APDPs. [C1821]

"An efficiency-enhanced low dropout Linear HB LED driver for automotive application"

An efficiency-enhanced linear LED driver, which operates with a wide input voltage range (6.3 V~32 V) and is able to provide output current up to 350 mA with accuracy of plusmn3%, is presented in this paper. To improve driving efficiency, an operational amplifier is exploited to lower current-sense voltage while PMOS pass element with elaborate metal layout pattern is used to reduce dropout loss. Besides, a 5 V regulated voltage is obtained from the wide range input voltage to supply some modules in the driver so as to further diminish power dissipation of the driver. The proposed driver has been fabricated on a 0.5 mum BCD process occupying 1.4 mm times 1.8 mm area. Post-simulation results show that the proposed scheme driving three HB-LEDs in series can achieve the maximum efficiency of 91.04% at ILOAD=350 mA, which is enhanced by 7.2% compared with that of the typical linear LED driver under the same condition. The dropout voltage is 450 mV when the load current is 350 mA. Besides, it is able to recover within 99 mus. [C1822]

"Illuminant dependence of PCA, NMF and NTF in spectral color imaging"

In this study principal component analysis (PCA), non-negative matrix factorization (NMF) and non-negative

tensor factorization (NTF) are applied as dimension reduction methods in color spectrum domain. The effect of light sources to the quality of the reconstructed spectrum is investigated. Due to the orthogonality, the corresponding bases vectors from PCA usually contain negative coefficients and are difficult to implement optically. NTF and NMF find non-negative basis for color spectrum space and are more suitable for optical implementation. Also the energy of NMF and NTF bases is more concentrated than PCA one. They should be more suitable for peaky light sources (i.e. Poly lux or LED) Five reflectance spectra sets from the different sources were used in tests. Four light source spectrums with the various shapes were applied for light source simulation. We evaluate reconstruction spectrum by quality and error measures including AE, GFC and PSNR. [C1823]

"Characteristics of Thermal Resistance for High Power LEDs"

In this paper the accurate and fast measurement equipment was developed and applied to study the thermal characteristics of high power LEDs. The forward-voltage based method was conducted to measure the junction temperature of high power LEDs. Conduction type method is adopted to measure the temperature sensitivity parameter (TSP) with small magnitude of error compared with the traditional method. The experiment time was reduced from 3~4 hours to 10 minutes for one sample. It was demonstrated that the repeatability of the measurement system was well after the repeatability test. LEDs used here were 5 W single chip LED and 50 W multi-chip LED with 36 chips inside the LED. Thermal resistance of junction-to-case as function of input power and case temperature was discussed. It was shown that the 5 W LED revealed an increasing trend of thermal resistance with the input power at each case temperature but the contrary trend of 5OW LED. The results also exhibited the dependency of thermal resistance and case temperature. With the increasing case temperature, the value of thermal resistance became higher under each input power. Three factors affected the thermal performance including: the first, the relation between light output efficiency and junction temperature; the second, the effect of internal series electrical resistance Rinand external electrical resistance Rex; and the third, the materials degeneration of each part inside the LEDs package as the junction temperature increased. To combine the three factors could explain the thermal characteristics of high power LEDs. [C1824]

"Humidity Effect on the Degradation of Packaged Ultra-bright White LEDs"

Many ultra-bright light-emitting diodes (LEDs), especially the white LEDs, are being actively developed for solid-state lighting and many other commercial applications. Hence, it is important to evaluate and understand the failure mechanisms that affect the performance characteristics and lifetimes of these new LEDs. This study concerns the humidity effect on the degradation of GaN-based packaged white LEDs. Under the accelerated humidity test, the LEDs showed a degradation of optical output. With the mixture statistical distribution analysis method, it is noted that the luminous flux degradation of the packaged white LEDs is dependent on more than two failure mechanisms. Two of the failure mechanisms are observed to follow the lognormal distribution. With detailed spectrum analysis and by employing the parameters extraction method, one of the two failure mechanisms that follow the lognormal distribution is observed to be caused by chip related failure due to the accumulated moisture in the encapsulation. For the other failure mechanism, phosphor degradation is noted to be the primary cause. [C1825]

"A Multi-physics Multi-scale Modeling Platform for Research and Development in Solid State Lighting"

A multi-physics multi-scale modeling platform has been developed and it has been applied to various stages of the LED manufacturing such as MOCVD reactor design, epitaxial growth based on silicon wafer, chip design and manufacturing, module packaging and assembly, and specific lamps. Discussions are also given to the ultra-scalable reactor design, material constitutive modeling, and curvature evolution prediction during a complete MOCVD processing, effect of defects and interface integrity, behaviors of thermal, optical, deformation, and stresses. First principles Molecular dynamics (MD) and finite element method (FEM) have been used in couple to study the scale effect of the material properties and the prediction of the module behaviors. A few examples of applications have been given, including the applications to a few real world lamps such as tunnel lamps, street lamps, and MR16. [C1826]

"A new Embedded Packaging Technology for high power LEDs"

A new wafer level packaging concept for a multi-color Light Emitting Diode (LED) lighting device is suggested and demonstrated. The concept tackles 2 major challenges in high power LED packaging: optical out-coupling and high operating temperatures. The standard way of forming an optical package is based on assembling LEDs onto a substrate and subsequently mounting an optical body (e.g., a lens) onto the LEDs afterwards. The method proposed here is a reverse order method, meaning, first mounting the LEDs inside an optical body and

next forming the electrical connections. The use of high temperature resistive materials holds the promise of using the device at high operating temperatures and the embedded optical coupling maximizes the light emission efficiency of these devices. [C1827]

"Analysis of Thermal Performance of High Power Light Emitting Diodes Package"

This paper reports on the thermal characteristics of the high power LED package. The increment of input power generates more heat in the chip, decreasing the luminance and life span of LEDs. To enhance the efficiency of high power LEDs, challenges related to thermal management need to be addressed. In this research, a detailed finite element model of the high power LED package with proper input power and boundary condition is established using the ANSYS@finite element analysis program. The applied input power is 1W on GaN, and the convection coefficient is adopted from William's experimental results. Radiation is also included in the FEM model. Additionally, forward voltage methods used to indirectly measure the junction temperature are also performed to validate the finite element model with predicted input power. The simulation results closely match the experimental data, with only 5% error. Various thermal performances under different design parameters of the high power LED package are developed following verification of the simulation analysis. Five design factors including (a) the substrate of the chip, (b) the thickness of the die attach material (c) the electro-optical conversion efficiency (d) the thickness of the copper slug and (e) the area of the copper slug are chosen to determine themost dominant factor in this study. The factorial design provides a guide line for the compromise between thermal enhanced design and manufacturing process in the future. [C1828]

"A topology study of single-phase offline AC/DC converters for high brightness white LED lighting with power factor pre-regulation and brightness dimmable"

Due to the recent advancement in the light emitting diode (LED) technology, high brightness white LED becomes feasible in residential, industry and commercial applications to replace the incandescent bulbs, halogen bulbs, and even compact fluorescent light bulbs. In these offline applications, high power factor, and low harmonics are of primary importance. Single stage power factor pre-regulation technology is preferred in these cost sensitive applications where power factor regulation is mandatory, while adding additional power factor correction controller will surely increase the cost. In this paper, we exam several single stage offline ac/dc power converters with power factor pre-regulation for LED lighting applications, including boost converter, SEPIC converter, flyback converter, and half-bridge converter. A boost converter is suitable for high efficiency, large LED string applications. A SEPIC converter has the best power factor correction performance, but the efficiency is not comparable with the other solutions. Flyback converter is the most commonly used topology for low power offline applications. For medium power applications, symmetrical and asymmetrical half bridge converters can be used with better power factor and high efficiency. The harmonics of the input line current is reduced and power factor is high if the current in the input inductor is discontinuous and the converter is driven with constant duty ratio. A current feedback loop can be used to control the LED brightness. The performance of these converters will be analyzed and compared in terms of power factor, efficiency, etc, based on the lab prototype boards. [C1829]

"Current source ballast for high power lighting emitting diodes without electrolytic capacitor"

An LED driver requiring no electrolytic capacitor in the whole power conversion process is presented. It consists of two power conversion stages. The first stage is a buck converter operating in discontinuous capacitor voltage mode, so that the input current is continuous. It is used to deliver a regulated current for the second stage. The second stage is a current-fed inverter, in which the semiconductor switches are operated at constant switching frequency and constant duty cycle of 0.5. The power supplying to the LED string is regulated by controlling the duty cycle of the main switch in the front-stage buck converter. The two stages are interconnected by an LC filter, which is designed to attenuate harmonics at double of the line frequency. Instead of using an electrolytic capacitor for the filter, a polyester capacitor of better lifetime expectancy is used. An 18 W experimental prototype has been built and tested. [C1830]

"Photogrammetric system using visible light communication"

We propose an automated photogrammetric system using visible light communication. Our system can be applied to the measurement of a variety of distances using a light as a reference point. In addition, the matching of same lights in different viewpoints can be automatically done by using unique blinking patterns. A light area is extracted based on a rule of the lighting patterns without a pre-known threshold. Experimental results show that our system can provide enough accuracy for photogrammetry. [C1831]

"Converters for LED Lighting"

{no data available} [C1832]

"Isolated PFC Pre-Regulator for LED Lamps"

The efficiency and lifetime of light-emitting-diode (LED) lamps are approaching and exceeding that of fluorescent lamps. LED light sources are finding more applications than conventional light bulbs due to their compactness, lower heat dissipation, real-time color changing capability and most importantly, long life which is much longer life than that of conventional offline power converters. Conventional power converters normally use high voltage electrolytic capacitors as energy storage element which could have the shortest lifetime when compared to other components of the LED lighting system. In this paper, a new isolated PFC power pre-regulator is proposed. The pre-regulator allows the charge storage capacitor to be positioned on the secondary side of the isolation transformer. Longer lifetime low voltage and high capacitance value capacitors can therefore be used to extend the overall lifetime of the LED lighting system. Steady-state state-space averaging analysis is preformed for designing the converter. A prototype converter is built to verify performance of the proposed PFC LED preregulator. [C1833]

"Welfare-support interface for PC mouse operations using mouth open/close motions and head tilting"

This paper suggested a welfare-support interface to operate a personal computer for physical handicapped persons who had an obstacle on the region of upper limb. The user wore a head set device on which angle and distance sensors were equipped. The roll and pitch angles of the head were measured by angle sensor. Distance sensor located in front of the mouth detected the mouth open/close states. The user could confirm the input state by the indicator located near the monitor. In cases where the mouth was closed, mouse cursor on a monitor could be moved according to the direction and magnitude of the tilted head angle. When the mouth was opened for more than two seconds, the click operation mode started. In this mode, the tilting directions of the head were assigned to the click functions such as double click or drag. Moreover, mouth open/close state provided the rapid switching function between the cursor movement state and static one in the cursor movement mode. In test operation, it was confirmed that the mouth operation was available to lighten the physical burden of the operator. [C1834]

"Thermal modeling of enhancement LED package"

Thermal management of LED packages consists of external cooling mechanisms, heat dissipaters, and thermal interfaces. While keeping cooling condition constant, junction temperature of LEDs with higher thermal resistance increases more rapidly, hence the luminous efficiency decreases more obviously. This paper includes the discussion about the calculation methods of the lightningpsilas heat transfer. Also the usage of the calculation method of heat resistances in equivalent electrical circuits, by which the difference between the temperature of the attention point inside the lighting and environment temperature can be directly obtained. Such a method is advanced on estimating the feasibility of a heat transferpsilas structure. The calculation process has been demonstrated by an example of cooling of LEDs lighting in this paper. In particular, the operation package heat transfer enhancement is required by most package manufacturers with a decrease of 20%-30% of the thermal resistance over conventional package geometries. More specifically, the present invention and study relate to a LEDs package with heat dissipation enhancements. [C1835]

"LED lamp driver using a converter with wide range conversion microcontroller-based"

In recent years, high levels of luminous efficiency, and the long time of life, are an attraction of LEDs for use in several illumination applications. This paper presents an alternative to drive LEDs, where the main focus is to enable the drive LED lamps with different values of operation voltage from an universal input voltage range or battery. Therefore, a new topology step-up/down with wide range conversion called Boost-Buck2 is proposed. Mathematical analysis and experimental results are presented to the drive of a LED Lamp of 11W built with 10 Creereg XLampreg XR-E LED. [C1836]

"Offline SEPIC converter to drive the high brightness white LED for lighting applications"

High brightness white LED has attracted a lot of attention from both industry and academia for its high efficacy, simple to drive, environmentally friendly, and long lifespan. It becomes possible applications to replace the incandescent bulbs, halogen bulbs, and even compact fluorescent light bulbs in residential, industry and commercial lighting. Offline application of this new lighting source requires both tight LED current regulation and high power factor as well. We proposed an interleaved SEPIC converter with integrated magnetics for the offline LED lighting applications with LED current dimmable and input power factor correction. The converter is controlled with voltage mode PWM and run in discontinuous conduction mode. The inductor current follows the

input voltage, therefore, the converter has high power factor, and can handle high power with reduced number of component count. This circuit has the advantages of (1) one stage of power conversion, (2) high power factor, (3) reduced size of the input filter, (4) reduced size of output filter, (5) integrated magnetic components, and reduced component count, (6) simple feedback control and no need to sense the input voltage, (7) voltage step-up and down, and (8) dimmable load current. It is particular suitable for the non-isolated offline applications, such as high brightness LED lighting applications. The critical design constraints and equations for both the power stage and control loop are highlighted and detailed. A practical evaluation board with 110 V input and 60 V 700 mA output is developed to verify the proposed design. [C1837]

"Monolithic III-V/Si integration"

We summarize our work on creating substrate platforms, processes, and devices for the monolithic integration of silicon CMOS circuits with III-V optical and electronic devices. Visible LEDs and InP HBTs have been integrated on silicon materials platforms that lend themselves to process integration within silicon fabrication facilities. We also summarize research on tensile Ge, which could be a high mobility material for III-V MOS, and research on an in-situ MOCVD Al2O3/GaAs process for III-V MOS. [C1838]

"Photodiode-free Doppler velocimeter based on self-mixing effect in commercial VCSELs"

In this paper, we explore a new signal acquisition method for laser Doppler velocimeter based on the self-mixing technique. The self-mixing technique is applied on commercial multimode transverse Vertical-Cavity Surface-Emitting Lasers (VCSELs) and the signal is acquired by amplification of the junction voltage of the laser diode when it was usually picked-up with an external photodiode. The sensor developed exhibits up to 25 dB signal-to-noise ratio for a wide velocity range. We present a study of the sensitivity of such photodiode-free sensors versus the laser static conditions and we compare the results with usual photodetected signals. Finally we expose the advantages of this technique and propose new applications for self-mixing sensors. [C1839]

"An auto-switched mode CMOS image sensor for high dynamic range scientific imaging applications"

This paper presents a CMOS image sensor with auto-switched mode readout architecture for high throughput and high dynamic range scientific imaging applications. The proposed readout circuit compares background illumination with a threshold level and automatically adjusts the pixel array to operate in either linear or logarithmic mode by feeding back a mode switching control signal. This novel readout architecture allows simultaneous linear-logarithmic operation of each pixel, resulting in direct readout of image sequence covering a dynamic range of 121 dB. A chip consisting of 16 times 16 8-T pixel array and the proposed readout circuit has been designed and fabricated using AMI 0.5 mum technology. The chip has been verified for imaging clusters of nano particles (CoFe2O4) illuminated using bright green LED. Experiment results confirm high dynamic range performance due to linear-logarithmic auto-switched mode operation. [C1840]

"All fiber strain sensor based on the Laser-Self-Mixing effect"

A new fiber strain sensor is presented based on the laser-self-mixing (LSM) effect in distributed feedback laser diodes (DFB). Compared to existing fiber strain sensors based on fiber Bragg gratings (FBG), our device achieves comparable sensitivity (~1 muepsiv) requiring much simpler electronics. In the moderate feedback regime, sawtooth-like fringes are observed in the optical power emitted by a standard single-mode optical fiber (SMF) pigtailed to a 1550 nm DBF laser, directly monitored by the internal photodiode. The sign of the fast slope of the fringes allows for identification of increasing or decreasing strain. The system is all-fiber and does not require the costly interrogation electronics of FBG sensors. [C1841]

"Modeling of performance of mid-infrared gas sensors based on immersion lens diode optopairs"

We present model for determination of performance of optical sensor that takes into account fine structure of gas absorption band and specific features of immersion lens LEDs and photodiodes operating in the mid-IR spectral range (3-5 mum). The model incorporates an instrument and transfer functions that enables evaluation of accuracy, sensitivity and limit of detection (LOD) of various optical sensors. The predictions of the model were compared with the experimental values obtained with the CO2analyzer based on immersion lens LEDs and photodiodes operating near 4.2 mum spectral band. [C1842]

"Investigation of binary liquid aqueous methanol and ethanol mixtures using meander-shaped fibre-optic evanescent-wave absorption sensors"

A fibre-optic evanescent-wave field absorption sensor based on a meander-shaped sensing probe is described.

The influences of the fibre core diameter and the refractive index of the surrounding medium on the sensitivity are evaluated by using binary liquid mixtures, in particular methanol and ethanol solved in distilled water at concentrations from 0 to 10 volume percent (%vol). The resolution was experimentally proved to be about 5ldr10-5refractive index units at a wavelength of 650 nm, which corresponds to a resolution of about 0.2%vol methanol and 0.1%vol ethanol concentration. The LED based design as well as the chosen wavelength (POF suitable) result in a low cost sensing application. Finally, an analytical approach for predicting the refractices indices of liquid mixtures (Lorentz-Lorenz equation) was examined for validity with regards to the mentioned aqueous methanol/ethanol solutions. [C1843]

"Capacitance controlled n-GaN SAW UV sensor"

We report on the investigation of the response of the GaN SAW UV sensor operating at 307 MHz to the illumination from 375 nm LED. We demonstrate, for the first time, the impact of the UV-induced change in interdigital transducer (IDT) capacitance on the phase change of the SAW signal. The light was focused onto the sample surface, and the variation in signal phase (both in reflection and transmission modes) was measured as a function of the UV spot position. The maximum SAW phase change occurred when the IDT regions were illuminated. We attribute this effect to the decrease in depletion width under the IDT and the associated capacitance variation. From S-parameter measurements, the dependence of the IDT capacitance on UV illumination power was extracted. At UV power density of 1.7 muW/mm2, we estimated 4% increase in capacitance corresponding to the phase change of 10deg in the transmitted SAW signal. Our results reveal the importance of photocapacitance for the operation of GaN based SAW UV sensors. [C1844]

"Development of optical sensing system for detection of Fe ions using conductive polymer actuator based microfluidic pump"

In this paper, we present a novel microfluidic optical sensing system by combining a low-power conductive polymer-based microfluidic pump and a microfluidic chip integrated with an optical sensor. A self priming microfluidic pump is developed using a polypyrrole. A microfluidic chip- optical detector module that contained an optical cuvette with LED and photo-diode optical sensing module was fabricated. Integration of the micro pump and the microfluidic chips complete the sensing system. The pump performance and its application in chemical analysis have been demonstrated in the detection of Fe ions. [C1845]

"Sensor conditioning unit design for public lighting control"

Lighting consumes one fourth of all energy consumed worldwide, and case studies have shown that commonly 50 to 90 percents of building lighting is unnecessary for the purposes required. Energy is wasted when light does not fall on its intended target, as when lighting fixtures allow light to go up instead of (as it is generally preferred) downward. Leakage also occurs when more light is generated than needed. Many governments are looking for ways to reduce energy use after signing the Kyoto Protocol, and individuals, organizations and local authorities are increasingly improving lighting efficiency in order to reduce energy consumption. The main scope of this paper is to establish some criteria in designing a sensing and signal conditioning system for energy saving in public lighting. [C1846]

"Real time exhaust gas sensor with high resolution for onboard sensing of harmful components"

Emission control and reduction of harmful gases produced by combustion engines is a very important task. There is need for a high resolution online detection of harmful gases. This work presents a novel optical sensor system based on newly developed LEDs working in the ultraviolet and visible wavelength range. The developed potentially low cost LED based system is able to individual detect NO2and SO2with high resolution (1 ppm), wide measurement range (some 1000 ppm) and temporal dynamic of up to 10 ms (stroke resolution). Fiber optics are applied to a robust free path absorption cell to resist the harsh tailpipe environment and enable the online measurement of hot gases. [C1847]

"Luminescence of n-InGaAs/p-InP light emitting diode with superconducting Nb electrode"

To demonstrate the contribution of Cooper pairs to radiative recombination in a semiconductor, a n-InGaAs/p-InP light emitting diode with superconducting Nb electrodes was fabricated. Electroluminescence as well as photoluminescence from the n-InGaAs into which electron Cooper pairs were expected to penetrate from the superconducting Nb electrodes by the proximity effect was drastically enhanced at the temperature lower than the superconducting transition temperature. This is the experimental evidence that Cooper pairs enhance radiative recombinations by the superradiance effect. [C1848]

"Enhancement of the recombination rate of InAs quantum dots in a photonic crystal light emitting diode"

InAs quantum dots emitting at 1.3 mum and located inside a photonic crystal membrane nanocavity are studied by electrical pumping. An increase of the recombination rate is observed for quantum dots in resonance with the cavity mode. [C1849]

"Polarization insensitive operation of multimode interference bistable laser all-optical flip-flop"

Multimode interference bistable laser diode all-optical flip-flop has been considered to be a clever candidate to achieve all-optical memory devices. In this paper, basic results of polarization-insensitive operation of all-optical flip-flop are reported. Polarization-insensitive operation of static flip-flop was demonstrated with injection power level higher than +3 dBm. [C1850]

"Studies on TlInGaAsN double quantum well structures"

In the pursuit of devices with reduced temperature-dependent emission wavelengths, TlInGaAsN double quantum well (DQW) structures with different barriers were grown on GaAs substrates by MBE and investigated. Although TlGaAsN barriers gave rise to higher Tl incorporation, as compared to TlGaAs barriers, the presence of lot of dislocations and very rough interfaces reduced the PL characteristics. The TlGaAsN barrier layer was modified with different combinations and the resultant samples are analyzed by SIMS, HRXRD, X-TEM and PL measurements. DQW Structures with combined barriers of TlGaAsN+TlGaAs+TlGaAsN and that with reduced N%-TlGaAsN barrier samples showed improved crystalline characteristics. [C1851]

"Polyphonic Smart Card"

This paper emphasizes the Infineon Technologies smart card last generation controller features. The system designed in this paper uses a smart card controller for synthesizing polyphonic sounds and showing a scrolling message on a dot matrix display. An ATmega8 controller is used as interface between the smart card and the peripherals. [C1852]

"Design optimization of a global/local tone mapping processor on arm SOC platform for real-time high dynamic range video"

As the advance of high quality displays such as organic light- emitting diode (OLED) or laser TV, the importance of a real-time high dynamic range (HDR) data processing for display devices increases significantly. Many tone mapping algorithms are proposed for rendering HDR images or videos on display screens. The choice of tone mapping algorithm depends on characteristics of displays such as luminance range, contrast ratio and gamma correction. An ideal HDR tone mapping processor should include several tone mapping algorithms and be able to select an appropriate one for different kind of devices and applications. Such a HDR tone mapping processor has characteristics of robust core functionality, high flexibility, and low area consumption. An ARM core based system on chip (SOC) platform with HDR tone mapping ASIC is suitable for such applications. In this paper, we present a systematic methodology to develop an optimized architecture for tone mapping processor in the ARM SOC platform. We illustrate the approach by a HDR tone mapping processor that can handle both photographic and gradient compression. The optimization is achieved through four major steps: common module extraction, computation power enhancement, hardware/software partition and cost function analysis. Based on the proposed scheme, we develop an integrated photographic and gradient compression HDR tone mapping processor that can process 1024times768 images at 60 fps. This design runs at 100 MHz clock and consumes area of 13.8 mm2under TSMC 0.13 mum technology with 50% improvement in speed and area compared with previous results. [C1853]

"On-chip fluorescence detection with organic thin film devices for disposable lab-on-a-chip sensors"

In this paper, we present an improved high-sensitivity approach for on-chip fluorescence-based measurements for disposable lab-on-a-chip (LOC). The approach is based on using an organic LED for excitation and an organic photodiode (OPD) as detector. By enhancing device integration with a custom interconnect, optical losses were minimized and the signal-to-noise ratio was increased. Using a bi-layer OPD improved detector responsivity 10 times over the conventional single heterojunction OPD. Finally, a lock-in amplifier was used instead of direct current measurements. Combining advantages of these improvements, a limit of detection of 10 nM was demonstrated, which is a 10-fold improvement over our previous reports and a 100-fold improvement over reports by others. We expect the developed approach to envisage numerous applications in point-of-care (POC) diagnostics and on-site environmental testing. [C1854]

"A Fast Center of Mass Estimation Algorithm for Coordinates of IR Markers"

For the binocular vision system based on light-weighted passive IR reflective markers and IR LED array PCB board, which is used to measure the 3-D motion parameters of rocket motor, the most important issue is determining the coordinates of infrared markers. In order to solve this problem, a fast center of mass estimation algorithm was proposed in this paper. The new algorithm segments the infrared image by self-adapting thresholding method firstly, and then calculating the center of mass of infrared markers by improved statistical averaging technique. A comparison was made between the newly developed algorithm and other algorithms such as traditional statistical averaging, FFT and least-squares method. The result indicates that the new algorithm is more suited for high-speed motion analysis because of high accuracy and faster processing speed. Tests performed on real-world images show that the algorithm can greatly improve the speed of the calculation and ensure the demand of precision on the basis of the better image segmentation result and improved statistical averaging technique. [C1855]

"Real-time Light Fall-off Stereo"

We present a real-time depth recovery system using Light Fall-off Stereo (LFS). Our system contains two co-axial point light sources (LEDs) synchronized with a video camera. The video camera captures the scene under these two LEDs in complementary states(e.g., one on, one off). Based on the inverse square law for light intensity, the depth can be directly solved using the pixel ratio from two consecutive frames. We demonstrate the effectiveness of our approach with a number of real world scenes. Quantitative evaluation shows that our system compares favorably to other commercial real-time 3D range sensors, particularly in textured areas. We believe our system offers a low-cost high-resolution alternative for depth sensing under controlled lighting. [C1856]

"TOF range image sensor using a range-shift technique"

In time-of-flight (TOF) range image sensors using periodical pulsed light, there is a trade-off between the maximum range and range resolution. This paper proposes a technique for improving range resolution of the TOF range image sensor using range shifting. In the TOF range image sensor with ambient light draining structure, the amount of delay of short light pulse is changed depending on the measurement range. This technique improves the range resolution without reducing the measurement range. The use of the small duty-ratio pulse also leads to reducing the effect of ambient light. The range-shift technique is tested with an implemented TOF range image sensor and it is found that the range resolution is improved to 2 cm using 10 ns light pulse and 7 zones for the measurement range of 0.5 m to 4 m. [C1857]

"Optical characteristics and UV modification of low-k materials"

We present a study of optical characteristics in visible and vacuum ultra-violet range of porous low-k dielectric films (prepared by chemical vapor deposition), and the constituent materials: Carbon doped oxide (SiCOH) matrix and organic porogen. The materials have been deposited as thin film samples and cured by thermal annealing and UV irradiation for various times. The optical properties of the films have been studied by variable angle spectroscopic ellipsometry in range from 2 eV to 9 eV and the composition has been analyzed by Fourier-transformed infrared spectroscopy. The analysis of the optical response of the porous dielectric as a mixture of matrix material, porogen and voids shows existence of decomposed porogen residuals inside the pores, even for long curing times. It is observed that the variation of deposition and curing conditions can control the amount of porogen residuals and the final porosity. [C1858]

"Monolithic integration of light emitting diodes, photodetector and receiver circuit in standard CMOS technology"

A monolithic silicon CMOS optoelectronic integrated circuit (OEIC) is designed and fabricated with standard 0.35 Г‚Вїm CMOS technology. This OEIC circuit consists of light emitting diodes (LED), silicon dioxide waveguide, photodiodes and receiver circuit. The silicon LED operates in reverse breakdown mode and can be turned on at 8.5 V 10 mA. The silicon dioxide waveguide is composed of multiple layers of silicon dioxide between different metals layers. A two PN-junctions photodetector composed of n-well/p-substrate junction and p+active implantation/n-well junction maximizes the depletion region width. The readout circuitry in pixels is exploited to handle as small as 0.1 nA photocurrent. Simulation and testing results show that the optical emissions powers are about two orders higher than the low frequency detectivity of silicon CMOS photodetector and receiver circuit. [C1859]

"Error Correcting Scheme for Road-to-Vehicle Visible Light Communication using LED Array"

In this paper, we propose an improved coding scheme for optical wireless communication systems using a LED array transmitter and a high-speed camera as the receiver on a vehicle. Previously, we have proposed a hierarchical coding scheme which allocated the data to spatial frequency components depending on the priority. In that scheme, the high-priority data can be received even if the receiver was far from the transmitter. We confirmed the advantage of the hierarchical coding scheme, but the bit error performance was not sufficient. In this paper, we divide the data into spatial frequency components, and use error correcting code for each spatial frequency components' data. Experimental evaluation demonstrates the improvement in BER performance. This improvement implies that the system range increased compared to the previous method. [C1860]

"High quality AlGaN grown on GaN template with HT-AlN interlayer"

When AlGaN is grown on GaN template, crack networks invariably generate when the thickness of the AlGaN layers over GaN exceeds the critical value. We used thin high temperature deposited AlN layer (HT-AlN) as the interlayer between GaN template and AlGaN epilayer which was very effective in eliminating the cracks in AlGaN epilayer. AlGaN layers with high Al mole fractions were also grown. Characterization showed that the crystalline quality of AlGaN epilayer was fairly good even when the Al mole fraction was high. [C1861]

"AZO transparent thin film with E-gun evaporate procedure and application on light emitting diode"

In this study we manufacture AZO transparent thin films with E-gun evaporator and change the flow rate of oxygen to find which parameter can fabricate the best quality AZO thin films. After analyze the material characteristics of AZO thin films we fabricated. We can acquire the best parameter is heating the substrate to 150Г‚В°C and without oxygen flow. With this parameter, we can obtain AZO thin film with transparency above 90% and extremely low resistivity reach to 2.4 ГѓВ— 10-4(ohm-cm). Apply its on light emitting diode can also get large profit in luminescence. [C1862]

"Improved white organic light-emitting devices with dual-emission-layer design"

In this work, approaches to improve current efficiency of white organic light-emitting diodes (WOLEDs) with high color purity have been studied. The emission layer in devices consists of 2-(t-butyl)-9,10-bis(2'-naphthyl)anthracene (TBADN) blue host and 5,6,11,12-tetraphenylnaphthacene (rubrene) yellow dopant. The efficiency can be enhanced by using architecture of dual emission layers and hole-blocking layer. However, obvious yellow-shift emission occurs due to the small energy barrier between layers. The yellow-shift phenomenon is mitigated by modifying emission layers. The highest current efficiency of WOLED is 6.43 cd/A, which is greater by 51% than the device with single emission layer. The Commission Internationale de lГ‚ВїEclairage (CIE) coordinates of (0.33, 0.33) exhibits high color purity in WOLEDs. [C1863]

"The study on the thermal behavior of packaged power LEDs"

The reliability of power LEDs has strong dependence on successful package thermal management. In this paper, heating response curves of LEDs were recorded by the temperature sensitive parameter (TSP) method and fast-switching circuit techniques. It provided a novel method to analyze thermal resistance composition of power LEDГ‚Вїs packaging. Cover-and-block method was presented to provide a correction to the apparent thermal resistance of optical devices, and an electrical method to obtain radiant efficiency was also put forward. [C1864]

"Combined transparent electrodes for high power GaN-based LEDs with long life time"

In this paper fabrication of high power light emitting diodes (LEDs) with combined transparent electrodes on both P-GaN and N-GaN have been demonstrated. Simulation and experimental results show that comparing with traditional metal N electrodes the efficacy of LEDs with transparent N electrode is increased by more than 10% and it is easier in process than the other techniques. Further more, combining the transparent electrodes with dielectric anti-reflection film, the extraction efficiency can be improved by 5%. At the same time, the transparent electrodes were protected by the dielectric film and the reliability of LEDs can be improved. [C1865]

"Developing bright and color-saturated quantum dot light emitting diodes towards next generation displays and solid state lighting"

We report in this conference of our recently developed red, orange, yellow, green and blue quantum dot light-emitting diodes (Qdot-LEDs)-LEDs with high brightness, high efficiency, saturated color and long lifetime. [C1866]

"A method to reduce CPU overhead in blob detection and tracking algorithms"

Here is presented a method which gives performance improvement for blob detection and tracking in real-time video stream. The algorithm can be used in multi-touch screen based and touch-free gesture based user interfaces. [C1867]

"Infrared Marker Based Augmented Reality System for Equipment Maintenance"

In this paper, we propose augmented reality (AR) applications for equipment maintenance. The system is based on the projection and detection of infrared markers. We use an infrared projector to project markers onto the surface of the equipment to be maintained. These markers are invisible to the human-eye, but they could be clearly identified by the infrared camera. As a proof of concept, we have implemented a prototype camera system consisting of a conventional camera (scene camera) and an infrared camera (tracking camera). The systempsilas viewpoint could be calculated and the visible image is captured simultaneously when using such a camera system. Some 3D models are overlaid on top of a video image. We demonstrate several applications of our method, including air filter replacement and gear-box maintenance for a milling machine. [C1868]

"Chemical event tracking using a low-cost wireless chemical sensing network"

A recently developed low-cost light emitting diode (LED) chemical sensing technique is integrated with a Mica2Dot wireless communications platform to form a deployable wireless chemical event indicator network. The operation of the colorimetric sensing node has been evaluated to determine its reproducibility and limit of detection for an acidic airborne contaminant. A test-scale network of five similar chemical sensing nodes is deployed in a star communication topology at fixed points within a custom built environmental sensing chamber (ESC). Presented data sets collected from the deployed wireless chemical sensor network (WCSN) show that during an acidic event scenario it is possible to track the plume speed and direction, and estimate the concentration of chemical plume by examining the collective sensor data relative to individual sensor node location within the monitored environment. [C1869]

"Results of researches of distribution of light from light-emitting diodes of circular action with various external reflectors"

Results of calculations isocandels and illuminations from the offered light device containing parabola and cylinder reflectors with two light-emitting diodes of circular action, located on inclined walls are presented. Distributions of illuminations from an experimental breadboard model of the fixture with a reflector in the form of the truncated pyramid with four light-emitting diodes are measured also. As initial data in calculations parameters of light-emitting diodes of type U-360 BI which is developed and released in NPC OPTEL are used. [C1870]

"Giant optical transmission through a metallic nano-slit achieved by the optimization of the groove periodicity and other parameters"

The extraordinary optical transmission of light through a metallic nano-slit surrounded by groove corrugations can further be increased by optimizing the geometric parameters including the period of the corrugations, the period which has been set to be equal to the surface-plasmon wavelength in most of the previous works. By a global optimization, we are able to enhance the transmission efficiency of light through a silver nano-slit of 25 nm-wide as high as 18500 percent when the slit is surrounded by only 6 pairs of grooves. [C1871]

"80 Mbit/s Visible Light Communications using pre-equalized white LED"

This paper reports an 80 Mbit/s OOK-NRZ visible light communications experimental link using a single pre-equalized 45-MHz bandwidth white LED. [C1872]

"A Field Display Universal LED Configuration Design"

The paper introduces a LED configuration design with Chinese characters prompt, which is based on P89LPC932 and widely applied in the field display of various card readers. Hardware circuit principles, design ideas of configuration LED, display and protocol and key codes are expounded here, all of which help solve the problem of poor compatibility in the system caused by too many card readerspsila devices and userspsila requirement of fast development of software in embedded system. The design has been verified in simulated environment and field and it has many merits such as low cost, interchangeability,flexibility and so on. Whatpsilas more, it also can be applied in all field display in industrial controlled environment etc. [C1873]

"Cost-efficient WDM QAM transmission of 100 Mbit/s over 100m 1mm core diameter polymer optical fiber"

By transporting the I- and Q-baseband QAM components using two inexpensive 460 nm and 520 nm wavelength LEDs, 100 Mbit/s transmission over 100 m large core SI PMMA POF has been realized. [C1874]

"PAM-4 signalling for gigabit transmission over standard step-index plastic optical fibre using light emitting diodes"

We show hardware-in-the-loop experiments for 1.25 Gbit/s Transmission over SI-POF over up to 75 m using LEDs with predistorted PAM4 signalling and fractionally-spaced equalisation. [C1875]

"0.1-mW p-Si/β-FeSi2 /n-Si double heterostructures light-emitting diodes operating at 1.6 μm at room temperature"

Room temperature 1.6 mum p+-Si/beta-FeSi2/n+-Si double heterostructures light-emitting diodes is fabricated on Si(111) substrate using molecular-beam epitaxy. The electroluminescence intensity is improved by increasing the thickness of beta-FeSi2active layer and by embedding the beta-FeSi2at heavily-doped Si p-n junction, which is making it possible to evaluate the emission power and quantum efficiency for the first time using optical power meter. [C1876]

"A study of the properties of RF sputtered MgXZn1-X O thin films"

MgXZn1-XO, a ZnO-based ternary compound, has been recognized as a promising material to be used in UV light emitting devices, UV laser diodes and UV detectors. In this paper, a batch of MgxZn1-xO films were fabricated using radio frequency sputtering on glass substrates with a Mg0.32Zn0.68O target. Then the structure and the optical properties of these films after being treated at different annealing temperatures were studied. [C1877]

"Materials and Light-Emitting Diode Properties of Dilute-Nitride GaNP/GaP Heterostructures"

In this paper GaNP/GaP LED structures are much simpler to grow than conventional process, chip processing uses existing technology, and GaNP/GaP LEDs exhibit only a small wavelength shift with injection current. With increasing temperature, the electroluminescence (EL) intensity decreases. Thus, GaNP/GaP LEDs are in the process of being commercialized. [C1878]

"Superconducting Effect on Radiative Recombinations in Long-wavelength Light Emitting Diode"

Application fields of light emitting diodes (LEDs) are expanding in various fields. Development of LED-based single photon sources is expected to open a new possibility to expand the applications to quantum information communication and processing. The authors have proposed a photon-emitting LED combined with superconducting electrodes, which is expected to be an on-demand entangled photon pair source. The main mechanism is based on the coherent spatial extension of the Cooper-pair states to the photon emitting layer, which is expected to enhance the oscillator strength of the radiative recombination processes by the Cooper-pair superradiance effect. The preliminary operation was demonstrated with InGaAs quantum well (QW) LEDs and about 20-times enhancement of the electroluminescence (EL) was observed under the low-injection current regime. This is the demonstration of the improved internal quantum efficiency (QE) under the low internal QE operation of the LED. In this paper, the enhancement of the radiative recombination processes with the superconducting (SC) effect is demonstrated by the lifetime measurements under the operation with high (~100%) internal quantum efficiency (QE). [C1879]

"A simple quasiclassical treatment of bias-dependent carrier capture in quantum wells"

Capture of carriers in semiconductor quantum wells (QWs) plays an important role in quantum well-based light emitting diodes (LEDs), laser diodes (LDs) and photodetectors, and in studies of QW structures and devices by photoluminescence (PL) and cathodoluminescence (CL). Carrier injection by forward bias of quantum well LEDs and LDs introduces electrons and holes from larger bandgap cladding layers into single or multiple QWs. In PL and CL studies of QW structures and devices, carriers excited in cladding layers diffuse or drift to QWs under different bias conditions, and captured carriers produced QW luminescence. To better understand bias-dependent CL experiments on II-VI QW-LEDs, a simple, quasiclassical treatment of bias-dependent carrier capture has been developed. Capture probabilities for electrons, holes and excitons have been considered. The assumptions and results of this treatment are described. [C1880]

"New speech processor and ultrasonic sensors based embedded system to improve the control of a motorised wheelchair"

This paper describes a design of an embedded system used to facilitate the control of a wheelchair. Wheelchair users are able to operate a joystick to control the chair, however many more severely handicapped users need some other means of controlling this type of robot. The designed system is based on grouping a microcontroller with a new voice recognition processor for isolated word and speaker dependent and a set of ultrasonic modules. The resulting design is used to control a wheelchair for a handicapped individuals based on a vocal command. The input of the system are a set of eight Arabic words used to control the movement of an electric wheelchair, a vector of information on the context given by a set of sensors and a joystick for security actions; The output is a corresponding command and a set of indicator LED (Light Emitting Diodes). The system is developed in order to be installed on the wheelchair. Therefore it should be easy to carry, no bulky, with low power consumption, and easy in operation. [C1881]

"High-speed distance measurement between moving vehicles with NIR-LED markers"

An image-based technique with high measurement rate has been proposed to measure the distance between two moving vehicles. By combining several near-infrared (NIR) LED markers mounted on the forward vehicle with an NIR-filtered CMOS camera mounted on the backward vehicle, one can clearly recognize the marker shape and positions without any adjusting the focus lens of camera, and hence he can extremely reduce the time of digital preprocessing such as noise elimination and marker segmentation. The distance may be easily calculated from the geometrical transformation of the marker positions obtained in sub-pixel resolution from the gravity center of the pixel value. The image-based technique proposed here is actually examined in the vehicles moving on linear and curved tracks. It is experimentally confirmed that the measurement rate attains to 1000 frames/sec in the windowed image of 752 times 34 pixels, with a small processor with the clock of 600 MHz, including the capture time of the image, the calculation time of the gravity center, and the geometrical transformation time. The measurement error is less than 1 % for the distance range of 0.5 to 3 m. [C1882]

"Nanoparticles doped with rare earth and transition metal ions for optoelectronic applications"

Perspectives of application as phosphors of nanometer size particles doped with transition metal (TM) or rare earth (RE) ions are discussed. It is demonstrated that nanometer size can be crucial to overcome some limitations in achieving high light output. First of all, small size of host materials helps to enhance rate of host-to-impurity energy transfer, opening new efficient channels for TM or RE excitation. This effect contributes to a brighter light emission. Moreover, intra-shell transitions of TM and RE ions in doped nanoparticles show shorter luminescence decay times due to increased rates of a radiative decay. Mechanisms of emission stimulation in doped nanoparticles are discussed. [C1883]

"Soundness test cases generation for duration systems"

In this paper, we are interested in testing duration systems. Duration systems are an extension of real-time systems for which delays that separate events depend on the accumulated times spent by the computation at some particular locations of the system. We present an automatic testing method for duration systems that uses the approximation method. This method extends a model using an over approximation, the approximate model, containing the digitization timed words of all the real computations of the duration system. Second, we present our conformance relation applied on the approximate model, we demonstrate that test cases generated from the approximate model are soundness test cases. At the end, we propose an algorithm that generate a set of test case presented in a tree by considering a discrete time and how we execute those test cases on the implementation by considering a continuous time. [C1884]

"Observation of optical gain in ultra-thin silicon resonant cavity light-emitting diode"

We have observed net optical gain by current injections to ultra-thin Si embedded in a resonant optical cavity. The cavity consists of a dielectric waveguide fabricated by CMOS and MEMS process. The photoluminescence (PL) spectra show narrow resonances peaked at the designed wavelength, and the electroluminescence (EL) intensity increases super-linearly with currents. The comparisons with first principle calculations suggest that the optical gain is originated from intrinsic material properties of ultra-thin Si due to quantum confinements. [C1885]

"Single-crystal thin-film bonding on diamond-like carbon film by intermolecular force for super high-density integration of high-power LEDs"

Good bonding of single-crystal semiconductor thin-film (epifilm) on diamond-like carbon (DLC) thin film formed on the Si substrate (DLC/Si) by intermolecular force at room temperature has been achieved for the first time. Characteristics of super high-density epifilm-LED arrays bonded on DLC/Si are compared with those bonded on polyimide film on the Si substrate (PI/Si). Performance test showed much larger emitted-light-power efficiencies on DLC/Si than those on PI/Si in the larger current-density range. The current-power characteristic curve of the

epifilm-LED bonded on DLC/Si was found to saturate at much larger LED-current compared to conventional LEDs on the GaAs substrate. The epifilm-LED on DLC/Si achieved much larger heat-dissipation and higher emitted-light-powers at larger LED-currents. [C1886]

"High voltage devices integration into advanced CMOS technologies"

This paper focuses on CMOS technologies for mobile applications having integrated high voltage devices to address analog baseband and RF power applications. Technology evolution from BCD-like to advanced CMOS technologies on bulk and thin SOI substrates and some selected device architectures (extended drain MOSFET, drift MOSFET, lateral and vertical diffused MOSFET) are reviewed. Main challenges encountered when integrating these devices in advanced CMOS are explained. The influence of the gate oxide thickness on the relevant figures of merit and some considerations on performance-reliability trade-off are provided. [C1887]

"Session 19: Quantum, power, and compound semiconductors devices-RF power and optoelectronic devices"

The session is divided into two parts containing a total of seven papers. The first three papers talk about advanced RF power devices using Si and GaN technologies. The first paper presents a 45 nm LDD Si RF power transistor integrated into CMOS technology with the highest Pout density of 0.6 W/mm at a maximum PAE ever reported among CMOS high breakdown voltage transistors. The second contribution refers to highly linear RF power asymmetric-LDD MOSFETs. The final paper of this part discusses reliability of GaN HEMTs. The second half of the session opens with an invited paper on Si photonic modulators for high-speed applications. This is followed by a demonstration of optical gain in Si resonant cavity for Light Emitting Diodes. The next paper describes the role of non-radiative recombination in the degradation of InGaN-based laser diodes. The final paper of the session presents a unique thin-film bonding technique by intermolecular forces for high-density integration of high-power LEDs. [C1888]

"Aligned single-walled carbon nanotube thin-film transistor arrays for transparent electronics"

The implementation of mechanically flexible and optically transparent nanoscale transistors could enable high definition, large-area, low-cost, low-power and light-weight active matrix displays. Transparent thin film transistors (TFTs) fabricated with semiconductor nanowires and a randomly aligned networks of carbon nanotubes have been previously reported. In this paper, we report fully transparent TFTs based on well-aligned single-walled carbon nanotube transistor (SWCNT) arrays. These devices provides higher performance the prior nanowire/CNT network transparent devices, achieve -83% transparency on quartz substrate over the visible wave-length range and are suitable for integration with organic light emitting diodes. [C1889]

"ZnO Flexible Active Matrix Display Backplanes and Integrated Circuits"

This research deals with ZnO flexible active matrix material for display backplanes and integrated circuits. Device fabrication and characterization for enabling high performance displays is demonstrated with their associated integrated circuits on low-cost polymer substrates. [C1890]

"AMOLED Reliability with a-Si TFT's in Normal vs. Inverted TFT/OLED Integration Scheme"

An important technical issue associated with using a-Si for AMOLED displays is the direct voltage programming of the pixel by providing a constant current source to the OLED. Since only n-channel a-Si TFT's are available, this requires connecting the driver TFT to the OLED cathode rather than the OLED anode which is not conventionally possible without inverting the OLED stack. This paper reports on the luminance decay vs. time in either normal or inverted pixels may be predicted by measuring the drift in the characteristics of individual TFT and OLED component. Also, the luminance decay is lower in the inverted structure, because of the lack of dependence on the OLED voltage rise. [C1891]

"The characteristics of chemical lift off method using metallic buffer layer and its application to the vertical light emitting diodes"

The authors report the characteristics of chemical lift-off method using metallic buffer layer and its application to the real light emitting devices. [C1892]

"Use of Highly Reflective Ohmic Contact and Surface KrF Laser Roughening to Improve Light Output of Vertical GaN-Based Light-Emitting Diodes"

A highly reflective ohmic contact and surface roughening by KrF excimer laser technique to improve the

optoelectronic properties of high-power vertical metallic-substrate GaN-based light-emitting diodes (VM-LEDs) were proposed and investigated. A metal system comprising of Ni/Ag/Ni was employed to serve as a reflector and ohmic contact to p-GaN, which exhibits a good ohmic contact (3.05times10-4Omega cm2) and high reflectivity (89% at the wavelength of 465 nm) after thermal annealing at 500degC in N2ambient for 10 min. After the removal of sapphire using laser lift-off process (LLO), KrF excimer laser irradiation was adopted to etch the u-GaN layer and then roughen the surface of the exposed n-GaN layer. As compared to regular lateral-structure GaN-based LEDs with ITO transparent conduction layer (TCL), the fabricated VM-LEDs with a chip size of 1000 mumtimes1000 mum demonstrated a typical increase in light output power (Lop) (i. e., DeltaLop/Lop) by 325.5% at 350 mA with a decrease in forward voltage (Vf) from 3.67 V down to 3.41 V. As compared to the VM-LEDs with u-GaN etching employing inductively coupled plasma, about 125% enhancement in Lop has been obtained at 350 mA from the proposed samples. [C1893]

"An intelligent aviation obstruction warning light"

A scheme for aviation warning light is presented here. Unlike the conventional systems used for this purpose, the system presented here is using intelligent way of sensing daylight sensor fault, intelligent way of sensing light fault, intelligent way of activating standby light in case of the main light fault, ground cable monitoring and responding system with beep for any fault occurs. Microcontroller from 8051 family with tiny operating systems is implemented here for controlling and calculating in a multitasking environment so that the system becomes dependable with advanced feature. [C1894]

"Organic opto-electronics: Present status and future prospects"

In recent years, organic semiconductors have been studied extensively because of their potential applications in light emitting diodes, field effect transistors, memory devices and solar cells. Attractive characteristics of organic semiconductors include low temperature processing, mechanical flexibility, low cost and light weight. Already products based on active thin-film organic devices are in the market place, most notably the displays of several mobile electronic appliances. Yet the future holds even greater promise for this technology, with an entirely new generation of ultra lowcost, light-weight and even flexible electronic devices, which will perform functions traditionally accomplished using much more expensive components based on conventional semiconductor materials. [C1895]

"Effect of doping on the electrical and optical properties of organic semiconductors"

Addition of small quantities of dyes modifies the optoelectronic properties of organic semiconductors. This type of doping enhances the photo as well as electro luminescence properties of the semiconductor by transferring their exciton energy to the dye molecules. Phosphorescent dyes are routinely used to harvest triplet excitons in organic light emitting diodes to enhance their internal efficiency to almost 100%. In most cases, energy from the host molecules is transferred to dye molecules through Forster or Dexter type energy transfer processes. In some cases, dye molecules traps charge carriers from the matrices and recombines with opposite charges (trap assisted recombination) to form excitons resulting in very efficient light emission. It is usually assumed that the addition of dyes do not modify the electrical properties of the matrices. We have made detailed optical and electrical studies on a zinc complex, zinc hydroxyphenyl benzoxozolate(Zn(hpb)2) doped with DCM dye and found that the dye doping has seriously affected the transport properties of Zn(hpb)2. [C1896]

"Significance of bias light spectral composition for accurate measurement of silicon solar cell spectral response"

To determine solar cell spectral response (SR) at working illumination conditions, measurements of the signal generated by a modulated spectral beam imposed on a DC short circuit current due to white light bias with different irradiances are typically used. In practice the bias light source does not usually simulate the sun's spectrum. However the effect of the spectral composition of the bias light on the SR measurements is not known. The goal of this work is to find empirical evidence of the effect of the bias light spectrum on measured Si solar cell SR. The bifacial solar cell samples used for this study can be characterized by: significant dependence of SR on injection level, and different spatial distribution of bulk recombination centers. The sources of bias light were chosen based on their spectral composition which controls the depth distribution of carriers generation during SR measurements. An incandescent halogen lamp with a variable power supply voltage with/without optical neutral filters and 617 nm light emitting diodes were used. As the measurements show, the spectrum of the white bias light emitted by a tungsten filament of color temperature in the range 2400-3900 K is not a critical factor in SR measurements. However, use of highly absorbed bias light can result in a different SR compared to that measured with white light bias. [C1897]

"Fast illuminated Lock-In Thermography: An inline shunt detection measurement tool"

This paper focuses on the fast spatially resolved detection of material and / or processing induced shunting using fast illuminated Lock-In Thermography (iLIT). With this technique shunting can be detected spatially resolved within a measurement time of only 1 s and thus the method in principle can be used for inline characterisation. Points addressed are the influence of Lock-In frequency on spatial resolution and the effect of a lowered illumination intensity for a better selectivity between shunting and recombination induced generation of heat. The method is tested for different common sources of shunting in standard industrial-type solar cells (points like shunts, cracks, poor edge isolation, contaminations) and all major types of shunts under investigation can be detected in times relevant for inline characterisation. [C1898]

"OLED-on-CMOS integration for augmented-reality systems"

Several fields of application are increasingly using augmented-reality to enhance their performance, e.g., maintenance, manufacturing and security,. OLED-on-CMOS technology provides significant benefits to the realization of compact and lightweight augmented-reality systems. This paper describes the integration of highly-efficient, low-voltage organic light emitting diodes (OLEDs) and photodiodes on a CMOS-substrate to combine display and camera functionality (OLEDCam) in a single optical microsystem device. The optical engineering aspects to project images into the human eye and capture the user's point of gaze at the same time will be discussed. To support human-computer interaction we present a system concept to integrate eye-tracking capability into head-mounted displays (HMDs) using an OLEDCam. The portable control electronic and OLEDCam prototypes are presented. Based on results obtained from the first OLEDCam samples we examine the challenges and identify specifications in an augmented-reality system design. Finally, we introduce possible applications using OLED-on-CMOS for augmented-reality systems. [C1899]

"Modeling and ATLAS simulation studies on mid-infrared homojunction LED"

In this paper, we present ATLAS simulation studies of a mid-infrared (MIR) PIN homo-junction light emitting diode (LED) based on p+-InAs0.91Sb0.09/n0-InAs0.91Sb0.09/ n+-InAs0.91Sb0.09material system at room temperature. Various electro-optical properties of the LED have been modeled. The effect of high carrier injection has been evaluated on the output power of LED and theoretical findings found to be in good agreement with the reported experimental results. [C1900]

"Ge/SiGeSn multiple quantum well photonic devices"

Active photonic devices like efficient light emitters and high speed modulators using Si and other group IV materials are difficult to realize due to indirect nature of band gap in silicon, germanium and their alloys. At present, efficient light emission has been observed by exploiting stimulated Raman scattering in silicon that needs optical pumping. An alternate route has been found recently that utilizes tensile strained Ge layer grown on SiGeSn barrier layers. The tensile strain makes the direct Avalley conduction band lower than the normal L valleys. In this paper early work on light emission in Si is briefly narrated and schemes for Raman laser are discussed. The physics behind the direct gap type I band alignment in Ge/SiGeSn multiple quantum wells is presented and work towards Ge laser are summarized. Incorporation of C in Ge makes the gap correspond to emission at 1550 nm: the standard telecommunication wavelength. The work on high speed modulators based on carrier injection/depletion is briefly reviewed. Finally principle of and progress in modulators and other devices based on quantum confined Stark effect for excitons in Avalley in Ge are introduced. [C1901]

"Advances in High Brightness Light Emitting Diodes in underwater applications"

Light Emitting Diodes (LEDs) continue to make headway in the undersea world as efficient and durable light sources. Previous papers by the authors have discussed differences and advantages over gas discharge lamps [1], [2], [3]. Undersea lighting designers continue to follow the rapid development of LEDs for general commercial illumination. In addition to improvements in LED technology, electronic drivers have become more compact and increasingly efficient, providing options to end users for thermal roll-back, dimming, AC/DC, or variable voltage input with constant current output. DeepSea Power & Lightreg(DSPL) engineers have devised techniques to pressure compensate both the LEDs and the driver electronics, successfully testing LED arrays and drivers to 20,000 psi. Using a component integration matrix, new configurations of light systems are rapidly emerging for many diver, manned submersible and unmanned vehicle applications. This paper will summarize advances in High Brightness LED lighting systems, in-house and field testing methods, and suggest where ongoing developments will take us next. Recent at-sea experiences are discussed. DeepSea Power & Lightreg(DSPL) has been involved in advanced underwater lighting since the company's inception 25 years ago, and with applications of LED lighting in harsh environments for over 10 years in a line of Pipe Inspection Video

Cameras. [C1902]

"Further support to the large band gap 1.95 eV of InN"

Indium nitride (InN) is an important and mysterious III-nitride semiconductor with many potential applications. During the last few years the interest in InN. has been remarkable. The use of InN and its alloys makes it possible to extend the emission of nitride-based Light Emitting Diodes (LEDs) from ultraviolet to near infrared region. In recent years an exciting conflict has arisen regarding the most fundamental property of InN, the band gap energy. Few research groups claim that the band gap of InN is around 0.7 eV while other groups argue that the band gap is around 1.9 eV. In this paper we provide further support to the large band gap 1.95 eV of InN. [C1903]

"A novel method to reduce the operating temperature of high power light-emitting diodes"

High power light-emitting diode (HP-LED) is now commonly used in electronic devices. However due to its unique electrical characteristics, it places many obstacles on maximizing the benefits provided by HP-LED. One of the obstacles is the rise of junction temperature due to current ripple that is inherent in all switching power supply. This affects the performance of HP-LED such as wavelength, luminance and life time which is difficult to predict for each HP-LEDs. There are many different methods to reduce the ripple. The most common and simplest solution is by using an filtering capacitor. However this usually requires a large capacitor that may not be desired in certain application. Several possible solutions were proposed in the past and one of them uses a linear regulator to compensate the ripple. But due to the way this technique is implemented, it has accuracy and efficiency problems. Therefore an improved active filter using operational amplifier to smooth the output ripple with enhanced accuracy and higher efficiency is introduced in this paper. [C1904]

"The Study of Improving the Accuracy in the 3D Data Acquisition of Motion Capture System"

We introduced the motion capture system using two CCD cameras recently, but could not show any better accuracy than a system using PSD camera. In this paper, we propose two kinds of method to improve the accuracy of the 3D acquisition of the motion capture system using CCD cameras. The applied methods are a distortion removal and z-axis adjustment. We show the result how much the accuracy on the 3D acquisition system improved through comparing with the previous system. [C1905]

"Two-way optical communication system in which each Si photo-diode plays two roles of light-receiver and light-emitting diode"

We developed a unique and simple two-way optical transmission system in which each Si photo-diode plays two roles of photo-receiver and light-emitting diode. Such a system may lead to realization of fully monolithic Si OEIC. [C1906]

"Inkjet Printing of DNA for Use in Bioelectronic Applications"

Biopolymers have received much attention lately for use in electronic applications. Salmon DNA complexed with cetyltrimethyl ammonium chloride (DNA-CTMA) produces a material soluble in organic solvents, enhancing the ease of processing. DNA-CTMA has shown promise as an electron blocking layer in organic light emitting diodes (OLEDs) and potential as a gate insulating material in field effect transistors (FETs). To realize an all bio-based FET, we are continuing to investigate the use of DNA as the semiconducting layer. In addition to tailoring the properties of the biomaterial to increase the conductivity, we are also trying to better characterize these materials and explore different deposition techniques. Inkjet printing offers an unique ability to reproducibly deposit materials in a spatially controlled fashion, using picoliter amounts with high throughput. This paper will present how parameters such as solvent evaporation rate and substrate influence film properties. The characterization of the resulting DNA films includes atomic force microscopy (AFM) and white light interferometry. [C1907]

"Printed organic nonvolatile memory for skin-like large-area interfaces"

In this work, we demonstrate organic random-access memory matrices by using the state-of-the-art printing technologies. The new type of memory is nonvolatile, flexible with a nondestructive read-out capability, and maintains a time-continuous current and/or voltage; these functionalities have not been simultaneously achieved even by silicon-based conventional memory. Furthermore, human- scale communication sheets were manufactured as the first demonstration utilizing large-area organic memories. [C1908]

"A 9-context optically reconfigurable gate array"

Optically reconfigurable gate arrays (ORGAs), which consist of a gate array VLSI, a holographic memory, and a laser diode array, are a type of programmable gate array that can achieve rapid reconfiguration and numerous reconfiguration contexts. The gate array of an ORGA is optically reconfigured using diffraction patterns from a holographic memory that is addressed using a laser diode array. Up to now, four-context ORGAs have been demonstrated. This paper presents the first 9-context ORGA architecture that uses spreading beams of Vertical Cavity Surface Emitting Lasers (VCSELs) with no lenses. This paper describes experimental results and plans for future work. [C1909]

"New generation of PV module rating by LED solar simulator-A novel approach and its capabilities"

Authors have been proposing a novel approach by employing light emitting diodes (LED) as a light source with discrete-wavelength spectrum. LEDs have a number of practical advantages. Each of different color LED lights works as sampling wavelength for scanning the spectral sensitivity of PV module by modulating intensity of each spectral component in a sequential order. Even by a limited number of sampling wavelengths, full range spectral response can be estimated easily by newly developed fitting model. Then AM 1.5 spectrum of IEC 60904-3 is applied to obtained response curve to give STC rating. 3 types of experimental LED arrays have been developed since early 2003: i.e., Mk-1 to Mk-3. Under these experiments, spectral characteristic fitting model has been successfully developed. Nonuniformity of ±2% has been achieved by MK-2, satisfying Class A uniformity specification. The latest Mk-3 achieved 0.42 sun in October 2006. Its array consists of 2304 elements of high-brightness LEDs (HB-LED) in total provided with blue (473 nm), red (643 nm) and 2 elements of infrared (845 nm) for 1 unit. The following experimental results are presently attained for a one-cell module of 100 mm Ч 100 mm of single crystalline silicon with Pmaxat STC of 1.553 W calibrated under Class A simulator: i.e., ISC=3.757 A (+0.080 %); VOC=0.601 V (−0.121 %); Pmax=1.660 W (+4.312 %); Ipmax=3.454 A (+2.493 %); Vpmax=0.469 V (+1.74 %); FF=71.74% (+4.73 %). Values in parentheses are corresponding to % errors for reference values. It is felt that present result has been already reaching practically usable level. If 6 LEDs allocation pattern is adopted, spectral response fitting formula will be very much improved. [C1910]

"Acoustic characteristics and structural analysis of flexible PVDF loudspeaker"

A flexible and transparent loudspeaker driven by PVDF (polyvinylidenefluoride) is proposed. Fabricated prototype loudspeaker had flexibility and transparency, and its acoustic characteristics and motion principle were investigated. The investigation yielded low distortion characteristics of the proposed loudspeaker, and such advantages originated from the assemblage of the plastic film and the PVDF. [C1911]

"The Development of Computer Controlled Multicolor Illumination Network Using RGB based Light Emitting Diodes"

Nowadays, the usage of the three main colors; red, green and blue (RGB), in optical technology is vast. RGB based light emitting diode (LED) luminary system has wide applications such as in LCD backlighting, commercial freezer lighting, white light illumination and etc. This paper presents the design of a personal computer (PC) based RGB illumination module. The system, consists of a microcontroller and LED driver, will enable users to select the desired color by just clicking on the CIE chromaticity chart (commision internationale de 'Eclairage) XYZ standard. The output color of the LEDs are corrected by varying the brightness of each RGB based LEDs using the microcontroller based module. The method used to control the brightness of the individual LEDs is pulse width modulation (PWM) where the duty factor of the current is varied. With the controllable colors, this project has applications such as in light therapy system to help ease seasonal mood swings, to improve sleeping patterns and to overcome jet lag syndromes of frequent travelers. It can also be widely explored for entertainment, presentations and decorations purposes. [C1912]

"A large-area, flexible, ultrasonic imaging system with a printed organic transistor active matrix"

We have successfully fabricated a large-area, flexible, ultrasonic system by integrating a two-dimensional polymeric ultrasonic sensing array with a printed organic transistor active matrix. The new sheet-type device can offer a cost-effective solution for a real-time three-dimensional imaging in free space and/or a large-area proximity sensor for robot skins. [C1913]

"The study of Si/metal/GaN fusion bonding"

GaN-based light-emitting diodes (LEDs) grown on sapphire substrates are integrated with Si by fusion bonding technique. GaN-based LEDs coated with Sn/Au are joined to Si coated with Ti/Au at 300degC in a flowing nitrogen ambient for 30 min. Sapphire substrates are separated from the samples by laser lift-off (LLO) forming GaN-based LEDs/Sn/Au/Ti/Au/Si structures. Microscopy image, observed from the transparent GaN films, shows the uniform bonding interfaces free of air bubbles. The turn-on voltage of vertical GaN-based LEDs on Si

decreases from 3.2 v to 3.0 v. [C1914]

"Accurate measurement of pressure in Natural Gas Vehicles: A digital/electronic design and fabrication"

Along with many other issues to be considered when converting a vehicle to CNG (Compressed Natural Gas), one of the primary concerns is the measurement of gas that is remaining in the cylinder. A conventional gas actuation system, which is fitted on the gas pipeline going to the pressure regulator, sends a signal to the unit installed inside of the vehicle that indicates the pressure, normally through four LEDs. A well-tested design is presented in this paper, which gives an accurate and precise measurement of gas pressure in NGVs (Natural Gas Vehicles) using a non-contact sensor mechanism. The final product has an accuracy of 2.0% having a gauge reading of 6000 psi, tested and verified at 4500 psi. [C1915]

"Spectrum slicing for low cost wavelength division multiplexing"

The key features of spectrum slicing are discussed in the context of the provision of low cost customer access as an alternative to laser systems. The history of the method is presented followed by an outline of performance analysis techniques. Following from this, system results are introduced from on-off keying leading to promising outcomes from the use of more sophisticated coding and modulation methods. There is also discussion of the use of shared optical preamplifiers that can deliver increased throughput and sensitivity benefits of almost 11 dB. [C1916]

"Preliminary evaluation of a silicon drift diode based gamma detector"

Investigation has been conducted to characterize the intrinsic performance of a SDD (silicon drift diode) based gamma detector under various conditions. [C1917]

"Joint ESPIRIT for time delay estimation of chirp spread spectrum"

In this paper we present a technique to estimate the time delay of IEEE 802.15.4a chirp spread spectrum (CSS). Conventionally, the time delay can be estimated by the phase estimation of the samples of a dechirped sinusoid. We estimate the phase differences not between samples in a sub-chirp but between samples of adjacent sub-chirps to magnify the phase differences making this technique more robust even in low SNR. We used joint ESPRIT technique in order to retain the phase information of each dechirped sinusoids in low and high bands. We have verified this technique through simulation and implementation. [C1918]

"LEDs A Competitive Solution for General Lighting Applications"

Lighting accounts for approximately 30% of the total energy consumption in the US. An increasing focus on energy efficiency and sustainability is driving the adoption of efficient lighting technologies. Solid state lighting, in particular light emitting diodes (LED) offer significant potential for replacing a large part of the general lighting applications, currently occupied by incandescent and halogen lamps. This paper discusses the opportunities and challenges for LEDs in general lighting, and shows the overall impact that this technology can have. [C1919]

"Light Emission and Detection for Si Photonics"

The present paper reviews the current status of light emission and detection for Si Photonics. To control the initial and final stages, strain engineering of bandgap and resonator structures are indispensable for light emission. A new non-thermal approach to reduce reverse leakage current is proposed controlling the electric field strength. These together with modulation reported recently on Ge platform clearly indicates that Ge is one of the most important materials as far as active components are concerned. [C1920]

"Optical safety assessment of a near-infrared brain-computer interface"

This paper describes a safety assessment study of near-infrared sources used in an optical brain-computer interface (BCI). The measurement elements of an optical BCI consist of sets of optical sources and detectors. Our current system utilises sources which comprise of dual wavelength light emitting diodes (LED) at 760nm and 880nm. An optical analysis demonstrated that NIR radiation is a negligible source of heating in this case. LED heat conduction however is a major source of heating, and LEDs, though much safer than laser diodes, have been known to cause burns if improperly used. We describe a procedure by which we measure the heat conduction effect of LEDs. We show that the LED systems used in our current generation BCI produce safe levels of thermal energy and are within published safety levels. [C1921]

"An LED Module Array System Designed for Streetlight Use"

IEEE abstract currently, most outdoor illumination sources use high intensity discharge (HID) lamps as light sources. Global concerns have been raised regarding the amount of power consumed by HID lamps, and by extension, the amount of atmospheric CO2released due to such power consumption. Because of this, light emitting diod (LED) array illumination has received attention recently as an energy-reducing light source. Because the illumination produced by an LED is relatively weak, LED light fixtures differ in several ways from traditional light sources, and it is necessary to incorporate numerous LEDs into a module array in order to use them for road illumination. Concerns exist that the failure rate of LED module arrays will increase with the use of large number of LEDs. In this paper, we calculate changes to array reliability over set periods of time, and propose a module array design composition that was found to offer high-reliability. [C1922]

"Life time issues in organic light emitting diodes"

This paper presents different factors that affect the life time of OLEDs. Phosphorent OLEDs were found to exhibit longer lifetime by utilizing triplet states along with the singlets. Interface conditioning and mixed host with double emission layers have been found to improve the life time by preventing the degradation of the interfaces due to electrochemical reactions. Hence charge balance and exciton confinement were found important. Multiline addressing scheme (MAS) for passive matrix OLED displays was also studied and it was found that, minimizing the amplitude of the electrical current flowing through the diodes has a direct impact on the lifetime. [C1923]

"Electroluminescent from hybrid of Cdse quantum dot-organic light emitting diode"

This paper reports the fabrication of a quantum dots (QD)-organics hybrids light-emitting diode (LED) for potential light sources. Organic light emitting diode (OLED) have become a focus of attention since past decades for potential light sources in a flat panel displays applications. Despite their intriguing performance in producing rich-color light emission, they still faced several critical defects, such as relatively low-brightness, low-chemical and photostability and short lifetime. Here, we demonstrate a novel system for the production of pure-color light emission with exceptionally high brightness by utilizing quantum dots that are hybridizing with light emitting organic materials, as an active material in light-emitting diode devices. Organic-quantum dots hybrid LED devices was fabricated by sandwiching the quantum dots monolayer between the electron transport layer (ETL) and hole transport layer (HTL) in a conventional OLED structure (ITO/ETL/QD/HTL/Al). Quantum dots of CdSe (ZnS) core-shell structure were function as the emitting layer. The ETL and HTL were poly(vinyl carbazol), PVK and tris(8-quinolinolato)aluminum(III), Alq3; respectively. The current-voltage (I-V) characterization on the device was found that the hybrid LED exhibited a strong blue emission under a relatively low bias voltage, of which their turn-on voltage was as low as 5.0 V. [C1924]

"Thermal, Mechanical and Optical Analysis of SiC-based LED"

Reliability is one of the important problems in electronic packaging, which affects the use and life of the products. In this paper, we present a high power SiC-based light-emitting diode (LED), the thermal, mechanical and optical performances were investigated respectively. Heat dissipation performance and junction temperature were obtained using finite element analysis (FEA), the influences were analyzed on the temperature of the chip with different power input and convection coefficient, mechanical characteristics were researched by its thermal stress; optical properties were simulated using optical analysis software and experiment. The results show that the maximal temperature which appears in the chip is about 93Г‚В°C; the thermal resistance in the package is found to be 8.73Г‚В°C /W; great thermal stress lies between chip and silver epoxy, which will depress the reliability of the LED, its optical properties can be improved by second optical design. The luminous flux, efficacy and color coordinates will change with the increase of current. [C1925]

"Microdot Epoxy Stamping Process Qualification For Substrate Based Optocoupler BGA Packaging"

This paper investigates the adhesive stamping process qualification using an in-line modular machine for microdot application on substrate based package for microcoupler. Characterization of different stamping tool design yielded a rounded tip and star tip design for LED and photo detector die. While implementing plasma cleaning after premolding process yielded clean bonding pads for die attach process, resin bleed out phenomenon was detected due to high surface energy of the bonding pads after plasma. Implementing plasma is necessary to attain clean bonding pads after substrate cleaning, a work in characterizing dwell time after plasma yielded to a staging time of 4 hours before stamping process. [C1926]

"Fabrication of CdSe quantum dots-PHF organic hybrid light emitting diodes"

Quantum dots (QDs) have been attracted an active interest for light emitting device due to their unique high luminescence efficiency and narrow emission spectra as a result of the strong electrons confinement in its nanoscale core that is potential for production of pure colour light emission. In this work, a CdSe quantum dot-PHF organic hybrid light emitting devices have been fabricated. To study the effect of the CdSe QDs layer in the performance of the devices, variations of QDs layer were prepared. It is found that the present of the QDs layer improved the electroluminescence property of the device. In this article, we report the fabrication of light emitting diode using quantum dots that hybridize with PHF organic material. The light emitting device was found to give a bright green colour emission centering at 533.61 nm. The effect of QDs layer on the performance of light emitting devices was discussed. [C1927]

"An Architecture of Wavelength-Utilizing Rate Doubled WDM-PON"

We proposed a novel architecture of WDM-PON based on the wavelength-lock light source. The wavelength utilizing rate was doubled by using an novel remote node (RN). The ORL induced by ASE was eliminated. [C1928]

"Encapsulating the green tea extract by templated sol-gel procedure based on nonionic tensioactive agent of alkenyl succinic anhydrides class"

The sol-gel method has been proved to be a suitable approach for the introduction of some sensitive organic substances into inorganic matrices. By extension of bioencapsulation sol-gel method, this article is focused on encapsulation of green tea extract (GTE) in some silica polymeric matrices. Green tea has been extensively used for medical purposes, as promising antioxidant, anti-inflammatory and anti-carcinogenic agents, investigated particularly in the chemoprevention and treatment of skin photodamage. Green tea extract exhibits high content of polyphenols (bioflavonoids), being a rich source of epigalocatehin galat (EGCG) that is over 200 times more potent than vitamin E as scavenger of free radicals and pro-oxidants. The chemical instability of tea polyphenols (TP) can be a major drawback for many applications (e.g. medical application). This has opened the possibility of using a hybrid host network in order to preserve their structural properties. By isolating of organic polyphenol molecules into individual pores and cages of some silica polymers prepared by a templated sol-gel process may confer an appropriate stability for this purpose. In this study the GTE was successfully encapsulated in two inorganic silica and hybrid silica-silsesquioxane polymers, by addition of vegetable extract into a silica precursor solution templated with a nonionic tensioactive agent of vegetal origin (from high oleic sunflower oil), belonging to alkenyl succinic anhydrides class. Experimental studies of the antioxidant stability and fluorescence properties of GTE encapsulated in silica and silica-silsesquioxane polymers are also discussed. Spectral changes observed by UV-VIS-NIR and FT-IR spectroscopy, increased antioxidant activity (after UV-A and UV-B irradiation) tested by chemiluminescence assays and enhanced fluorescence properties by fluorescence measurements and also less aggregation, by DLS and TEM techniques, were observed in encapsulated samples, in contrast with that--of native GTE. [C1929]

"Optical transceiver design for POF portable optical access-card system using light-to-frequency converter"

An optical transceiver design for an all passive POF portable optical access-card system is presented. The portable optical access-card system includes a portable device with an optical code generating device and a transmitter/receiver system that generate the light signal and de-codes the transmitted codes. The portable optical access-card system will utilized Plastic Optical Fiber (POF) waveguide coupler device that is embedded in the portable device itself. The optical card uses a simple coding technique of light signal transmitted from a Light Emitting Diode (LED) or laser, where the light signal is coded using a 1 X N POF waveguide coupler. The Transmitter circuit utilize simple LED circuit together and a receiving circuit using light-to-frequency converter chip. [C1930]

"Synthesis of CdSe quantum dots: Effect of surfactant on the photoluminescence property"

This paper reports the synthesis of highly lumimescence CdSe quantum dots via wet-chemical process and the study of the surfactant concentration effect on the improvement of the photoluminescence characteristic. Here, we also discussed in detail the quantum dots synthesis procedure and the mechanism for the improvement of the luminescence characteristic of CdSe quantum dots under a different surfactant concentration. [C1931]

"Growth of III-Nitride Materials and Blue Light-Emitting Diodes by Metal Organic Vapor Phase Epitaxy"

GaN-based materials and devices are expected to play an important role in future information and energy

applications. In this paper, we summarized our recent results in metal organic vapor phase epitaxy growth of nitride materials and blue light-emitting diodes (LEDs) on c-plane sapphire substrates. First, the key parameters for high quality GaN bulk growth have been discussed and an evaluating method for crystal structures based on the high resolution X-ray diffraction (HR-XRD) has been introduced. It is found that the optimal recrystallization time and the growth of high temperature buffer layer using a low V/III ratio are helpful to improve the crystal quality of GaN. Furthermore, in order to determine the twist angle of GaN films precisely, a simple and effective geometrical model is established to distinguish the contributions of tilt and twist to the full width at half maximum of HR-XRD Phi-scan curves. Second, the growth of low In content InGaN templates of 500 nm has been studied. The crystal quality of thick InGaN templates is improved efficiently by inserting a 15 nm low temperature growth InGaN buffer layer, which is attributed to the rapid strain relaxation. Finally, the growth and electrical characteristics of blue InGaN/GaN multiple-quantum-well LEDs are presented. The doping profiles are found to influence the electrical characteristics of LEDs dramatically by capacitance-voltage measurements. [C1932]

"Thermal resistance and reliability of low-cost high-power LED packages under WHTOL test"

The high-power Light Emitting Diode (LED) can be potentially used for general lighting to alleviate the global warming problem. However, the LED issues, associated with high cost, high junction temperature, low luminous efficiency, and low reliability, have to be resolved before becoming realized. Featuring low-junction-temperature and low-cost design, a novel high-power COP (Chip-on-Plate) LED package is proposed and its reliability under wet high temperature operation life (WHTOL) test is evaluated. The WHTOL test is with the condition of 85degC/85%RH and 350 mA (power=1.22 W) of forward current for 1008 hrs, specified in JESD22 Method A101-B. First of all, the thermal behaviors of the COP package are investigated by experimental measurement (with LED junction temperature tester and thermal couples), a thermal resistance circuit (TRC) method and a finite element method (FEM). The junction temperature (Tj) and surface temperature of the COP package are measured by the junction temperature tester and thermal couples, respectively. Furthermore, the reliability under WHTOL test is carried out. The results show that all COP packages with phosphorus in the silicone encapsulant failed after 309 hrs at WHTOL test, but all those without phosphorus passed for 1008 hrs. The failure sites are located at aluminum wire debonding to the chip and copper pad of the substrate. For the passing packages, their junction to air thermal resistances increase with the time of WHTOL by up to 12degC/W. This is due to the decrease of the thermal conductivity of the die attach, resulting from the moisture absorption. The natural and forced convections in the chamber for WHTOL test give the same the junction-to-aluminum substrate thermal resistance, but different chip junction temperatures with a 19degC difference, which might result in different reliability data. Therefore, the standard test of WHTOL should specify flow conditions in the test chamber. [C1933]

"A novel high refractive transparent material in LED package applications"

In this study, we conversed Bisbromomethyl-biphenyl and thiourea to a new biphenyl dithiol (BPDT) and used it as a co-curing agent. Its structure was confirmed by means of F-TIR, 1H-NMR, and MS spectra. We co-cured the conventional diglycidyl ether of Bisphenol A (DGEBA) epoxy resin with BPDT and aliphatic tetra-thiol (Pentaerythritol tetrakis(3-mercaptopropionate)) to get a colorless encapsulant (HRIL). The optical properties were measured after curing process. The refractive index was 1.64 which is the highest refractive index among the current existed LED encapsulant, and the transmittance of the cured HRIL was above 85% on the visible wavelength. Furthermore, the effect on light efficiency of LED was evaluated and found that the light efficiency was promoted 14%, compared with the conventional epoxy encapsulated LED. This result certainly reveals that the high refractive index encapsulant can effectively enhance the light efficiency of LED. We also analyzed the thermal mechanical property and thermal stability of the cured HRIL which contained a hindered amine light stabilizer (HALS) by TMA and TGA. The Tg of the cured HRIL was 85.2degC and the thermal decomposed temperature was 327.7degC. After 110degC/1000h thermal aging test, the decrease of transmittance was less than 5% and the thermal resistant result unveils that the novel high refractive index encapsulant is suitable for high performance LED applications. [C1934]

"Optical density measurement of TFT-LCD by PMT coupled monochrome LED"

A fast and innovative method using a monochromatic red LED to measure the optical density of black matrix is developed in this study. The results show that the 3-Watt monochromatic red LED performs better than that of the currently used 100-Watt halogen lamp by reducing the pumping speed by 40% and the 3-sigma standard deviation of the test samples is also superior by 40%. The measurement difference for average OD values is within 1% between both light sources. In addition, using standard glass, the monochromatic red LED demonstrates accuracy within 1.58%. Therefore, the monochromatic red LED can substitute the halogen lamp currently used the TFT-LCD industry to measure the optical density of BM layer. [C1935]

"Development of surface mount compatible reel-to-reel assembly Process of LED arrays for wide area general lighting"

The objective of the present study is to develop a robust high-throughput assembly process of light emitting diode arrays for wide area general lighting. Topics to be covered in this paper include the conceptual design, the flexible printed circuit substrate, flip chip assembly, yellow phosphor coating, and encapsulation. All these are integrated into one reel-to-reel assembly process. A prototype with the proposed process has been developed. A sample strip of packaged LED array has been produced as well. Recommendations for future industrial applications are also provided. [C1936]

"Unique transparent lens formation for high brightness LED by VPES (Vacuum Printing Encapsulation Systems) process"

White color LED has been investigated for lighting application with a big expectation of growth. And in terms of packaging of them in general, clear transparent epoxy resin has been mainly used in spite of problems such as coloring of the resin due to high temperature and UV light emitted from Chip itself. In order to solve this problem, we have investigated new materials such as silicon resin and specially modified epoxy resin etc. And then we would suggest that materials should be chosen depending upon LED specifications, packaging materials and also reliability test conditions etc. In addition we would like to suggest high density packaging technology using VPES, which meets very fine pitch, high density packaging designs, and meets cost effective mass production. [C1937]

"3D map construction using heterogeneous robots"

This paper presents a novel method to construct a complete 3D map that includes all surfaces (ceiling, wall, and furniture tops, etc.) in indoor environments. A team of four robots, including three ground robots and one wall-climbing robot is deployed in a tetrahedron configuration that satisfies the perspective three point (P3P) problem. P3P problem is to estimate the pose of a perspective camera on the wall-climbing robot viewing three ground robots, which will produce up to four solutions using Grunert's algorithm while only one of them is genuine. We propose a probabilistic Bayesian algorithm that identifies the unique solution of the P3P problem using the mobility of the camera. Based on this technique, we introduce an intra-robot localization method to determine the geometric relationship among four robots. Each ground robot is equipped with a rotary laser range finder (LRF), a pan-tilt-zoom camera, and a LED cluster. The wall-climbing robot is fitted with a LRF, a perspective camera, and a motion sensor. Through the vision sensors, the robots obtain their relative poses by solving the P3P problem. Through the LRF on each robot, 4 laser point cloud maps are produced from each robot's point of view. With the information of relative poses of the multiple robots and the calibration data of each LRF and camera pair, the 4 partial maps are fused to acquire a complete 3D map that is rich with information of all surfaces. Our approach outperforms the traditional range image fusion algorithms in terms of time complexity and is suitable for real-time implementation. Real experiments verified the effectiveness of the method. [C1938]

"Amorphous silicon thin-film transistors with DC saturation current half-life of more than 100 years"

We report amorphous silicon thin film transistors (a-Si TFT's) with an extrapolated DC saturation current half-life of more than 100 years, an improvement of over 1000 times compared to the previous art (1-4). This TFT half-life is higher than the luminance half-life of high-quality green phosphorescent OLED's, showing that the TFT's are promising for driving OLED's in active-matrix OLED displays. [C1939]

""Can I have a digital multimeter that's easy to see, even in low light?""

First Page of the Article [C1940]

"Monitoring of TIG welding using laser and diode illumination sources: A comparison study"

This paper presents a vision system based on the use of a CMOS camera. The vision system has demonstrated its potential for applications of weld pool monitoring. It has been demonstrated in this study that the arc light can be successfully eliminated and that a substantial amount of information can be obtained in real time e.g. metal transfer in TIG welding and weld pool geometry, position and development. The system's design and components are detailed in this study including camera technology and selection, and a range of illumination techniques. A study on the welding spectra has helped greatly in the selection of an optimum spectral window where arc radiations are low. A combination of optical filtering, short pulse laser illumination and fast-shuttering imaging techniques along with precise synchronisation and very accurate triggering methods has enabled high quality images of the weld area irrespective of the brightness of the intense arc light. A number of illumination sources including pulsed and continuous wave (CW) lasers, laser diodes and LED illumination are used. [C1941]

"Quantum Confine Stark Effect Suppressed Nanorod Structure Light Emitting Diode"

We present a practical process to fabricate InGaN/GaN multiple-quantum-well nanorod structure. The nanorod light emitting diode array is realized by using monolayer silica nano-particle as nano-mask to define nanorod structure and a space layer to prevent p-type contact from connecting n-type GaN. The quantum confine stark effect is suppressed in nanorod device which is proved by electroluminescence peak wavelength of nanorod LEDs. These peaks of nanorod LEDs are nearly constant at an injection current between 25 mA and 100 mA. [C1942]

"Polarization Engineering of InGaN-Based Nanostructures for Low-Threshold Diode Lasers and High-Efficiency Light Emitting Diodes"

Novel InGaN-based active regions with improved momentum matrix element were investigated for achieving improved gain and radiative recombination rate. Staggered InGaN quantum wells (QWs) and type-II InGaN-GaNAs QWs demonstrated improvement in radiative recombination rate and optical gain for green spectral regime, and these active regions have the potential to be implemented for high-efficiency green light emitting diodes and lasers. [C1943]

"Optimization and Fabrication of III-Nitride Light-Emitting Diodes with Self-assembled Colloidal-based Convex Microlens Arrays"

Improvement of light extraction efficiency of InGaN light emitting diodes (LEDs) using colloidal-based SiO2/ polystyrene microlens arrays was demonstrated. The size effect of the SiO2microspheres and the thickness of the polystyrene layer on the light extraction efficiency were studied. Ray tracing simulations show that the use of microlens arrays leads to increase in light extraction efficiency by 2.6 times. This is consistent with experiments that demonstrated 2.7 times improvement in light extraction utilizing SiO2/polystyrene microlens arrays. The enhancement in light extraction efficiency is attributed to increase in effective photon escape cone due to SiO2/polystyrene microlens arrays. [C1944]

"Hybridization of CdSe/ZnS Quantum Dots on InGaN/GaN Multiple Quantum Well Light-Emitting Diodes for Pink Light Emission"

Pink light emission has been demonstrated from the hybrid CdSe/ZnS quantum dot-InGaN/GaN quantum well light-emitting diodes (LEDs). The QDs in toluene are blended in the resin matrix to become the nanophosphor. For the fabricated hybrid LED, it is found the light output power is greatly reduced due to the poor quantum yield (QY) of QDs (<50%). Besides, the comparison of the electroluminescence (EL) spectra of the InGaN blue LED and the hybrid pink LED exhibit over 90% of the blue light centered at 448 nm has been down-converted to the red light at 636 nm. Consequently, purplish pink light with CIE-1931 chromaticity coordinates of (0.374, 0.147) is obtained. Also observed is the significant blue-shift of luminescence peak from QD-resin composite with respect to the photoluminescence peak from QD-toluene solution, which is due to the less attack of reabsorption of photon energies from smaller to larger QDs rather than the Forster energy transfer. The current-dependent and temperature-dependent EL spectra are also characterized to evaluate the thermal stability of our hybrid LED. In this demonstration, CdSe/ZnS QDs with different sizes/colors can be used as nanophosphors to fabricate color-converted LEDs. Nevertheless, QDs with higher QYs or more efficient device packagings should be adopted to improve the device efficiency. [C1945]

"White light generating semiconductor nanocrystal luminophors with high photometric quality"

We proposed and demonstrated warm white light generating combinations of semiconductor nanocrystal quantum dot emitters with high photometric quality including high color rendering index (~80) on LED platforms to meet requirements of future lighting. Additionally, we developed and demonstrated of these nanocrystal luminophors with metal nanoparticles to control and enhance their spontaneous emission in the solid state film. [C1946]

"Implementation of pseudo PWM pulse to adjust brightness of LEDs in video displays"

Huge outdoor video displays are widely used in modern cities. They are often composed of a huge number of pixels that in each of them three color LEDs exist. An image is produced on the display by adjusting the brightness of the LEDs. Adjusting the brightness of thousands of LEDs constitutes the main part of these video displays price. Therefore the simplification of this task is crucial market competition. The most common method of adjusting the brightness is using PWM signals where a PWM controller for each LED is required. In this paper a novel method which inspired from the original PWM method is proposed to do the task by simple and low cost

circuits. The proposed method is implemented and the results show significant saving compared to typical video displays. [C1947]

"Manufacturing Concepts for Stretchable Electronic Systems"

Assembly of electronic components on rigid and/or flexible printed circuit boards is today the customary way to fabricate electronic systems in stationary, mobile and automotive applications. On the other hand, many of the demands from emerging application fields like wearable and textile electronics cannot be met if with standard technologies. These fields have therefore become mayor drivers for the development of novel technologies. Among these 'stretchable electronics' have attracted much attention recently. Especially for textile applications the potential of the electronic system to comply with the body shape and movement will considerably improve the user comfort. This paper will present a cost effective technology for the realization of stretchable systems by common printed circuit board techniques with polyurethane as a stretchable matrix material. Mastering of the adhesion between materials and the transitions region from stretchable to non-stretchable parts of the system are crucial for the mechanical performance and robustness. Technical approaches and the obtained results to tackle these issues will be presented. The described process technology bears the potential for large scale roll to roll processing. Reliability aspects for stretchable electronic systems are so far not standardized and will be discussed briefly. Electrical and mechanical functionality of test vehicles subjected to multiple stretch and mild washing cycles will be presented. A functional electronic demonstrator with embedded passives, a micro controller, and LEDs which was realized with this technology will be shown. [C1948]

"Enhanced Open-Circuit Voltage in Tandem Polymer Solar Cell"

We present an efficient tandem polymer organic solar cell (OSC), consisting of the P3HT:PCBM blend as the active layer, in which the bottom and top cells are connected optically and electrically by an Al and MoO3intermediate layer. Such an intermediate layer has high transparency and can implement the connection of the bottom and top cells in series. The main absorption range of the active layer can be made full use of and then the summation (1.19 V) of the open-circuit voltages of individual cells was obtained. With the short-circuit current density of (3.53 mA/cm2), a power conversion efficiency (PCE) of 2.07% was achieved under 100 mW/cm2illumination, which is comparable to those of the individual cells. [C1949]

"Hybrid Quantum Dot Light-Emitting Diodes: Design, Fabrication, and Characterization"

The authors have designed and fabricated the colloidal quantum dot (QD) light-emitting diodes based on a thin CdSe/ZnS QD layer sandwiched by organic hole and electron transport layers. The device configuration can be depicted as ITO/PEDOT:PSS/poly-TPD/QD/BCP/Alq3/LiF/Al. The optimized light turn-on voltage is about 7 V and the maximum brightness is 141 cd/m2at 11.5 V. It has been observed the second organic layer, 2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline (BCP), not only served for the electron transporting but also for hole blocking. It can greatly improve the device performance by enhancing the probabilities of electron and hole injection into the QDs. In device characterization, room temperature photoluminescence (PL) and electroluminescence (EL) peaks are at 625 and 628.6 nm, respectively. The red-shift may be from the local Joule heating induced by the injection current. Emission from Alq3at 516 nm is also observed in all EL spectra. Specifically, the QD-dominant EL spectra indicate the QD emission is mainly from the direct injection and radiative recombination of carriers rather than the radiative and nonradiative (Forster) energy transfers from excitons in organic materials shown in single-layered hybrid devices. Since the emission spectra are dominated by the inorganic QDs, the improvement of reliability of hybrid devices can thus be expected. However, the luminance efficiency (~0.014 cd/A) is still not as high as that of pure organic or polymer LEDs. To increase the brightness and efficiency, the device structure has to be modified and equivalent injection of electrons and holes is necessary. [C1950]

"A novel finite-element formulation applied to wave propagation in optically large structures"

This paper shows how a novel Finite-Element based approach, the Ultra-Weak Variational Formulation, can be applied to model the light propagation inside optically large structures such as LEDs or solar cells. On a two-dimensional domain we investigate the field generated by a macroscopic source corresponding to a bulk active region, with a domain size up to 1000 lambda times 1000 lambda. A comparison with various reference solutions shows the validity of the approach. Special focus is put on computational issues such as memory consumption and parallelization. [C1951]

"Performance analysis of layered and blended organic light-emitting diodes"

We make performance analysis of three different organic light-emitting diodes (OLEDs), one of which is based on a conventional layered structure and the others on a blended structure where an emitting layer (EML) is either

uniformly or stepwise mixed with an electron transport layer (ETL), Tris-(8-hydroxyquinoline) aluminum (Alq3). It is shown that the blended configuration suppresses penetration of positive charges into the ETL or rather oxidative degradation of Alq3molecules through the delocalization of electron-hole recombination, the longevity of OLEDs by which is expected to be enhanced. [C1952]

"Interplay of screening and band gap renormalization effects in near UV InGaN light emitting diodes"

The impact of the barrier composition on the shift of the luminescence peak wavelength of ultraviolet (UV) emitting InGaN quantum wells was investigated theoretically. Depending on the strain and the aluminum and indium mole fractions in the barriers, a blue, a red or almost no shift was obtained with increasing carrier density which can be attributed to different degrees of compensation of the screening of the internal electric field by band gap renormalization. The electroluminescence of fabricated light-emiting diodes exhibited the predicted behaviour in dependence on the injection current. [C1953]

"A Long-term Wearable Vital Signs Monitoring System using BSN"

Wearable medical devices provide great convenience to the elderly for the monitoring of vital signs at home. This paper describes a novel long-term wearable vital signs monitoring system which can real-time measure physiological signs such as ECG, SpO2(saturation of arterial oxygen) and systolic blood pressure. The proposed device is easy to wear, convenient to use and has almost no impact on the quality of life. A miniaturized PCB integrated with the ECG analog front-end and SpO2LED drive circuit is attached onto the BSN node. By simply wearing the chest band embedded with ECG micromachined electrodes and the ear-probe which incorporates LEDs and photodetector, the measured physiological signals can be wirelessly transmitted to a hand-held device, such as PDA phone, where the heart beat rate, SpO2and systolic blood pressure are calculated and displayed. [C1954]

"On the standardisation of thermal characterisation of LEDs Part I: Comparison with IC packages and proposal for action"

The increasing need for standardisation of thermal characterisation of LEDS and LED-based products. Manufacturers and end-users alike are crying for fair and useful thermal data, but for different reasons. It goes without saying that the LED-business is growing exponentially, in fact, much faster than analysts predicted five years ago. Unfortunately, the progress in thermal characterisation has not kept pace. The situation is becoming a serious problem for leading manufacturers who are focusing on a sustainable business for the future and are willing to publish reliable thermal data. Unfortunately, due to the lack of worldwide accepted standards a manufacturer can publish whatever he wants. It also becomes a problem for the experienced user because the thermal data that are published are often rather useless in practice when accuracy is at stake, and accuracy is needed for an educated guess of expected performance and lifetime. Part I focuses upon what we can learn from history because the situation is not much different from the one the IC-world was facing almost 20 years ago. Part II deals with the objectives of LED thermal characterisation. The authors propose to establish a consortium consisting of manufacturers, end-users, and software and test people, to get the ball rolling. [C1955]

"Thermal transient characterisation of complex circuits"

Thermal measurement of simple components (transistors, diodes) is a well-defined task. However, power steps applied on complex structures such as smart-power devices, RAM modules or voltage regulators cause electric transients in the millisecond order. As an interesting portion of thermal transients characterising the die attach quality of the chips lies in the mus range, proper measurement techniques have to be elaborated. In this paper we discuss measurement of monolithic integrated circuits, boards, subsystems and appliances with deep insight into structural details. [C1956]

"A novel procedure and device to allow comprehensive characterization of power leds over a wide range of temperature"

LEDs are key elements in modern, energy efficient lighting solutions as well as impose some issues from thermal point of view, since light output and reliability both depend on LEDspsila junction temperature. A comprehensive and accurate measurement method is required and demanded by several leader LED manufacturers. Failing a proper combined thermal and radiometric/photometric characterization of LED light sources it is impossible to fulfill the reliability prescriptions for LEDs and to trust the lifetime estimation given in LED datasheets. Light output of LEDs is typically measured in integrating spheres. A key element in such a total flux measurement setup is the appropriate set of standard LEDs which are both current and temperature stabilized and are

accompanied with certificate values of their own total flux traceable to primary etalons of national measurement laboratories. So far there are hardly any such standard LEDs available for the high power range. In this paper we describe the design of such a device (having 5 colors) and describe a modification of the substitution type total flux measurement method which is suitable for an automated, comprehensive measurement of LEDs over a wide range of operating conditions. [C1957]

"Preparation and evaluation of phthalocyanine/vanadium oxide field-effect transistors"

Field-effect transistors were prepared with magnesium phthalocyanine (MgPc) and vanadium pentoxide (V2O5). Vapor treatments of several organic solvents were carried out for MgPc thin films. The UV-vis absorption spectra, surface morphologies, X-ray diffraction patterns were largely changed with the treatments. The FET characteristics were also improved by the treatments and dichloromethane treatment induced the largest improvement. Furthermore, V2O5film, which is used as carrier generation layer in organic light-emitting diodes, were inserted in the FET and the FET characteristic was changed. The vapor treatment and V2O5insertion should be used for controlling FET performance. [C1958]

"Film morphology of dibenzochrysene"

For organic field effect transistors (OFETs), pentacene is often used as a typical semiconductor material and reported to have as high carrier mobility as a-Si. Dibenzochrysene (DBC) as well as pentacene consist of only aromatic rings. DBC can be synthesized by simple procedure and has higher solubility than pentacene. We studied film morphology of DBC fabricated by deposition or spin-coating. It was found that the morphology of DBC film depended on a deposition rate. The films fabricated by the deposition rate of 0.002 nm/s and by spin-coating were island structure and amorphous, respectively. The morphology of DBC films changed with time. The post films showed higher crystalline than before. We also studied the effect of buffer layer on the suppression of molecular migration. [C1959]

"Stabilization of hole transport layer by alternate deposition for organic light-emitting diodes"

N,N'-di(1-naphthyl)-N,N'-diphenyl-(1,1'-biphenyl) 4,4'-diamine (NPD) is often used as a hole-transport material in organic light-emitting diodes (OLEDs). The polycrystallization of organic films in OLEDs is thought to be one of the degradation factors of the device performance. It is found that the generation and growth of polycrystalline region in NPD film can be efficiently suppressed by alternate deposition method. The generation of polycrystalline region in the alternate structure specimen depends on the top layer material. The OLEDs having alternate hole-transport layer have the similar initial EL properties as the OLEDs having organic alloy and only NPD hole-transport layer. [C1960]

"A low complexity method for real-time gaze tracking"

The paper addresses a novel, fast and low complexity gaze tracking method, which remedies computation complexity and real-time processing problems of most existing gaze tracking methods. Face images are captured and pre-processed under infrared lamp-houses with dual thresholds. Pupil area is verified by the run-length in eight directions, and the gaze point is located by mapping the vectors of pupil and reflection point or using neural network. The experimental results show that the real-time processing of gaze tracking, with high resolution and high accuracy simultaneously, is achieved in this new system. [C1961]

"Optical properties of strain-compensated hybrid InGaN/InGaN/ZnO quantum well light-emitting diodes"

Optical properties of 530 nm strain-compensated InGaN/InGaN/ZnO quantum well (QW) light-emitting diodes (LEDs) using a ZnO substrate are investigated using the multiband effective mass theory. These results are compared with those of conventional InGaN/GaN QW LEDs using a GaN substrate. A strain-compensated QW structure is found to have much larger spontaneous emission than a InGaN/GaN QW structure. This can be explained by the reduction in the internal field due to the piezoelectric and spontaneous polarizations. [C1962]

"2008 International conference on numerical simulation of optoelectronic devices NUSOD '08"

The following topics were dealt with: light-emitting diodes; wurtzite materials; distributed feedback lasers; photonics; fiber optics; high-brightness lasers; photodetectors; solar cells; vertical-cavity lasers; nanostructures; quantum-cascade lasers and laser dynamics. [C1963]

"Optimal Design of LED Backlight Unit with Double-Triangular Structure Using a Genetic Algorithm"

A large size direct LED BLU consisted of double-triangular structures to control the light from RGB side emitting LEDs without the indispensable optical elements for the conventional direct LED BLU, such as the brightness enhancement film, diffuser sheet, and diffuser plate was proposed. A genetic algorithm was used in this paper to search the optimal parameters of the shape of the double-triangular structures and the layout of the LEDs to obtain optimum optical performances. Without diffuser and BEF, brightness uniformity of 91.87%, color uniformity of 0.042 and on-axis brightness increase of 50.23% for 22" direct LED backlight unit with a thickness of 30 mm with optimized double-triangular structure was obtained. [C1964]

"Intelligent controller for LEDs lighting systems supplied by batteries"

LED lighting system supplied by batteries is one of effective solutions to vehicle and photovoltaic lighting systems. In order to improve lighting performance and prolong the life of LEDs and batteries, this paper proposes a novel intelligent controller for LED lighting systems. Stage constant current (SCC) control strategy is proposed, which determines the optimal working current of LEDs (Iref) according to their ambient temperature and the capacity of batteries. For implementing SCC control strategy, a new control algorithm of double current loops and feedforward (DCLF) control is proposed based on Boost converter with constant current source. Both output current and inductor current are used as feedback control variables and input voltage is employed as feedforward compensation in the proposed algorithm. Simulations have been conducted using PSIM software; and based on that, a 50 W photovoltaic LED lighting system has been developed to implement a serial of comparative experiments. The results show the advantages and validity of DCLF algorithm, such as excellent dynamic performance and good robustness. [C1965]

"FPGA-based improved high brightness RGB LED matrix automation"

The extended use of LEDs is emerging in many areas traditionally restricted to different solutions. Not only simple lighting electronic controlled systems are demanded by industry and consumers, but light jockey user controlled solutions have become more important in theatrical and entertainment data distribution systems. This paper presents a complete FPGA-based hardware and software solution for remote driving of high brightness RGB LED matrices synchronized with environmental music rhythm, as an evolution of a previous work. This new system design substitutes to a precedent distributed microprocessor-based control, reducing complexity, development time, size and costs, allowing at the same time the implementaion of multiple running modes. Further skills of the developed device working, not only with LEDs but as an universal controller for lighting automation, are also proposed. [C1966]

"AlInGaN/GaN heterostructures with 2D electron gas and quantum wells for transistors and light emitting diodes"

AlInGaN/GaN heterostructures with 2D electron gas and quantum wells were grown on Si substrates. Optical and electrical properties of the heterostructure were investigated; high electron mobility transistors (HEMT) and light emitting diodes (LED) were fabricated. [C1967]

"Study on the Government Department Integration Decision Based on Synergetics"

The construction of E-Government, applications of griddized urban management model and the large department reform of government organization reform are mean to set up a govern system which is high Synergetic and the sub-system can cooperate with each other very well. This paper sets up a multi-index department integration decision model with time feature based on synergetics theory. The system measurement decision model can be calculated from the standardized treatment of the benefit and cost index. The Least-squares method multi-index Optimize Model through the Weight vectors of each index and each time slots and the Close-degree of each integration proposal to the positive-Negative ideal proposal. This model can offer theory support for the optimal synergetic government system department integration decision and improves the synergetic degree of government system. [C1968]

"A high-power-LED driver with power-efficient LED-current sensing circuit"

For lighting application, high-power LED nowadays is driven at 350 mA and a sensing resistor is used to provide feedback for LED-current regulation. This method adds an IR drop at the output branch, and limits power efficiency as LED-current is large and keeps increasing. In this paper, a power-efficient LED-current sensing circuit is proposed. The circuit does not use any sensing resistor but extracts LED-current information from the output capacitor of the driver. The sensing circuit is implemented in a Buck-boost LED driver and has been fabricated in AMS 0.35 mum CMOS technology. Measurement results indicate a power-conversion efficiency of 92% and at least 90 times power reduction in sensing compared to existing approach. [C1969]

"High performance 70nm gate length Germanium-On-Insulator pMOSFET with high- /metal gate"

We demonstrate for the first time 70 nm gate length TiN/HfO2pMOSFETs on 200 mm GeOI wafers, with excellent performances: ION=330 muA/mum & IOFF=1 muA/mum @ Vd=-1.2 V (without germanide). These performances are obtained using adapted counterdoping and pocket implants. We report the best CV/I vs. IOFFtrade-off for Ge or GeOI: CV/I=4.4 ps, IOFF=500 nA/mum @ Vd=-1 V. Moreover, based on fine electrical characterizations (mu, Dit, Raccess) at T=77-300 K, in-depth analysis of both ON & OFF states were carried out. Besides, calibrated TCAD simulations were performed to predict the performance enhancements which can be theoretically reached after further device optimization. By using germanide and reducing both interface state density and diode leakage we expect ION=450 muA/mum, IOFF=100 nA/mum @ Vd=-1 V for Lg=70 nm. [C1970]

"Bidirectional optical wireless communications module for portable information terminal"

A bidirectional optical wireless communication module can be used as a portable information terminal to simultaneously display and transmit data/image in an indoor environment and its effectiveness is demonstrated in a transmission experiment of 8 bit data. [C1971]

"A practical approach for reading hole code"

The hole code is commonly used to represent unique document numbers-in passports, health insurance cards, etc. The characteristics of the code make it quite appropriate for implementation of an automatic reading. Such implementation would help for a faster and more reliable personal data input in the relevant administration offices. [C1972]

"Electro-thermal investigation of OLEDs"

In our project the final goal is to develop the cost-effective roll-to-roll technology of fabricating large area, high throughput OLED devices for intelligent lighting applications. The main achievements of the first six months of the project are described in this paper. An electro-thermal FDM simulator was developed on the basis of an existing thermal-only simulator. The simulations proved the necessity of building a shunting grid of high conductance at the transparent anode of the OLED device. The model validation technique and a method for the thermal qualification of the targeted device were also elaborated. [C1973]

"On the standardisation of thermal characterisation of LEDs Part II: Problem definition and potential solutions"

Nowadays the demand for thermal standards for power LEDs is increasing. On the one hand metrics for fair comparison of competing products are needed, on the other hand, designers of power LED based applications demand reliable and meaningful data for their daily work. Todaypsilas data sheet information does hardly meet any of these requirements. Part I compares the current situation in the LED world with the situation in the IC world over twenty years ago, observes that much can be learned from the progress achieved, and concludes with a proposal for action. Part II addresses thermal issues that are specific to light emitting diodes (in fact, also semiconductor devices), the drawbacks of the current situation with respect to the information in the data sheets, and emphasises the need for electro-thermal models. [C1974]

"A 100MHz real-time tone mapping processor with integrated photographic and gradient compression in 0.13 μm technology"

As the advance of high quality displays such as light-emitting diode (LED), liquid-crystal-display (LCD) or laser TV, the importance of a real-time high dynamic range (HDR) data processing for display devices increases significantly. Many tone mapping algorithms are proposed for rendering HDR images or videos on display screens. The choice of tone mapping algorithm depends on characteristics of displays such as luminance range, contrast ratio and gamma correction. An ideal HDR tone mapping processor should include different types of tone mapping algorithms and be able to select an appropriate one depending on devices and applications. The photographic tone reproduction has lower complexity and better quality among global tone mapping schemes. The gradient compression, a local tone mapping, is known for detail preservation. In this paper, we present an integrated photographic and gradient tone mapping processor that can be configured for different applications. This design that can process 1024 times 768 images at 60 fps runs at 100 MHz clock and consumes core area of 8.1 mm2under TSMC 0.13 mum technology with 50% improvement in speed and area compared with previous results. [C1975]

"Coherence modulation of light for mathematical operations"

We describe an experiment in which several analog signals are processed through a single light beam. This experiment is based on coherence modulation of light which consists in introducing optical delays, greater than the coherence length of the source, between light fields. Our experimental results are successfully compared to the numerical ones for subtraction and addition of sine and square signals. [C1976]

"Architecture of the integrated electronics for a wireless endoscopic capsule with locomotive and sensing and actuating capabilities"

It is described the architecture of the electronics for the control of a wireless endoscopic capsule, with locomotive capabilities and advanced sensing and actuating functions. The architecture chosen provides enough flexibility to allow managing of core and switchable functions. Flexibility is assured with an on-chip micro-processor. Operation under different scenarios is possible by using a specifically designed interface chip able to manage all the required sensors and actuators. [C1977]

"Nonlinear gain and output power characteristics of quantum-well sources"

The gain saturation in quantum-well heterostructures under the change in the populations of the subband levels is described in detail. The nonlinearity parameters are introduced and their change with the pump, radiation frequency, temperature, polarization, and the quantum-well level distribution is examined. The main attention is given to quantum-well heterostructure sources based on III-V compounds, including GaInAsSb, GaInAs, GaInAsP, GaAs, and GaInN, which emit in the spectral interval from the mid-infrared to visible light. [C1978]

"Digest report of investigation committee on polymer nanocomposites and their applications as dielectrics and electrical insulation"

The ever-increasing demand for a high performance material has led to the selection of polymer nanocomposites as a leading candidate, and the number of related scientific and engineering reports is increasing. Under the circumstances, an investigation committee on the polymer nanocomposite was organized in October 2002, to build deeper cooperation between industry and academia and share the technical information. [C1979]

"Trial to develop extreme environmental field server"

Field Server is environmental monitoring equipment which can construct wireless sensor network. Needs of Field Servers is the more in the further places and especially extreme environments. Field Servers for extreme environmental should be small, light and long lifetime. We deployed a prototype of the Field Server in Namche, Himalaya to test the reliability. Combination of the functions may make troubles under unexpected conditions. If almost all devices can be controlled remotely, Field Server can be maintained by changing inside condition like homeostasis of human body. [C1980]

"Lumen detection for capsule endoscopy"

In this paper, two visual cues are proposed, to be exploited for the navigation of active endoscopic capsules within the gastrointestinal (GI) tract. These cues consist of the detection and tracking of the lumen and of an illumination highlight in capsule endoscopy (CE) images. The proposed approach aims at developing vision algorithms which are robust with respect to the challenging imaging conditions encountered in the GI tract and the great variability of the acquired images. Cases where no or more than one lumens exists, are also detected. The proposed approach extends the state-of-the-art in lumen detection, and is demonstrated for in-vivo video sequences acquired from endoscopic capsules. [C1981]

"Design and implementation of mobile free space optical communication system"

We explore the possibility and challenges of designing a mobile FSO system for remotely operated platforms. Therefore low power and light weight are essential qualities. The paper demonstrates a 10 MHz mobile FSO communication with low power consumption, light weight and low cost. The system is mounted on a mobile platform with the battery power. We realize arbitrary signal transfer at 50 meters, design the tracking system using beam splitting technique, and successfully interfaced to Ethernet for a packet transmission. LDs and light-emitting diodes (LEDs) are used respectively in the transmitter design and be compared on the system performance. The LD transmitter consumes 600 mW of total power, and outputs 15mW of optical power, which is better than that of the LED-based system. [C1982]

"Application Remote Control using Bluetooth (ARC)"

This paper describes an ingenious way of using Bluetooth-enabled mobile phones to control the PC applications with the help of a software application, which is based on client server architecture. The application ldquoapplication remote control using Bluetoothrdquo or (ARC) along with the mobile phone possess the ability to control various software applications such as Windows media player and Microsoft PowerPoint slideshows. It can also control electrical devices such as LEDs, fans using parallel (LPT) port of the PC, and PC monitor. [C1983]

"Suitable Switching Converter Topologies for Automotive Signal Lamps and Headlamps Using Power LEDs"

Since the high rise in luminous flux power LEDs have experienced in the last years, they have become an overcoming alternative to incandescent bulbs for automotive signal lamps, and even an interesting choice for automotive headlamps, as most recent prototypes has shown, since the performance is near to that of HID lamps. This rise in luminous flux is based on both higher efficiency and forward current, being the latter the reason why switching regulators have become interesting for current control. Linear regulators usually work quite well in lamps where the forward current is kept at a low level, whereas the efficiency drops as forward current rises. Another drawback of linear regulators is that the load voltage must be lower than the supply voltage, otherwise the LED lamp does not work The advantages of switching regulators consist of both high efficiency whatever the working point is, and the capability of working in any condition of supply and load voltage. In this paper, three high efficiency-one switch-simple-switching converters such as buck, boost and buck-boost converter are discussed for the use in automotive LED lighting applications, both for 14 V network and 42 V Powernet system, the newest power bus system, consisting of a 14/42 V dual voltage bus. [C1984]

"Design and implementation of a two degree-of-freedom micromanipulation assessment system"

A two degree-of-freedom (DOF) micro motion sensing system to assess micromanipulation accuracy and physiological tremor has been developed. The system employs a position sensitive detector (PSD) module and a laser diode placed inside an instrument used in micromanipulation. A laser light is shined from the laser diode onto the PSD surface which is faced upward. The PSD detects the centroid position of the laser light spot falling onto its surface. A few markers are overlaid in a circular pattern on the PSD surface as reference for path dependent tests. Ambient light disturbance is eliminated by modulating the laser light on and off. Advantages and limitation of the system comparing to other similar systems are described. [C1985]

"Synchronization and fault detection in autonomous robots"

In this study, we show a group of robots can synchronize based on firefly-inspired flashing behavior and how dead robots can be detected by other robots. The algorithm is completely distributed. Each robot flashes by lighting up its on-board LEDs and neighboring robots are driven to flash in synchrony. Since robots that are suffering catastrophic failures do not flash periodically, they can be detected by operational robots. On a real multi-robot system of 10 autonomous robots, we show how the group can correctly detect multiple faults, and that when given (simulated) repair capabilities, the group can survive a relatively high rate of failure. [C1986]

"A distinction method for fruit of sweet pepper using reflection of LED light"

This paper describes a distinction method for fruit of sweet peppers, which are grown in greenhouse, using reflection of LED light. Distinction for fruit of sweet pepper is necessary for development of picking robot in greenhouse horticulture. We have been manufactured a prototype of picking robot for sweet peppers. This picking robot has an image processing system using a parallel stereovision, a positioning system to the recognized sweet pepper using visual feedback control, and a cutting device. However, the distinction ability is lacking. We proposed a distinction method for fruits of sweet pepper using reflection of LED light. Experiments were carried out in greenhouse. In consequence, it was possible to improve the distinction ability. [C1987]

"Current and white-balance controls of an RGB LED backlight power supply system"

This paper presents an RGB LED backlight circuit for liquid crystal display (LCD) panels. Some studies have been conducted to devise dimming methods that regulate the RGB LED currents. In this paper, design considerations for the RGB LED backlight are presented. A laboratory prototype for 20-inch panels is implemented and tested. Color gamut and white-balance features of an LCD panel with the designed RGB LED backlight is measured and discussed. The experimental results of the laboratory prototype are also shown to verify feasibility of the findings. [C1988]

"Using LED Lighting for Ubiquitous Indoor Wireless Networking"

Wireless networking is currently dominated by radio frequency (RF) techniques. However, the soon-to-be ubiquity of LED-based lighting motivated by significant energy savings provides an opportunistic deployment of widespread free-space optical (FSO) communications. LED-based network transceivers have a variety of competitive advantages over RF including high bandwidth density, security, energy consumption, and aesthetics. They also use a highly reusable unregulated part of the spectrum (visible light). In this paper we describe results from a pilot project to demonstrate the viability of an optical free-space visible light transceiver as a basis for indoor wireless networking. Inexpensive, commercial, off-the shelf LEDs and photodiodes were used to construct two prototypes; a simplex channel as expected as a component of an asymmetric/hybrid RF-FSO system, and a full-duplex channel demonstrating the ability to isolate multiple channels. On-off keying (OOK) was applied without observable flicker in the target modulation ranges. Results indicate the viability of creating inexpensive FSO transceivers that might be embedded in commercial lighting products to support ceiling-to-floor distances of approximately 3 m. [C1989]

"Batteryless optical wireless audio receiver uses 1-bit ∑Δ-modulated visible light and spherical Si solar cells"

Spherical Si solar cells (diameter: 1 mm) with a reflector cup (diameter: 2.2 mm) were used with 1-bit SigmaDelta-modulated illumination from white LEDs to provide optical wireless digital-sound transmission. The solar cells have a high directivity with regard to incident light, thus largely eliminating the environmental noise from fluorescent lighting. To verify the effectiveness of our optical, wireless digital sound transmission scheme, we fabricated an experimental system consisting of a transmitter and a receiver. The transmitter contains a battery-operated lamp with 50 white LEDs and a 1-bit SigmaDelta modulator that controls the current to the lamp. The receiver consists of a spherical-solar-cell module and an earphone. In the experiment, the transmitter produced a 1-kHz analog signal at an illumination of 70 1x that traveled over a distance of 50 cm. The measured output spectrum of the receiver showed that it recreated a sinusoidal waveform with little distortion. Even under fluorescent lighting with an illumination of 200 1x, the measured spectrum showed that a sinusoidal waveform with a signal-to-peak-noise ratio of 25 dB was obtained. [C1990]

"Low cost, high data rate white LED (WLED) transceiver demonstration"

We presented a low cost experimental WLED transceiver which is capable to perform wireless communication at 10 Mb/s in an airplane or a space craft physical environment. From the experimental results, we derived the operational requirements of the WLED transceiver with OOK NRZ modulation. These results demonstrate the WLED wireless communication link technology is viable for size, weight, power and cost reduction in future generation of airplanes and space vehicles. [C1991]

"Evaluating a 3D camera for RoboCup Rescue"

The following paper evaluates a time-of-flight 3D camera with regards to its usability for RoboCup rescue. This includes an evaluation of the influence of outer conditions to the camera data, as well as its usage for automatic 3D mapping by scan registration. A color camera is calibrated with respect to the 3D camera in order to gain colored texture information for the acquired measurements. [C1992]

"Research on flashlights intended to aid the visually impaired when walking at night"

The objective of this research was to determine the spotlight brightness and width specifications needed in a flashlight used by visually impaired persons. Firstly, a flashlight was built with adjustable spotlight brightness and width, having a light emitting diode (LED) light source. Secondly, the effect of brightness and width on the ease with which visually impaired subjects were able to locate target objects was then investigated by conducting an object-search experiment in which subjects used the flashlight to search for objects under conditions equivalent to night-time walking. [C1993]

"Organic thin-film transistors modeling; simulation and design of a fully organic AMOLED pixel circuit"

In this paper we implement the simulation and design of a fully organic AMOLED pixel in which OLED current driving and pixel selection is performed by organic thin-film transistors (OTFTs). An empirical SPICE-like OTFT model has been developed. A pixel with sandwich structure in which the OLED is deposited on top of the rest of the circuit has been simulated and designed. [C1994]

"A simple capacitive security card system"

A simple and reliable capacitive security card system is designed, fabricated and tested. It consists of capacitive

card reader system, an integrator, rectifying circuit, an 8051 microcontroller and LED indicators. Initially rectangular patterns of different lengths are being recognized successfully. The patterns on the security card are scanned with a thin conducting plate, which is the part of the reading system, when card is inserted in the reading system. The variations in the heights of the patterns are being converted into voltages with the help of an integrator. Output of the integrator, after rectification, is converted to digital form and fed to the microcontroller. These data are compared with the data stored in the memory of the microcontroller. The designed system is capable of recognizing up to five columns (patterns) in a single row with a maximum number of 99999. [C1995]

"Autoregressive modeling of physiological tremor under microsurgical conditions"

Tremor was recorded under simulated vitreoretinal microsurgical conditions as subjects attempted to hold an instrument motionless. Several autoregressive models (AR, ARMA, multivariate, and nonlinear) are generated to predict the next value of tremor. It is shown that a sixth order ARMA model predictor can predict a tremor having an amplitude of 96.6 ± 84.5 microns RMS with an error of 8.2 ± 5.9 microns RMS, a mean improvement of 47.5% over simple last-value prediction. [C1996]

"Technological Aspects of Solid-State and Incandescent Sources for Miner Cap Lamps"

Light emitting diodes (LEDs) are emerging as viable replacements for incandescent-based cap lamps used in mining. The photometric and energy characteristics of these light sources differ in important ways. The present paper describes the performance of LED and incandescent sources in cap lamps in terms of correlated color temperature, color rendering, light output, electric power, ambient temperature and airflow, and light source aging. Importantly, these characteristics can influence a miner's ability to spot mining hazards thus impacting safety. Secondly, some of these characteristics interact with the operating life of the cap lamp's battery power, such that differences between LED and incandescent sources can be magnified toward the end of a 10- hour battery discharge cycle. Empirically, we have determined that after 8 hours at an ambient temperature of 25degC, the average light output of an incandescent cap lamp can decrease to about 69% of its initial value when powered by a lead-acid battery and it can decrease to about 65% of its initial value when powered by a nickel-hydride battery. An LED-based cap lamp using a constant current drive circuit can maintain about 96% of its initial value when powered by a nickel-hydride battery. Real-world tests addressing the effects of ambient temperature and airflow on the light output of an LED and incandescent cap lamp were conducted in the NIOSH Safety Research Coal Mine (SRCM). The LED cap lamp yielded a vertical average illuminance improvement of approximately 9.5% and the INC cap lamp yielded a vertical average illuminance degradation of approximately 4%. The differences between LED and incandescent cap lamps were further quantified by the calculation of "mesopic luminance" data that indicated for the same photopic luminance (i.e., as measured using a conventional light meter) the LED cap lamp could be up to 38% more efficient than the incandescent cap lamp with a lead-acid battery at the end of the 10-hour drivin--g cycle. Lastly, accelerated life tests were used to empirically determine light output depreciation as the incandescent light source age approached its useful life. There was about a 35% decrease in light output. This is quite considerable, especially given that the light output will decrease an additional 30% to 45% over the period of a 10-hour shift. The implications of the differences between LED and incandescent sources are discussed. This information is crucial in determining how visual performance could be affected for real-world conditions where batteries discharge during the work shift and as the light source ages. To date, only idealized conditions have been used for LED and incandescent cap lamp visual performance research. [C1997]

"A novel device for fault isolation at aircraft"

For certain avionics systems, built-in test (BIT) alone cannot accurately fault isolate to a single avionics box, or Weapons Replaceable Assembly (WRA). This is evident in the number of WRAs that are incorrectly removed and replaced at the aircraft. Such false remove and replace maintenance actions are realized in terms of increased support cost and decreased aircraft operational availability, AO. A patent-pending prototype device has been developed to break diagnostic ambiguities at the aircraft by inserting test access points between WRAs. This prototype includes a customized cylindrical Military Specification (MIL-SPEC) connector, which routes avionics bus signals to a handheld tester while the aircraft is powered on. The handheld tester analyzes data bus traffic between two functioning WRAs and provides a red, yellow, or green Light Emitting Diode (LED) output to indicate the health of the connected WRAs. The device can be reprogrammed to detect a wide range of fault indicators as they are discovered through the analysis of fielded avionics systems. This novel device provides diagnostics information at the aircraft for improved fault isolation, which may result in a significant reduction in the unnecessary cost associated with false removal and replacement of healthy WRAs. [C1998]

"Creating malleable interactive surfaces using liquid displacement sensing"

We present a new approach for rapidly prototyping multi-touch and object sensing surfaces. It works by liquid displacement inside a malleable projection surface. The system provides both touch and pressure information and a distinct organic quality when touched. The system is easy to build and produces a clean signal revealing multiple fingers, whole hands and other object outlines that can be processed using computer vision techniques. This approach provides an easy mechanism to build interactive surfaces, requiring no infrared edge lighting or soldering. In this paper we provide an overview of the approach, some of its unique capabilities, and uncover some of the tradeoffs between viscosity of liquid, air pressure, surface malleability and the volume of liquid used. Our aim is to allow practitioners-from DIY enthusiasts to researchers-to build and experiment with such systems more readily. [C1999]

"Improved Algorithm for Fault Location in Distribution Network with Distributed Generations"

Feeder terminal units (FTU) are widely used in recently improved reconstruction of distribution network (DN), and matrix algorithm is applied extensively for fault section location in DN. With the increasing penetration of Distributed Generation (DG), DN becomes multi-sources network, and the configuration of DN becomes more and more complex. It is difficult to determine the fault section by the existing algorithms, which need large amount of calculation or complicated criterion. So an improved matrix algorithm to fault section location for DN with DGs is proposed in this paper. Based on the types of DGs connecting just two positive directions are supposed respectively for network matrix and fault information matrix. And the improved algorithm is composed with only one step of calculation and more simplicity criterion. The result of analysis shows that fault section location can be determined effectively by novel scheme. [C2000]

"Dynamic Control Point Simulation of OLEDs"

Organic light emitting diodes (OLEDs) for lighting applications are still in a research phase, but improvements are made continuously. In the last years, colour variable OLEDs have been reported by research. For the design of drivers and control systems for colour variable OLEDs, it is important to have accurate models to reduce the development costs of these components. In this work, a simulation method is proposed. Although the model uses statically measured input data, it is possible to model dynamic waveforms very accurately. This work gives an overview of colour variable OLED characteristics. The proposed model is presented and its results are compared to experimental results. [C2001]

"Compact Lamp Using High-Brightness LEDs"

This paper proposes a circuit for a compact lamp based on high-brightness LEDs. It aims energy savings, high luminous efficacy and high useful life when substituting incandescent or compact fluorescent bulbs for LEDs without any change in the electric system installation. In order to supply the LEDs by mains with a forward current, the Buck converter has been chosen. The load can be composed by 36 to 52 LEDs of 5 mm connected in series, resulting in a converter output voltage between 90 V and 187 V. The advantage of series connection is that all LEDs produce the same brightness since its luminous intensity is proportional to the supplied current. The disadvantage is that the damage of one LED could results in an open-circuit, turning off the entire group. To fix this problem, the proposed idea on this work is the introduction of Diacs connected in parallel with groups of LEDs. So, if one LED burns the breakdown voltage is reached, and the Diac in parallel with this group become a short- circuit guaranteeing the operating of the others groups. To verify the proposed idea, the compact lamp has been implemented and tested. [C2002]

"Comparison Among Power LEDs for Automotive Lighting Applications"

The first LED diode was created in 1969. Since then, they have been experiencing a continuous improvement in luminous efficiency and power dissipation, achieving current AlInGaP and InGaN devices for yellow to red, and blue to green, including white, colours respectively. The improvement experienced in both luminous efficiency and power dissipation makes them interesting for lighting application in automotive industry, where the advantages offered are numerous, from a lower time response in brake lights to an operating life much higher than that of the vehicle itself [1], [2]. In the other hand, the improvement experienced in luminous efficiency and power dissipation allows the construction of most of the signal devices using just a few emitters [1]. Due to the points stated above, a comparison among the most efficient red, amber/yellow and white Power LEDs currently available from the leading manufacturers is proposed, offering a comparison in terms of luminous efficiency in nominal test conditions, thermal resistance between the junction and the slug and also giving a comparison about the performance depending on junction temperature between the two most efficient LEDs for each colour. [C2003]

"Evaluation of Peripheral Visual Performance When Using Incandescent and LED Miner Cap

Lamps"

Illumination plays a critical role in an underground miner's safety because miners depend most heavily on visual cues to recognize hazards. Mobile mining machinery, located in the miner's peripheral field-of-view (plusmn10deg to about plusmn60deg off-axis), may pose potential pinning and striking hazards. The main objective of this research was to determine if there were peripheral visual performance improvements for the detection of moving objects when using cool-white light-emitting diode (LED) cap lamps as compared to incandescent (INC) light bulbs commonly used in miner cap lamps. The cap lamp variable of interest is the spectral power distribution (SPD); the illuminances were normalized by a diffusion filter. The second objective was to determine if age is a factor for peripheral visual performance. This is important because the workforce is aging-the average miner age is about 43 years old. Thirty subjects participated in the study; ten subjects each in the age groups of younger (18 to 25 years), middle (40 to 50 years), and older (50+ years). Visual performance was quantified by the subjects' speed and accuracy of response to detect the rotation of high-contrast (white) circular targets located 3.83 meters (m) away at -20deg, 40deg, and 50deg off-axis. The speed of detection and the number of missed target rotations (accuracy) were measured. The prototype LED cap lamp results were best with a 11% to 15% improvement compared to the INC and LED cap lamps respectively. Age does appear to be a significant factor. For the middle and older age groups', target movement detection time increased 75% and 60% and the number of missed targets increased 500% and 450% respectively in comparison to the youngest age group. The results also suggest that target location is a significant factor. The subjects' target movement detection time for the 40deg and 50deg target movements increased 16% and 69% respectively as compared to the -20deg target. [C2004]

"Laser-pumped endoscopic illumination source"

Light sources currently employed in endoscopy have a number of disadvantages including inefficiency, high temperature, non-uniform illumination, and the production of shadow-less images. In this paper, we present a novel endoscopic illumination source, based on the use of a blue-violet laser diode in combination with a yellow phosphor for the production of white light. By using this approach, the resulting illumination source is more compact and potentially more ergonomic than those currently used in endoscopy. Spectral measurements of the emitted light indicate that it has a colour similar to that of daylight, and images obtained under illumination with this light source indicate that it provides more uniform illumination and sharper shadows than standard endoscopic light sources. [C2005]

"Implantable telemetry capsule for monitoring arterial oxygen saturation and heartbeat"

In this study, we have developed an implantable telemetry capsule for monitoring heartbeat. The capsule has three main functions, monitoring vital signs, transmitting the vital signs, and receiving energy for driving the capsule without wires. We used two wavelengths of LEDs and a photodiode sensitive to the two wavelengths for heartbeat sensor. The arterial oxygen saturation is calculated from the amplitude of the heartbeat signal. We fabricated an FM transmitter whose carrier frequency was 80 MHz. Though the GHz range frequency is generally used in transmission, the attenuation in the human body is large. The size of a common linear antenna is about a quarter of its operating wavelength. We employed a coil-based antenna which can reduce size below the quarter of the wavelength. We fabricated a miniaturized transmitter with the coil-based antenna at lower frequency. Our capsule was driven intermittently. We used a rechargeable battery. When the battery ran down, the battery was charged by wireless using the induced electromotive force. This means that the capsule is capable of monitoring vital signs over the long term. We measured the heartbeat from the middle finger of hand in a water tank as a model of a human body. [C2006]

"The SSVEP topographic scalp maps by Canonical correlation analysis"

As the number of electrodes increases, topographic scalp mapping methods for electroencephalogram (EEG) data analysis are becoming important. Canonical correlation analysis (CCA) is a method of extracting similarity between two data sets. This paper presents an EEG topographic scalp mapping -based CCA for the steady-state visual evoked potentials (SSVEP) analysis. Multi-channel EEG data and the sinusoidal reference signal were used as the inputs of CCA. The output linear combination was then employed for mapping. Our experimental results prove the topographic scalp mapping-based CCA can instruct for the improvement of SSVEP-based brain computer interface (BCI) system. [C2007]

"Decay of radiation pattern and spectrum of high-power LED modules in aging test"

High-power light-emitting diodes (LEDs) modules encapsulated with different lens shapes after a thermal-aging test were studied experimentally and numerically. Samples from different manufacturers were aged at 65, 85, and 95degC under a constant driving current of 350 mA. The results showed that the optical power of the LED

modules at the two view angles of plusmn (45deg~75deg) decreased more than the other view angles as the aging time increased. This was due to the reduction of radiation pattern from the corner effect of lens shape, resulted in lower output power. The simulation of the corner effect of lens shape is in good agreement with the experiment result. Results also showed that the center wavelength of the LED spectrum shift 5 nm after thermal aging 600 hours at 95degC because of degradation the lens material. The key module package related failure modes under thermal-aging may be due to the corner effect of lens shape and the degradation of the lens material. Therefore, improving the lens structure and lens material is essential to extend the operating life of the phosphor-based white LEDs modules. [C2008]

"Three-fiber-based diffuse reflectance spectroscopy with LEDs for nondestructive measurement of chemical component in a turbid medium"

We propose a new parameter obtained by three-fiber-based diffuse reflectance spectroscopy for nondestructive measurement, demonstrating a good linear correlativity of the parameter with the fruit sugar content by employing LEDs as light sources. [C2009]

"Improving extraction efficiency of III-nitride LEDs using in situ silane treatment"

We demonstrated a novel cost-effective approach to improve extraction efficiency of III-nitride LEDs, Photoluminescence measurement showed a factor of two improvement in extraction efficiency. Electroluminescence under CW injection was also shown. [C2010]

"High-speed and high-power GaN-based cascade green Light-Emitting-Diode arrays for in-car data communication"

We demonstrate cascade green light-emitting-diode (LED) arrays, which have superior output-power to single LED without sacrificing modulation-bandwidth. 80 Mbit/sec eye-opening with a 0.65 mW coupled power to plastic-optical-fiber is achieved under the output of in-car battery (12 V). [C2011]

"Multi-layered CdSe/ZnS/CdSe heteronanocrystals to generate and tune white light"

In this study, tuneable white light generation by controlling CdSe/ZnS/CdSe core/shell/shell heteronanocrystals integrated on InGaN/GaN light emitting diodes was presented. These multilayered quantum dots, also known as onion-like heterostructures, were designed and synthesized to emit in red (around 600 nm) from the CdSe core and in green (around 550 nm) from the CdSe shell. By designing and hybridizing these red-green emitting heterostructures on blue emitting LEDs, an integrated WLEDs on a single chip was demonstrated. By controlling the number of integrated heteronanocrystals, their (x,y) tristimulus coordinates were tuned from (0.26,0.23) to (0.37,0.36), along with their corresponding correlated color temperature tuned from 27413 K to 4192 K and the luminous efficacy of their optical radiation (the ratio of the emitted luminous flux to the radiant flux) tuned from 258 lm/W to 375 lm/W. Further investigation on the change of in-film optical properties of these heteronanocrystals with respect to their in-solution emission was performed. [C2012]

"Selective lateral anodic etching of n-doped GaN without photo-assistance for lift-off application"

An anodic etching technique for selective lateral wet etching of n-doped GaN without the photo-assistance was described. N-doped GaN was successfully etched with 0.3 M oxalic acid at 40 V. [C2013]

"Simple evaluation of multi-mode polymer optical waveguide parameters"

Polymer optical chip containing a combination of 45deg-angled cut waveguide, Y-splitter and S-bend structures was designed and fabricated for simple evaluation of multimode waveguides. Surface roughness between core and claddings can also be estimated by launching a single mode fiber with tilted angles. [C2014]

"Semi-polar green LEDs on c-plane sapphire substrates"

We demonstrated the first semipolar III-nitride green LED grown on c-plane sapphire substrates. The emission wavelength under CW current injection was 543 nm and showed negligible quantum confined Stark effect. [C2015]

"Enhanced spontaneous emission in semiconductor nanocrystal solids using resonant energy transfer for integrated devices"

Size-tuneable optical properties of semiconductor nanocrystal (NC) quantum dots make them attractive for a

wide range of device applications. However, in these device applications, nanocrystals typically suffer from relatively low quantum efficiency (QE) when they are cast into solid form. To reduce the effect of this problem, we propose and demonstrate the enhancement of spontaneous emission in nanocrystal solids by recycling their trapped excitons through resonant nonradiative Forster energy transfer (ET) for hybrid integrated devices. For this purpose, we designed closely packed CdSe/ZnS core/shell nanocrystal emitters with an energy gradient of approximately 160 meV integrated on LEDs. [C2016]

"Controlled micro-patterning of highly-fluorescent truxene-oligofluorene nanostructured blends"

Truxene-oligofluorene nanostructured blends have been controllably patterned with feature size to below 6 mum using inkjet printing and laser direct-writing. Our blending approach provides an attractive method of handling fluorescent macromolecules for optoelectronic applications. [C2017]

"GaAs-based bipolar cascade light-emitting-diodes and superluminescent-diodes at the 1.04-μm wavelength regime"

We first demonstrate GaAs-based bipolar cascade superluminescent-diodes by use of chirped multiple-quantum-wells in series by a tunnel junction, effectively minimizing the problem of non-uniform carrier-distribution among MQWs and operating around important bio-optical window of 1.04-mum wavelength. [C2018]

"Construction of integrated simulator for developing head/eye tracking system"

This paper describes the development of integrated head and eye tracker system. Head tracker is performed vision based and it has 7 mm error in 300 mm translation. The epipolar method and point matching are used for determining a position of head and rotational degree. High brightness LEDs are installed on helmet and the installed pattern is very important to match the points of stereo system. Eye tracker also uses LED for constant illumination. A Position of gazed object (3 m distance) is determined by pupil tracking and eye tracker has 1~5 pixel error. Integration of result data of each tracking system is important. RS-232C communication is applied to integrated system and Semaphore method is used for process synchronization. [C2019]

"Home access networks using optical wireless transmission"

Fibre to the home and other dasialast-milepsila transmission technologies provide end-user data rates of at least 100 of Mbit/s. These technologies are currently deployed around the world, and in the short term gigabit-class home access networks will be required if this capacity is to be fully used, and new services are to be developed. In order to meet this goal, the Home Gigabit Access Project (OMEGA, EU FP 7-1) aims at a range of transmission techniques and intelligent control. A significant part of this effort is devoted to two areas of optical wireless communications. [C2020]

"Stand-off Iris Recognition System"

The iris is a highly accurate biometric identifier. However widespread adoption is hindered by the difficulty of capturing high-quality iris images with minimal user co-operation. This paper describes a first-generation prototype iris identification system designed for stand-off cooperative access control. This system identifies individuals who stand in front of and face the system after 3.2 seconds on average. Subjects within a capture zone are imaged with a calibrated pair of wide-field-of-view surveillance cameras. A subject is located in three dimensions using face detection and triangulation. A zoomed near infrared iris camera on a pan-tilt platform is then targeted to the subject. The iris camera lens has its focal distance automatically adjusted based on the subject distance. Integrated with the iris camera on the pan-tilt platform is a near infrared illuminator that is composed of an array of directed LEDs. Video frames from the iris camera are processed to detect and segment the iris, generate a template and then identify the subject. [C2021]

"Visible light communications: Challenges and possibilities"

Solid-state lighting is a rapidly developing field. White-light and other visible LEDs are becoming more efficient, have high reliability and can be incorporated into many lighting applications. Recent examples include car head-lights based on white LEDs, and LED illumination as an architectural feature. The prediction that general illumination will use white LEDs in the future has been made, due to the increased energy efficiency that such an approach may have. Such sources can also be modulated at high-speed, offering the possibility of using sources for simultaneous illumination and data communications. Such visible light communications (VLC) was pioneered in Japan, and there is now growing interest worldwide, including within bodies such as the Visible Light Communications Consortium (VLCC) and the Wireless World Research Forum (WWRF). In this paper we outline the basic components in these systems, review the state of the art and discuss some of the challenges

and possibilities for this new wireless transmission technique. [C2022]

"Modifying the improved light-output intensity of AlGaInP-based LEDs by nanoporous alimina"

This investigation describes the development of AlGaInP light-emitting diodes (LEDs) with a nanometer diameter of porous anodic alumina (PAA) films which are formed by anodization technique to improve and modify the light extraction efficiency. The pore-widening time was changed for surface modulation to obtain the optimum light extraction efficiency. The diameter of nano-pores varies from 30 nm to 60 nm and the interpore spacing is about 75 nm. The light output intensity of the PAA LEDs with 40 minutes pore-widening is 1.39 times that of conventional LEDs. PAA films can effectively reduce critical angle loss, Fresnel loss and be used as scattering center to improve the light extraction. [C2023]

"RoboMusicKids – Music Education with Robotic Building Blocks"

Being able to express oneself musically and experiment with music composition is traditionally determined by onepsilas ability to play an actual instrument with a certain degree of craftsmanship. The lack of skills often makes it difficult to make children and young people experience the joy of musical creativity, which is an essential element in music education. This paper presents a pilot project where modular robotics is used to create a platform for creative musical expression that allows users to experiment with musical genres without any prior musical knowledge or skills. [C2024]

"An intelligent driver for Light Emitting Diode Street Lighting"

Due to light emitting diode (LED) with better performances, the demand for developing LED Street Lighting is growing continuously. Nowadays, a topic of interest in this context is the search for electronic driver in order to take advantage of LED performances. This work focuses in saving potential pitfalls during intelligent driver design procedure. To meet the LED street lighting application, the intelligent driver is based on our patented LED modules, which derived from the thermal, photometric, power electronics techniques. The intelligent driver includes: 1) an AC/DC converter, designed in a Quasi-Resonant Operation flyback topology to maintain high efficiency and constant current/voltage output of 800 mA/31 V with variable voltage output at wide input voltage range of 100-250 V/AC; 2) Also, the intelligent street lighting controller which performs the function of soft startup, Full ON, Hall ON and OFF is achieved. By setting an example of a 50 W LED pole head design, the suggested driver has been conducted in order to illustrate the complete process and results, which shows 72% more energy savings compared with conventional street lighting after 3 month running. [C2025]

"Fluorescence thermometer based on photoluminescence imaging of Ti doped sapphire"

Photoluminescence (PL) images from Ti doped sapphire (Ti doped Al2O3) crystals are observed for 2-dimensional fluorescence thermometer applications. Red colored bright PL images can be observed clearly from Ti doped sapphire sensor using a CCD camera under blue LED illumination. Intensity of red signal of the PL image decreases linearly with temperature of the sensor. Ti doped sapphire sensor is found to be useful for fluorescence temperature measurement using PL imaging technique. [C2026]

"Development of KNU hand with infrared LED-based tactile fingertip sensor"

This paper proposes an infrared (IR) light emitting diode (LED)-based tactile fingertip sensor that can independently measure the normal and tangential force between the hand and an object. The proposed IR LED-based sensor has several advantages over other technologies, including a low price, small size, and good sensitivity. The design of the first prototype is described and some experiments are conducted to show output characteristics of the proposed sensor. Furthermore, the effectiveness of the proposed sensor is demonstrated through anti-slip control in a multifunction myoelectric hand, called the KNU Hand, which includes several novel mechanisms for improved grasping capabilities. The experimental results show that slippage was avoided by simple force control using feedback on the normal and tangential force from the proposed sensor. Thus, grasping force control was achieved without any slippage or damage to the object. [C2027]

"Photoluminescence imaging of spinel for thermometer application"

Photoluminescence (PL) imaging is curried out using Cr doped spinel sensors at various temperatures for 2-dimensional fluorescence thermometer application. PL images can be clearly observed using a CCD camera and UV, green and/or blue LED illuminations. Brightness of PL images from Cr doped spinel sensor decrease with temperature up to 250degC. PL imaging is suggested to be useful for 2-dimensional fluorescence thermometer applications. [C2028]

"Multispectral palmprint recognition using wavelet-based image fusion"

Palmprint is widely used in personal identification for an accurate and robust recognition. To improve the existing palmprint systems, the proposed system, which is the first on-line multispectral palmprint recognition system ever designed before, uses multispectral capture device to sense images under different illumination, including red, green, blue and infrared. We adopt competitive coding scheme as matching algorithm, which performs well in on-line palmprint recognition. Wavelet-based image fusion method is used as data-level fusion strategy in our scheme. Fused verifications show better effort on motion blurred source images than single channel. Experimental results of fusion images are also useful references for future work on multispectral palmprint recognition. [C2029]

"Low temperature measurement using fluorescence thermometry"

A possibility of low temperature measurement using fluorescence thermometry was examined. Temperature dependence of fluorescence lifetime applied to low temperature measurement. Chromium ion doped sapphire crystal (ruby) is known as a suitable sensor material for temperature measurement. Fluorescence thermometer using the ruby which is modified for temperature measurement has been fabricated. From this research, ruby crystal is found to be useful as the sensor head for fluorescence thermometer. In addition, the ruby crystal is potentially useful material for the sensor head crystals to measure low temperature below 273 K. [C2030]

"Hemispherical focal plane detector arrays"

We demonstrate a 10 kilopixel passive matrix focal plane array consisting of (40mum)2organic double heterojunction photodetectors on a 1cm radius plastic hemisphere that mimics the size and architecture of human eye. [C2031]

"Warm white light generating nanocrystal hybridized LEDs with high color rendering index"

By hybridizing custom-design CdSe/ZnS core-shell NC emitters on InGaN/GaN based blue LEDs, we demonstrated three warm-white light sources with desirably low CCT ranging from 3227 K to 1982 K as is required for SSL indoor applications. In these proof-of-concept demonstrations, high color rendering indices (82.4) and high luminous efficacies of emitted spectra (327 lm/W) were achieved, while the color temperature was simultaneously kept low as desired. Our proof-of-concept demonstrations indicated that such nanocrystal luminophor based warm-white LEDs with high-quality photometric properties hold great promise especially for future indoor lighting applications. [C2032]

"GaN-based solid state lighting"

Summary form only given. Charge separation due to spontaneous and piezoelectric polarization inherent to the wurtzite structure has deleterious effects on the performance of most c-axis oriented devices. To overcome this problem, Nonpolar GaN, such as a-plain and m-plain GaN or semipolar GaN substrates have been grown. We reported the fabrication of violet InGaN/GaN Light Emitting Diodes (LEDs) on the first nonpolar m-plane (11macr00) GaN bulk substrates. The output power and External Quantum Efficiency (EQE) at a driving current of 20 mA were 28 mW and 45% respectively, with peak electroluminescence (EL) emission wavelength at 400 nm. The first nonpolar m-plane (11macr00) nitride laser diodes (LDs) were realized on low extended defect bulk m-plane GaN substrates. Broad area violet lasers were fabricated and tested under pulsed and CW conditions. These laser diodes had threshold current densities (Jth) as low as 2.3 KA/cm2for pulsed and 7.5 kA/cm2for CW operation. Stimulated emission was observed around 405nm. Also, we fabricated high-efficient violet, blue, green and yellow LEDs, and violet laser diodes on semipolar GaN bulk substrates. The current biggest problem of nonpolar and semipolar devices is a limitation of the size of the GaN substrate. In order to make a real GaN bulk crystal, we have developed the ammonothermal method. Recently, we obtained the size of 6-8 mm bulk GaN crystal. The recent performance of nonpolar, semipolar and polar (c-plain) GaN-based devices, and bulk GaN growth are described. [C2033]

"The current status and issue of oxide TFT for large-size AMOLED applications"

ZnO-based TFTs are shown to have the high device performance as well as good uniformity, which make it suitable as a next generation backplane technology for large area AMOLED display. [C2034]

"Superconducting photonics and development of light emitting diodes based on new concept"

The authors have proposed a photon-emitting LED (light-emitting diode) combined with superconducting electrodes, which is expected to be an on-demand entangled photon pair source. The main mechanism is based

on the coherent spatial extension of the Cooper-pair states to the photon emitting layer, which is expected to enhance the oscillator strength of the radiative recombination processes by the Cooper-pair involvement in the recombination processes. In this paper, the preliminary operation is demonstrated with InGaAs quantum well (QW) LEDs. About 20-times enhancement of the electroluminescence (EL) was observed under the low-injection current regime. This is the demonstration of the improved internal quantum efficiency (QE) under the low internal QE operation of the LED. The enhancement of the radiative recombination processes with the superconducting (SC) effect is also demonstrated by the lifetime measurements under the operation with high internal QE. [C2035]

"Stretchable, printable organic transistor integrated circuits for large-area sensors and displays"

We have successfully manufactured stretchable, flexible, large-area active matrix comprising organic transistors for the applications to large-area sensors and displays. A plastic film with organic transistor-based electronic circuits is mechanically processed using the numerical-controlled cutting system to form a net-shaped structure, which allows the films to be extended more than 25%. Integrating organic pressure-sensitive rubber with the organic transistor active matrix, the pressure sensor matrix was manufactured, and the distributions of pressure were obtained even on arbitrary curved surfaces. [C2036]

"Fiber-optic Fourier-Domain Common-Path OCT"

We investigated a Fourier-Domain Common-Path OCT system operating at 840 nm center wavelength. The axial resolution of the system is 8.8 mum and the imaging depth is about 3.5 mm. [C2037]

"An LED-based miniature illumination subsystem for fluorescence sensing of neuron membrane potentials"

A miniaturized fluorescence sensing system, incorporating proximal stacking of an LED, excitation filter and cell culturing substrate, is effective in imaging GT1-7 mouse hypothalamic neurons, and probing chemically induced changes in membrane potential. [C2038]

"Illumination of LCOS micro displays using planar lightguides"

Liquid crystal on silicon (LCOS) microdisplay is typically less than frac12 inch in diameter and usually a field sequential illumination system is used for colour creation. In most high power microdisplay based projectors the colour sequences are produced with colour wheels and the microdisplay is a MEMS device, but in lower power projectors of near to eye displays (NED) the displays are LCD panels and LEDs are commonly used in their illumination. In the light path of a reflective LCOS panel, the Polarizing beam splitter (PBS) that separates the incoming and outgoing beams is in significant role. There are many varieties how the PBS is done but, for example, in compact viewfinders, it can be a plate with diffractive wiregrid or with multiple layers utilizing the interference of light. The PBS is placed between the LCOS panel, and the image forming optics is typically set at 45 degree angle. In this work a curved film type PBS is considered, which shortens the back focal length and makes the system more compact. The proper distribution of light is created with a lightguide where the light is coupled in using butt coupling, with each red, green and blue LEDs in row. For more efficient light mixing the light guide is lengthened and an RGBGR row of LEDpsilas is used. The microstructures on the light guide are designed so that the light distribution matches with the curved PBS and the f-number of the image forming optics. The system performance together with experimental results is discussed. [C2039]

"Quantum dot nano-composites as colour-converters for micro-pixellated gallium nitride light-emitting diodes"

We report aligned micro-patterning of quantum dot nanocomposites on gallium nitride micro-pixel light-emitting diode arrays. Mixing colloidal quantum dots in a polymer matrix facilitates dasiadirect writingpsila micro-structuring techniques for high-density pixellated colour-conversion. [C2040]

"Effect of encapsulation on OLED characteristics with anisotropic conductive adhesive"

Organic light emitting devices (OLEDs) is one of the most potentially interesting display technologies in the flat panel display (FPD) field. This paper investigates the effects of OLED structures and a perimeter encapsulation to protect the OLED from atmospheric exposure. Firstly, the electric features of the OLED devices with and without a copper phtalocyanine layer were measured, and the one with the additional buffer layer showed a lower turn-on voltage. Then the OLED device sample was encapsulated with a glass cover bonded to the substrate with an adhesive matrix containing micro-particles. The samples were stored in ambient conditions, and the IV characteristics were studied with shelf-time as a parameter. The measurement results indicated that

the encapsulation had a significant improvement on the device operation. After two weeks of storage the encapsulated samples showed less degradation and the current density at a given operating bias was about fifty percent higher than without encapsulation. [C2041]

"MicroLens/UV-LED array packaging for dynamic and static alignment"

This paper presents a fully integrated packaging solution that permits the static and active alignment of a microLens array placed on top of a micro-UV-LED array. The entire process is manufactured by UV-lithography using predominantly the photoresists SU8 and THB. The processing temperature for all steps is below 120degC. [C2042]

"Boost DC-DC converter with charge-recycling (CR) and fast reference tracking (FRT) techniques for high-efficiency and low-cost LED driver"

A charge-recycling (CR) technique and fast reference tracking (DRT) are proposed for implementing a high efficiency and low cost RGB backlight module in color sequential notebook computerspsila display. A RGB LED driver composed of an asynchronous 1.5 MHz DC/DC boost converter with FRT and CR techniques was fabricated in TSMC 0.25 mum BCD 40 V to generate 17 V for 6-series red LEDs or 21 V for 6-series green, or blue LEDs. The CR technique stores extra energy at the output node when the output voltage is switched from low to high voltage level and releases the reserved energy back to the output node at next period. Furthermore, the output voltage can be rapidly switched between two different voltage levels by FRT technique without wasting much power owing to the CR technique. [C2043]

"Increased quantum efficiency and reduced red-shift in polymer nanoparticle luminophors"

In this paper, using a polyfluorene derivative, increased fluorescence quantum efficiency and reduced red-shift in the film form of polymer nanoparticle luminophors is achieved, when compared to directly spin coated polymer thin films. [C2044]

"Gigabits in the home with plugless plastic optical fiber (POF) interconnects"

We have developed plugless optical transceivers for low cost optical networking with plastic optical fiber (POF). The transmission speed is 125 Mb/s for Ethernet applications and 1.25 Gb/s for Gigabit Ethernet and other high speed applications. The high speed modules for Gigabit transmission are based on a red VCSEL light source for the transmitter that matches the optical attenuation minimum of the plastic fiber media. The devices have demonstrated excellent reliability with more than 850,000 hours of mean-time-to-failure operating life time at elevated temperatures of 40degC. Automotive qualified, rugged resonant cavity LEDs (RCLEDs) are used for the lower speed modules. The plugless transceiver design enables the direct optical connection between the active components and standard POF without the need for special termination of the fiber. Only a simple cutting action is required. This enables low cost field installations. [C2045]

"Transmission of high-frequency radio over fibre signals through short and middle reach Multimode Fibre links using a low-linewidth laser"

We demonstrate that the transmission of broadband radio over fibre signals at high frequencies using a multimode fibre link is contingent on the use of low-linewidth lasers. We describe the first subcarrier transmission of QPSK data signals through a 62.5 mum core-diameter graded-index multimode fibre links up to 5 km for the widest range of microwave frequencies ever reported (from 3 to 18 GHz). [C2046]

"SPOTWorld and the Sun SPOT"

We describe the Sun Small Programmable Object Technology, or Sun SPOT. The Sun SPOT is a small wireless computing platform that runs Java directly, with no operating system. The system comes with an on-board set of sensors, and I/O pins for easy connection to external devices. We also describe SPOTWorld, an integrated management and code deployment tool for working with Sun SPOTs. [C2047]

"Scanning LED Array Based Volumetric Display"

This paper reports a novel volumetric display system using 1D LED arrays mounted on rotating platforms to create a quasi-holographic display. The system employs a 2D array of such modules and a special diffuser screen in front of them. A virtual 3D image pixel (voxel) appears behind the screen at the intersection of 2 rays emitted from 2 LEDs at different rotation angles. The basic concept is reported for the first time here. A subsystem demonstrator is developed using a single LED mounted on a polymer scanner platform rotating at 60

Hz, which corresponds to the refresh rate of the display system. Large rotation angle and high modulation speeds are achievable with LEDs mounted on polymer scanners. An array of LEDs can be driven by a LED driving IC, integrated with the polymer scanner. [C2048]

"See through HMD type MF 3D display for AR"

AR is a display technology of MR. AR is used to augment the human ability to process real world information by adding computer-generated virtual information. A HMD type MF (multi-focus) 3D display is developed for an application to AR and experiment about satisfaction of eye accommodation is tested. Four LEDs and a DMD are used to generate four parallax images for single eye and the displayed MF image is added to actual real world view. The MF means the ability of monocular depth cue to various depth levels which are represented in 3D image displayed on 3D display system. By achieving MF function, we developed a 3D display system for only one eye, which can satisfy the accommodation to displayed virtual objects at various depths. Therefore this proposed 3D display system has a possibility for solving the problem that the 3-dimensional image display system using only binocular disparity can induce the eye fatigue caused by the mismatch between accommodation of each eye and convergence of two eyes. Additionally, the HMD type MF 3D display can be applied to a monocular 3D display and monocular AR 3D display. [C2049]

"Degradation- and Failure Mode Analysis of III-V Nitride Devices"

In this work, different failure modes and degradation mechanisms of AlInGaN LEDs were studied under different stress conditions. Another aim of this work was to develop a classification criteria of the LEDs based on initial RBL characteristics and enable the manufacturers ensure better reliability standards. [C2050]

"DMX512 Controller for High Brightness RGB LED Matrix"

DMX512 is the standard protocol used by lighting equipment in theatrical and entertainment data distribution systems. This paper describes a complete hardware and software solution for driving a high brightness 70 pixel RGB LED matrix from a computer and synchronized with environmental music, in addition to multiple running modes and possibilities achieved. Further possibilities of the developed device running as universal automation controller, are also mentioned. [C2051]

"Junction Temperature Estimation for High Power Light-Emitting Diodes"

The understanding of the thermal properties of a high power LEDs is essential in order to achieve the highest optical performance of the device without sacrificing its reliability. In addition to that, the good thermal management is also a key factor to avoid thermal induced variation of the photometric / colorimetric properties of power LEDs, such as variation of relative light output or the spectrum. This paper proposes a methodology to estimate junction temperature of high power LEDs. This method allows discarding the influence of the intrinsic series resistance of the LED electric model in 1-Vcurve, avoiding, as a consequence measurement errors. [C2052]

"Optical Evaluation System for a Seaweed-Water Mixture in a Seaweed Processing Plant"

An in-process optical measurement system has been proposed for a seaweed-water mixture in a seaweed processing plant with the aim of quality evaluation of final products. The system or method is based on the assumption that the optical transmissions of the mixture at particular wavelengths could be related to seaweed-product quality. In order to ascertain the above expectation, we have made measurements in a plant and done some analysis, including principal component analysis, on the measurement data. The results imply that the optical transmission data of the mixture can be used to estimate the quality of the final seaweed products. The information obtained could also be useful in making a feedback control of the process for producing better products. [C2053]

"Pitfalls in Low Voltage LED Drivers Design using Tapped-Inductor Converters"

The use of power LED is growing continuously, due to new advances and new devices with performances which increase day after day. Nowadays, a topic of interest in this context is the search for electronic converters in order to take advantage of LED performances. LEDs ballast design involves a multidisciplinary knowledge: photometric, thermal, power electronics and control techniques. This work focuses in to save potential pitfalls during ballast design for these new components. This paper evaluates the use of tapped-converters as LED drivers in low voltage applications. These topologies are derived from tapped- inductor DC-to-DC converters, in which the load is a connection of power LED. This load implies several restrictions in both power topology design and control method strategies. The work includes an extensive discussion about this topic, clarifies areas

of application for each specific topology and includes a complete design example. [C2054]

"Intellectualized Orientating and Calibrating Method for Temperature and Humidity Meter"

The software system, hardware system and performance principle of the temperature and humidity meter are briefly described. An Intellectualized method is developed for orientating and calibrating the meter. This kind of new method is excellence in automation and intelligence, and presents simpler and more reliable new method for orientating and calibrating the nominal physical quantity of the nonlinear sensor. [C2055]

"EBIC Investigations on Active Polymer Devices"

For the first time, EBIC microscopy is applied for investigations on active polymer devices, OFETs with TPA-Dimethyl and P3HT polymers as active layers. The internal electrical field distributions of these devices are characterized in dependence on biasing conditions. Poole-Frenkel field dependences at source and drain contacts are demonstrated. [C2056]

"Evaluation of a Synchronous Flyback Driving Parallelized High Efficiency LEDs"

In this paper, parallel connection of high efficiency LEDs for lighting applications is studied. Unlike series connection, parallel connection of LEDs allows the operation of these devices at different current levels. Among other features, this allows the operation of the remaining LEDs if one of them fails. The main drawback of parallel connection is, as is very well known, current equalization and stable operation, due to the V vs. I characteristic of the LED. An active equalization and current limitation with MOSFETs is studied and implemented, thus obtaining a high current-low voltage power load. To supply this load, a 16 W synchronous flyback is used, in order to supply 4 high efficiency LEDs. The overall prototype design and construction is discussed, and electrical and light measurements are presented. [C2057]

"Advancing Towards Digital Control for Low Cost High Power LED Drivers"

This paper describes a complete design and implementation of a low cost digital controller for a high power LED driver. The main advantages of high efficiency LEDs are their good luminosity, efficiency and long life. Due to these improved behaviour, the number of LED-based applications is increasing. Nowadays, the cost of digital processors is continuously decreasing, and the trend is that still lower costs will be achieved in the future. In addition, digital processors offer extra features, e.g. communication protocols, software protections, and so on. Therefore, this study has an increasing practical interest. Design guidelines for a LED based light supply with digital control are proposed A prototype has been built and tested, and results are shown to validate the design approach. [C2058]

"Implementation of facial visualization for robotic indicator by using fuzzy emotion system"

This paper shows the result of T. Takagi and M. Sugeno (1989) experiment and shows how to design and status of the robot in face emotion. We implement with the a vacuum robot, and we will show how to setup the system into hardware, which consists of fuzzy emotion generator that processes the inputs from the heat sensors of the main board and the battery indicator to the outputs for using in visualization step which is a displaying board. Visualization has been developed to show the robot's emotion through the face completely by limited hardware. The result of the experiment of showing the emotion through the face of the robot works naturally. [C2059]

"Equalization Techniques for 100Mb/s Data Rates on SI-POF for Optical Short Reach Applications"

In this paper, we propose the combination of 8-PAM modulation, pre-emphasis and adaptive equalization to overcome 1mm-SI-POF bandwidth limitations in optical short reach links. An error-free transmission at 100Mbit/s over 200 m SI-POF is experimentally demonstrated. [C2060]

"Development of real-time motion artifact reduction algorithm for a wearable photoplethysmography"

This paper presents a motion artifact reduction algorithm for a real-time, wireless and wearable photoplethysmography (PPG) device for measuring heart beats. A wearable finger band PPG device consists of a 3-axis accelerometer, infrared LED, photo diode, a microprocessor and wireless module. Sources of the motion artifacts were investigated from the hand motions, through computing the correlations between the three directional finger motions and distorted PPG signals. A two-dimensional active noise cancellation algorithm was applied to compensate the distorted signals by motions, using the directional accelerometer data. NLMS (Normalized Least Mean Square) adaptive filter (4th order) was employed in the algorithm. As a result, the

signals' distortion rates were reduced from 52.34% to 3.53%, at frequencies between 1 and 2.5 Hz, which representing daily motions such walking and jogging. The wearable health monitoring device equipped with the motion artifact reduction algorithm can be integrated as a terminal in a so-called ubiquitous healthcare system, which provides a continuous health monitoring without interrupting a daily life. [C2061]

"Joy stick operation speed of intelligent robotic wheelchair"

People bound to wheelchairs require assistance maneuvering over steps encountered when moving about roadways and walkways. We propose an intelligent robotic wheelchair which enables a wheelchair bound person to climb steps without third-party assistance. By using this proposed mechanism, a user may maintain inverse pendulum control while raising the front wheels of the wheelchair, then moving forward to the step maintaining the inverse pendulum control, and finally, climbing over the step using a DC motor force from the rear wheel shafts. We propose a joystick controller in this document to investigate improved wheelchair maneuverability and facilitated human interface. This paper presents the experimental results of the joystick operation speed dependant on LED panel instructions. [C2062]

"Microcavity Top-Emitting OLEDs Integrated with Microlens Arrays for Simultaneous Enhancement of Efficiencies, Color Performances and Reduction of Pixel Blurring"

In this paper, we show that by integrating microcavity OLEDs with microlenses, all the enhancement in external quantum efficiency, cd/A efficiency, color saturation, small color shift with viewing angles, and pixel sharpness can be simultaneously achieved. [C2063]

"Development of Cold Light Indirect Ophthalmoscopic Video System for Sharing Stereopsis"

To improve the usability of conventional indirect ophthalmoscope, we propose the newly designed binocular indirect ophthalmoscope which is inexpensive, comfortable, light-weighted, long-lasting, and provides stereopsis not only to examiner but also to observers. Our new system shows good performance compared to conventional indirect ophthalmoscope and also presents the stereoscopic assistant view through special visualization system. [C2064]

"Enhanced electron injection and transport with LiF doping"

Lithium fluoride has been demonstrated to be an efficient n-dopant for organic semiconductors. 3 orders of magnitude increase in conductivity and 2X enhancement in organic light emitting device efficiency have been demonstrated. [C2065]

"Spin Injection and Magnetoresistance in Organic Semiconductor Devices"

In magnetic OLEDs, nanodot ferromagnetic cobalt(Co) electrode that provides highly efficient spin injection into organic semiconducting polymers in the study of magnetic field-dependent electroluminescence is found. Using spin injection and magnetoresistance to magnetically control the dynamic processes of singlet and triplet excited states in organic semiconductor devices is reported. [C2066]

"Service oriented wireless sensor networks-a cluster-based approach"

Wireless Sensor Networks (WSNs) have recently emerged as a viable technology for various industrial and business applications [4]. However, WSNs still lack a uniform mechanism of exposing their functionality to the user. In this sense, service-based solutions represent a well-suited abstraction [2], as they provide an easy-to-use interaction paradigm and decouple the application from the low-level technologies. [C2067]

"Lifetime Based Pressure Sensitive Paint Systems: Issues and Solutions"

Pressure Sensitive Paint (PSP) issues that can lead to errors in lifetime and radiometric based pressure measurements are examined. Paint parameters that are specifically investigated include probe concentration, paint thickness, and probe excitation wavelength. Results of this study indicate that i) relative probe concentrations above (1 g PtTFPP in 200 g of polymer) display concentration quenching, ii) lifetime based measurements are more sensitive to concentration quenching than radiometric, iii) copper-treated PtTFPP displays a higher sensitivity to concentration quenching than does the acid treated form, iv) both lifetime and radiometric techniques are insensitive to paint thickness above 35 mum and v) 397-nm LEDs are optimum for exciting pressure paints containing PtTFPP. [C2068]

"Velocity Measurements Near Walls, Cavities, and Model Surfaces Using Particle Shadow

Velocimetry (PSV)"

The Particle Shadow Velocimetry (PSV) technique is utilized for velocity measurements near walls, in cavities, and near model surfaces. Measurements are made on a readward facing step, a cylinder in cross flow and in an open water cavity. Velocity information obtained by two different analysis approaches, traditional grid based and particle centric cross-correlations, are compared. It is shown that the particle centric methods yields more details in complex flows. This paper shows that the PSV technique is well suited for measurements near surfaces where conventional laser-based PIV methods are hampered by surface glare and/or optical access. [C2069]

"A Reflectance Pulse Oximeter Design Using the MSP430F149"

This paper will design a non-invasive optical pulse oximeter using the MSP430F149 single-chip as system microcontroller. The planned pulse oximeter consists of a sensor and a system microcontroller. The sensor is used for the pulse wave's detection, and the microcontroller is designed to analyze the pulse wave to calculate the oxygen saturation (SaO2) and pulse rate. The results are displayed on a LCD glass or transported to PC. This paper designs a reflectance pulse oximeter sensor that includes two light emitting diodes (LEDs), one in the visible red spectrum (660 nm) and the other in the infrared spectrum (890 nm). The oxygen saturation is calculated by the intensity from each frequency of light after it reflects through the body tissue. The pulse oximeter uses the MSP430F149 as microcontroller, which has ultra low power capability, so the system's power consumption is very low. [C2070]

"White PHOLED for Lighting"

At 1,000 cd/m2, plusmn white phosphorescent OLED (0.39, 0.44) has forward EQE = 14.5%, and efficacy = 25 lm/W. At 100 cd/m2, the device has total EQE = 25% or total efficacy = 51 lm/W. [C2071]

"Electro-optical Devices using Organic Semiconductors"

Electro-optical devices such as light-emitting diodes (LEDs), field-effect transistors (FETs), and photovoltaic diodes made with organic semiconductors were discussed. Few related works on electro-optical device fabrication, design, display performance, efficiency and brightness were cited. [C2072]

"Thirty Revolutionary Years: How Photonic Innovations have Changed the World"

The paper discusses how photonic innovations have changed the world. Photonics play the most direct role, has been most profound through the dramatic improvements in data, voice and video transmission as digital systems deployed globally have changed the way business is conducted and the structure of many industries. [C2073]

"A 3-dimensional vision system for dental applications"

There is an increasing demand for techniques that make use of 3-dimensional measurement in the field of dental research. This paper utilized a new 3-dimensional vision system for tooth surface information reconstruction. The system is based on a computational framework for constructing point cloud using digital fringe projection patterns. Surface information extracted from the point cloud can be used in various dental applications, for example, extracting characteristic features, building up a filling model for tooth restoration and determining molar movement during headgear treatment. [C2074]

"Woven Electronics: a new perspective for wearable technology"

Endowing a textile substrate (i.e. fibers, yarns, fabrics) with active functions is a new powerful concept, that has recently given rise to several interesting contributions. In this paper, we will describe a possible approach to this intriguing objective, focusing on the technology and on the electronic model. Future applications for this technology will allow to obtain, for instance, matrices of sensors assembled by textile technology and will ensure to obtain for wearable devices the necessary properties of drapability and conformity to the body that are required for these applications. [C2075]

"Point-of-Care Noninvasive Hemoglobin Determination Using Fiber Optic Reflectance Spectroscopy"

Study objective: rapidly identifying anemia through qualitative observation of the palpebral conjunctiva for pallor is standard medical practice. We report on the ability of using a fiber optic array probe to collect diffusely reflected light from the palpebral conjunctiva and measure hemoglobin concentration noninvasively. Patients (N=102) admitted to the emergency department and receiving a complete blood count (CBQ were enrolled as a convenience set. The tarsal plate was exposed by averting the lower eyelid and illuminated with a white LED

while diffusely reflected light was collected using a fiber optic probe and commercial grating spectrometer. Spectra were analyzed using partial least squares regression to extract hemoglobin concentration information and compare to the CBC result. The probe and algorithm demonstrated correlation coefficient of r = 0.82 and standard error of 1.05 g/dL compared to invasive CBC test. Experimental error is due to variability in distance and position of the probe relative to the conjunctiva. This technique has shown the ability to measure total hemoglobin noninvasively and in real-time at the point-of-care using diffuse reflectance spectroscopy of the tarsal plate, leading to potential inclusion of this class of device as a triage centric tool to identify anemia appearing with internal hemorrhage or other acute conditions. [C2076]

"White Organic Light-Emitting Diodes Based on Dual Partial Dye Doping"

We have fabricated white organic light-emitting diodes (WOLEDs) based on dual partial dye doping. To clearly understand the underlying physics of the OLED structures, we have also implemented a comprehensive numerical model and performed simulations of the structures. [C2077]

"Coupled Modeling of Current Spreading, Thermal Effects, and Light Extraction in III-Nitride Light-Emitting Diodes"

We study by simulation the current spreading, heat transfer, and light emission in a high-power light-emitting diode (LED) with an interdigitated multipixel array (IMPA) chip design. The applied hybrid approach allows coupled modeling of various processes involved in the LED operation, providing good agreement with observations. [C2078]

"Characterization of Breast Tumors with NIR Methods using Optical Indices"

This work describes the characterization efficiency of optical properties of breast tumors based on the features obtained using in vivo near-infrared (NIR) spectroscopy measurements. Three features, relative blood concentration, oxygen saturation and the size of the tumor, are used to diagnose benign and malignant tumors. The performance of the proposed set of features are evaluated by various classifiers using data acquired from 44 patients with malignant tumors, and 72 patients with benign tumors. The area under the receiver operating characteristics (ROC) curve of the scaled nearest mean classifier (NMSC) using the three features yields a value of 0.91 with a significance level of 0.05. Our results suggest that the features, relative blood concentration, and oxygen saturation can differentiate breast tumors with a relatively high precision. [C2079]

"Effects of Low Level Red-light Irradiation on the Proliferation of Mesenchymal Stem Cells Derived from Rat Bone Marrow"

Mesenchymal stem cells (MSCs) are capable of regenerating various mesenchymal tissues and are essential in supporting the growth and differentiation of hematopoietic stem cells within the bone marrow microenvironment in vivo. To achieve clinically meaningful numbers of cells, many approaches have been used to maintain the differentiation potentialities and expand enough cells for clinical treatments. Previously, we have reported that low level light irradiation (LLLI) using 630 nm light emitting diodes (LEDs) could enhance replicative and colony formation potentials of MSCs derived from human bone marrow. The purpose was to study the effect on the proliferation of MSCs derived from the rat bone marrow by red light LLLI (630 nm) under different parameters of irradiation. The irradiance used was 5, 10 or 15 mW/cm2, and the radiant exposure was 2 or 4 J/cm2. Rat MSCs were irradiated at room temperature with single and multiple exposures. The results showed that the proliferation of MSCs plated at the low density (100 cells/well) and high density (1000 cells/well) was enhanced by multiple exposures of red-light LED treatment. The rate of proliferation of MSCs plated at the high density was not as high as those plated at the low density. The optimal parameter for LLLI was at irradiance of 15 mW/cm2, and radiant exposure of 4 J/cm2. The effect on the proliferation of cells by single dose irradiation was temporary. Multiple stimuli may be necessary for the enhancement of cell growth. [C2080]

"Fat thickness measurement using optical technique with miniaturized chip LEDs: A preliminary human study"

In this study, we present the possibility of the fat thickness measurement using the miniaturized chip LEDs sensor module for the twelve healthy women. The newly developed sensor module consisted of four different source-detector distances. The measurement sites are the five parts of biceps, triceps, upper abdomen, front thigh, and calf and the range of fat thickness is from 3.5 mm to 39.0 mm. The fitting curve for each measurement sites is separately obtained. We obtained the correlation coefficient of 0.932 compared with the fat thickness of CT measurement for biceps site. For the three measurement sites of biceps, front thigh, and calf of twelve persons and namely 36 data points, the mean absolute difference thickness and % error for the

measured thickness compared with that of reference CT thickness are 1.08 mm and 11.49%, respectively. Based on this preliminary experiment, it is confirmed that the fat thickness measurement is possible with proper curve fitting procedure using slope analysis. [C2081]

"Automatic sleep classification according to Rechtschaffen and Kales"

Conventionally, polysomnographic recordings are classified according to the rules published in 1968 by Rechtschaffen and Kales (R&K). The present paper describes an automatic classification system embedded in an e-health solution that has been developed and validated in a large database of healthy controls and sleep disturbed patients. The Somnolyzer 24times7trade adheres to the decision rules for visual scoring as closely as possible and includes a structured quality control procedure by a human expert. The final system consists of a raw data quality check, a feature extraction algorithm (density and intensity of sleep/wake-related patterns such as sleep spindles, delta waves, slow and rapid eye movements), a feature matrix plausibility check, a classifier designed as an expert system and a rule-based smoothing procedure for the start and the end of stages REM and 2. The validation based on 286 recordings in both normal healthy subjects aged 20 to 95 years and patients suffering from organic or nonorganic sleep disorders demonstrated an overall epoch-by-epoch agreement of 80% (Cohen's Kappa: 0.72) between the Somnolyzer 24times7 and the human expert scoring, as compared with an inter-rater reliability of 77% (Cohen's Kappa: 0.68) between two human experts. Two Somnolyzer 24times7 analyses (including a structured quality control by two human experts) revealed an inter-rater reliability close to 1 (Cohen's Kappa: 0.991). Moreover, correlation analysis in R&K derived target variables revealed similar-in 36 out of 38 variables even higher-relationships between Somnolyzer 24times7 and expert evaluations as compared to the concordance between two human experts. Thus, the validation study proved the high reliability and validity of the Somnolyzer 24times7 both, on the epoch-by-epoch and on the target variable level. These results demonstrate the applicability of the Somnolyzer 24times7 evaluation in clinical routine and sleep studies. [C2082]

"Beads-Based System for Optical Sensing Using Spiropyran Photoswitches"

In science, control of interactions at the molecular scale is the ultimate goal, as this in turn determines all macroscale behaviour. Using molecular-switches based on spiropyran-like molecules, it is possible to produce surfaces whose physico- chemical properties can be controlled under external photonic stimulation [1]. It has been demonstrated that low-power light sources such as UV and green LEDs can switch spiropyran-modified surfaces between an inactive spiro (SP) form and an active merocyanine (MC) form which is highly coloured, and possesses a phenolate binding site for metal guest species such as Cu2+ [2], Co2+ [1]. Similarly, aminoacids interact with the MC form through complementary zwitterionic charges [3]. The amino acid and metal ion 'guests' can be subsequently expelled using a green LED to reform the original inactive SP [4]. These processes have been observed in liquid phase experiments, but recently, in order to generate smart adaptive surfaces based on spiropyran photochromic moieties, we have covalently bound spiropyran derivatives to the surface of polystirene microspheres. [C2083]

"Nitride Band-Structure Model in a Quantum Well Laser Simulator"

The two-dimensional quantum well laser simulator VLS (visible laser simulator) has been extended to simulate III- V nitride based lasers. In this paper, we focus on the six band k.p solver used to calculate the electronic band structure. The effects of strain on bulk and quantum well band structures are analyzed. [C2084]

"Experimental on Hierarchical Transmission Scheme for Visible Light Communication using LED Traffic Light and High-Speed Camera"

LEDs are expected as lighting sources for next generation, and data transmission system using LEDs attract attention. In this paper, we present hierarchical coding scheme using LED traffic lights and high-speed camera for intelligent transport systems (ITS) application. Further, if each of LEDs in traffic lights is individually modulated, parallel data transmissions are possible using a camera as a reception device. Such parallel LED-camera channel can be modeled as spatial low-pass filtered channel of which the cut-off frequency varies according to the distance. To overcome, we propose hierarchical coding scheme based on 2D fast Haar wavelet transform. As results, the proposed hierarchical transmission schemes outperform the conventional on-off keying and the reception of high priority data is guaranteed even LED-camera distance is further. [C2085]

"LED power reduction trade-offs for ambulatory pulse oximetry"

The development of ambulatory arterial pulse oximetry is key to longer term monitoring and treatment of cardiovascular and respiratory conditions. The investigation presented in this paper will assist the designer of an ambulatory pulse oximetry monitor in minimizing the overall LED power consumption (PLED,TOT) levels by analyzing the lowest achievable limit as constrained by the optical components, circuitry implementation and final

SpO2 reading accuracy required. LED duty cycle (DLED) reduction and light power (PLED,TOT) minimization are proposed as methods to reduce p . Bandwidth and signal quality calculations are carried out in order to determine the required PLED,TOTas a function of the different noise sources. [C2086]

"Optical Inspection System for the Inner Surface of a Pipe"

The inspection for the inner wall is necessary during the life of a pipe from the production to the condemnation. A corresponding optical inspection system has been developed. This system uses the motion of a complicated mechanism in the axial direction droved by a stepper motor, and the detection of panoramic images from the illuminated circumferential inner surface realized by a hemispherical panoramic imaging system (HPIS). Irregularities of images due to corrosion or accumulation of brass deposits on the inner surface are inspected by this system. The experimental system reported in this article has the following specifications: resolution of detection of 0.3 mm at the circumference direction and 1.1 mm at the axial direction of a pipe, and inspection speed of 15 mm/s at an interval of 0.5 mm. [C2087]

"An Optimal Lights Layout Scheme for Visible-Light Communication System"

The visible-light communication is a novel kind of optical wireless communication utilizing the white LEDs. As compared with infrared indoor communication this system has high radiation power to enable high quality of service for the light is "visible". Generally, there are several plural lights installed in a room for sufficiently illuminating. So the layout of lights determining the distribution of received power is a key problem affecting the performance of visible light communication system. In this paper, the relation between the layout of lights and received power is studied and a best scheme is proposed to solve the design of lights layout, which is identified by simulation. [C2088]

"A Duplex Wireless Audio Communication System"

This paper mainly introduced the principle, hardware, software, functions and technical difficulties of the system. This system applied wireless communication technique, audio frequency technique and network technique. The functions were carried out by embedded system. Its core part was micro-controller unit ET44M210, and it included several sub-systems. They were J2A audio encoding and decoding sub-system, RF wireless communication sub-system, OLED manifestation sub-system, alarm sThis paper mainly introduced the principle, hardware, software, functions and technical difficulties of the system. This system applied wireless communication technique, audio frequency technique and network technique. The functions was carried out by embedded system. Its core part was micro-controller unit ET44M210, and it included several sub-systems. They were J2A audio encoding and decoding sub-system, RF wireless communication sub-system, OLED manifestation sub-system, alarm sub-system and FLASH memory sub-system. This system was used in the hospital and it can make real-time communication, medical record management, calling alarm and calling manifestation integrate together then worked perfectly with each other. This duplex wireless audio communication system contacted patient and paramedic quickly and efficiently, so it can raise the nursing efficiency, lighten the intensity of labour, improve the service level of hospital. [C2089]

"An Improved Single-Stage Flyback PFC Converter for High-Luminance Lighting LED Lamps"

This paper presents a universal power supply for high-luminance LED lamp test. The proposed power supply is designed and implemented by adopting an improved single-stage Flyback configuration. A constant current control method is used to regulate the lamp current and brightness under different pieces of LED series connection. A laboratory prototype has been built and tested. With the prototype, high efficiency, high power factor, and constant lamp current can be achieved for the performance test of various LED lamps. [C2090]

"Optical Gain Analysis of Strain Compensated InGaN-AlGaN Quantum Well Active Regions for Lasers Emitting at 420-500 nm"

Strain-compensated InGaN quantum wells with tensile AlGaN barriers are analyzed as improved gain media for laser diodes emitting at 420-500 nm. The optical gain analysis, taking into account spontaneous and piezoelectric polarizations, exhibits significant improvement in the peak optical gain and differential gain for the strain compensated structures. [C2091]

"Micro Photo-electricity Ion Concentration Detecting System for Environmental Monitoring"

A micro photoelectricity system for environmental monitoring is developed in this paper. The detection is based on the theory of substance absorbency. The developed system is composed by a light-emitting diode (LED) as light emission component, a photocell as brightness taking-over component and appropriate circuits. The whole

system is light, cheap and portable and it has many advantages such as few optical elements, high measurement accuracy, structure simplicity, small volume etc. The first-step experimental results indicate that the minitype photo-electricity system has realized to detect the solution zinc ion concentration and it shows a great potential for extensive applications. [C2092]

"A Novel Photodiode for Reflectance Pulse Oximetry in low-power applications"

The amount of light collected is crucial for low-power applications of pulse oximetry. In this work a novel ring-shaped backside photodiode has been developed for a wearable reflectance pulse oximeter. The photodiode is proven to work with a dual LED with wavelengths of 660 nm and 940 nm. For the purpose of continuously monitoring vital signs of a human, a temperature sensor is integrated onto the chip containing the photodiode. This biomedical multisensor chip is made for integration into "the electronic patch", an autonomous monitoring system for humans. [C2093]

"Inter and Intra-Hemispheric EEG Coherence Responses to Visual Stimulations"

This study investigated whether the visual stimulation at extremely low frequency (ELF) could possibly induce changes in the electroencephalographic (EEG) responses. The functional connectedness was examined between the brain regions when the minimum variance distortion-less response (MVDR) coherence algorithm together with Wilcoxon signed-ranks test statistical method was applied. The results showed that functional significance of EEG alpha rhythms at parietal, and occipital cortex, respond to oscillatory 13 Hz and 16.66 Hz light stimulation, respectively. [C2094]

"Hexagonal Prism Blue Laser Diode with Low Threshold Power using Whispering Gallery Mode (WGM) Resonances"

In this work, electrically pumped room temperature emitters using hexagonal prism cavities have been fabricated. The hexagonal prism shape provides a route to atomically smooth facets through selective growth or post etching annealing treatments, exploiting the natural crystal form of the wurtzite-structured nitride heterostructures. The lasing mode of the hexagonal prism diodes was verified as WGM by using focused ion beam (FIB) to notch one of the hexagon facets. The threshold current density and forward voltage of the hexagonal prism laser diode were 7kA/cm2 and 9V, respectively. WGM and TIR are believed to be the main mechanisms for reduced reflection losses and increased overall resonance efficiency. [C2095]

"Analytical Model of Apparent Threshold Voltage Lowering Induced by Contact Resistance in Amorphous Silicon Thin Film Transistors"

In this paper, we have shown that in a-Si TFT's the apparent threshold voltage extracted by conventional methods is lowered by the presence of the source/drain contact resistance, especially at short channel lengths and the analytical model presented to explain this effect is in good agreement with the experimental data. This model is particularly useful for AMOLED applications where the contact resistance has a crucial role in determining the driving current and thus the brightness of the pixels. In this abstract, we (i) show that this series resistance causes a large lowering of the "apparent" threshold voltage when it is extracted by conventional methods, and (ii) develop an analytical model to explain this effect. The model is supported by experimental data at different channel lengths and series resistances. [C2096]

"Novel Amorphous-Si AMOLED Pixels with OLED-independent Turn-on Voltage and Driving Current"

In this abstract, we present a novel integration approach that allows conventional bottom-anode OLEDs to be integrated with n-channel a-Si TFT's in such a way that programming becomes independent of the OLED I-V curve. The circuit schematic of a conventional AMOLED pixel with p-channel poly-Si TFT's is shown in Fig. 1(a). The TFT is processed first with temperatures up to 300 degC, followed by the OLED anode (patterned ITO, connected to the TFT drain), the organic (blanket) (Fig. 2(a)) and cathode (blanket) (Fig. 2(b)). Because the best OLED's are made with the anode (ITO) deposited first, and because processing (photolithography) of the organic is not feasible, p-channel devices are required for direct programming of the pixel. With the OLED at the drain (not source) of the driving FET, the data voltage appears directly across the gate-source of the driving TFT and therefore the pixel current depends only on the characteristics of the driving FET, independent of the OLED characteristics when the FET is in saturation. If n-channel FET's (such as a-Si TFT's) are used instead with the same integration process (Fig. 1 (b)), since the only accessible contact is the anode of the OLED, the OLED will be connected to the source of the driving FET, and therefore the data voltage will be divided across the gate-source of the driving FET and the OLED, based on the TFT and OLED characteristics. This is undesirable

because the gate-source voltage of the driving TFT (and thus the driving current) will depend on the OLED characteristics which vary with time and in manufacturing. Also, higher programming voltages will be required for the same gate-source voltages. [C2097]

"Uniform ZnO Thin-Film Transistors by an Ambient Process"

We have fabricated zinc oxide thin-film transistors using a novel ambient deposition process, with maximum temperature of 200degC. The TFTs deposited this way show sufficiently good properties to make them potentially applicable to OLED display backplanes. [C2098]

"High Power Vertical-structure GaN-based LEDs with Improved Current Spreading and Blocking Designs"

Based on experimental results which reveal that the contact of indium-zinc-oxide (IZO) and IZO/Ti to n-GaN layer is Schottky and ohmic, respectively, localized Ti deposition associated with a transparent IZO layer is proposed to serve as both current blocking and current spreading layer. In addition, an anisotropic mesa etching on the surface layer (n-GaN) of regular vertical-conducting metal-substrate GaN-based light-emitting diodes (VM-LEDs) is also proposed to further decrease the resistance difference between the outside path and the inner one. The effectiveness of the proposed schemes were verified by a two-dimensional device simulator (ISE-TCAD), which indicates that significant immune of current crowding under cathode contact pad would be possible once an optimal combination of the n-GaN layer etching depth and width, IZO thickness, and Schottky blocking width has been achieved. In experiments, 40-mil LEDs with an anisotropic mesa etching of 400 mum in width and 2 mum in depth, 200 mum in Schottky blocking width, and a 300-nm-thick IZO layer have been successfully fabricated. Typical improvement in light output power by about 25% at an injection current of 350 mA as compared to the regular VM-LEDs has been obtained. [C2099]

"Surface Plasmon Leakage in Its Coupling with an InGaN/GaN Quantum Well through an Ohmic Contact"

We demonstrate the loss of surface plasmon (SP) energy through oscillating electron leakage via the ohmic contact of either p-type or n-type GaN layer in the coupling process between SP and an InGaN/GaN quantum well (QW). The observation implies that in using the SP-QW coupling for enhancing emission in a light-emitting diode, the metals for ohmic contact and SP generation must be separated. A thin dielectric interlayer is required in the region for SP-QW coupling to avoid the leakage of SP energy. [C2100]

"New Design of Integrated Power and Integrated Driver with LED Module (IP-IDLM) Driving System for LED Backlight in LCD"

New design of integrated power and integrated driver with LED module (IP-IDLM) driving system with microcontroller for RGB-LED backlight in LCD has been proposed. The DC-DC converters in the conventional driver have been integrated into the main set power and the constant current control circuits in the conventional driver have been merged into the LED modules composed of LED arrays on the substrate so that we have accomplished the driver board eliminations from the LED backlight. In the system aspect, the system power efficiency could be increased and it's capable of achieving a perfect linearity characteristic of driver so that a stable constant current source is entirely maintained. [C2101]

"Characterization and Application of Large Magnetoresistance in Organic Semiconductors"

We report on the extensive experimental characterization of a recently discovered (Francis et al., 2004) large and intriguing magnetoresistive effect in OLEDs that reaches up to 10% at room temperature for magnetic fields, B = 10mT. This magnetoresistive effect is therefore amongst the largest of any bulk material. The existence of this effect is highly surprising, since it has generally been believed that large room-temperature magnetoresistive effects can exist only in ferromagnetic devices, whereas our devices are constructed entirely from non-magnetic materials. [C2102]

"Towards vertical III-V nanowire devices on silicon"

In this paper, we have grown III-V nanowires by metal organic vapor phase epitaxy (MOVPE) using the vapor-liquid-solid (VLS) growth mechanism. In addition, the author discusses the fabrication and characterization of reproducible axial InP nanowire LED devices. [C2103]

"Gallium Nitride Nanowire Devices-Fabrication, Characterization, and Simulation"

This study revealed that better gate geometries for GaN FETs can result in channel inversion hence enhancement mode in otherwise depletion mode devices. Circular shaped gate geometry resulted in improvement of transconductance per unit gate length by an order of magnitude over omega shaped top gate on the same nanowire. We have modeled the channel conductivity as a function of gate bias using two dimensional self consistent Poisson's equation solver. This has provided us with an insight into the nature of depletion behavior of the nanowire transistors. [C2104]

"On the reliability of pulse oximetry at the sternum"

Non-invasive assessment of arterial oxygen saturation has traditionally been entrusted to pulse oximetry. Whereas commercial probes are confined to the finger tip or the forehead, several recent works aim at enlarging the range of placement sites. In the context of the development of a continuous multi-parameter health monitoring system, CSEM is exploring the reliability of pulse oximetry measurements at the sternum. This talk will address both theoretical and practical aspects of the development of such a sensor with special emphasis on the reliability of the measurement. Experimental data obtained from a novel eight channels sensor will be presented. [C2105]

"Joint Entropy Maximization in the Kernel-Based Linear Manifold Topographic Map"

This paper introduces the kernel-based linear manifold topographic map and an information theoretic algorithm developed for its learning. The kernels represent lower dimensional local linear manifolds in a data space, and are defined in an optimal manner when special Gaussian input densities are assumed. The kernel parameters are adapted to maximize the joint entropy of the neuron outputs of the map. This is fulfilled by applying stochastic gradient ascent to the differential entropy of each neuron output and using competition between the neurons of the map. Topology preserving property is also possible by considering neighborhood functions. The proposed model can be considered as an improved version of the ASSOM network which maintains the ASSOM advantages while avoiding its limitations. [C2106]

"Computer-Based Training Increases Efficiency in X-Ray Image Interpretation by Aviation Security Screeners"

X-ray screening of passenger bags is an essential component of airport security. However, the most expensive equipment is of limited value, if the humans who operate it are not selected and trained appropriately. Scientific studies have shown that human performance in X-ray image interpretation depends critically on individual abilities and visual knowledge acquired through experience on the job and training. The aim of this study was to investigate the effect of adaptive computer-based training for increasing the detection of guns, knives, improvised explosive devices (IEDs), and other prohibited items. 97 airport security screeners of a European airport participated in this study. At the beginning of the project all airport security screeners conducted the X-ray competency assessment test (X-ray CAT). Thereupon they received adaptive computer-based training (CBT) for about 4 months. Then they conducted the X-ray CAT the second time in the middle of the project This was followed by about 4 months of CBT and a third test with X-ray CAT at the end of the project. The goal was that each screener conducts at least one 20 minute training session per week. Substantial increases of detection performance were found as a result of training, which depended on the threat category (guns, IEDs, knives and other prohibited items). The largest training effects were found for IEDs. Additional analyses showed that training not only leads to an increase of detection performance but also results in faster response times when an X-ray image contains a threat object. Thus, recurrent CBT can be a powerful tool to increase efficiency in X-ray image interpretation by airport security screeners. [C2107]

"A Non-Invasive Retinal Prosthesis-Testing the Concept"

We have developed a testing platform for a novel type of retinal prosthesis. Our system uses an array of light sources as non-contact stimulators. The platform consists of an imaging system based on a CMOS camera, PC based image processing, and a stimulation address system carried out on a Field Programmable Gated Array which addresses a matrix array of LEDs. Special optics are used to focus the light from the LED array onto light sensitized cells. [C2108]

"Effect of Ultrasound Doses on the Amyloid-ГґВџ 25-35 Induced PC12 Apoptosis"

Previous studies have shown that Amyloid-beta (Abeta) may induce the apoptosis of neuronal cells leading to the syndrome of Alzheimer's disease (AD). The stimulation by optical energy was found able to greatly inhibit Abeta induced apoptosis. This study aims to further explore the effect of different doses of ultrasonic insonification on neuronal cells. Experiments were carried out using PC12 cells added with Abeta 25-35 of a 20 muM during pre-cultured preparation. These cells were respectively stimulated by a single and multiple

insonification for three minutes with a 20% duty cycle ultrasound of the intensity of 150 mW/cm2(Sata)- The cellular response was assessed, using the microscopic morphology, cell death measured by the typical MTT assay, and annexin V/PI double stain assay, for 8 times within 72 hours after that cells were stimulated. Results showed that both stimulations by single and multiple does ultrasound may diminish Abeta induced neuronal cells apoptosis. The diminish effects tend to be time dependent corresponding to 72 and 12 hours after ultrasound exposure by single and multiple insonification, respectively. Fluorescence stain results indicated that those cells stimulated by a single dose ultrasound tended to slightly inhibit Abeta-induced PC12 to apoptosis. This study demonstrated that the effect of diminishing neuronal cells from apoptosis could be regulated with the insonation of appropriate ultrasonic doses. [C2109]

"Sterilization Using 365 nm UV-LED"

There are several methods used for sterilization. In those methods chlorine, heat and UV rays are traditionally used. In recent years, the UV sterilization is taken notice as a sterilization method that the sterilized object does not change in quality and is environment-friendly. In this paper, an UV-LED is focused because it does not contain harmful substance and has longer operating life. The results have showed that complete germicidal effects for E. coli and Vibrio parahaemolyticus by UV-LED exposure of 30 minutes and 10 minutes, respectively. These results suggest that the UV-LED has sterilization effects. Therefore, UV-LED can be used as a sterilization device. [C2110]

"Positioning Accuracy of Neurosurgeons"

Accuracy in manual manipulation in a simulated craniotomy environment has been studied. Eighty-eight neurosurgeons with varying amounts of surgical experience were tested in two tasks: attempting to hold an instrument still, and trying to trace a line. Results for RMS and maximum linear and angular motion were measured in the static task. RMS and maximum error were measured in the dynamic task. Spectral analysis was also performed for both tasks. The median RMS amplitude of the position vector in three dimensions was 526 mum in the stationary task, and the median RMS amplitude of the error vector was 289 mum in the tracing task. [C2111]

"Analogue Step-by-Step DC Component Eliminator for 24-Hour PPG Signal Monitoring"

For applications where PPG signal AC component needs to be measured without disturbances in its shape and recorded digitally with high digitalization accuracy, the step- by-step DC component eliminator is developed. This paper describes step-by-step DC component eliminator, which is utilized with analogue comparator and operational amplifier. It allows to record PPG signal without disturbances in its shape in 24-hours PPG signal monitoring system. The experiments with PPG signal have been carried out. [C2112]

"Quantitative modelling of resonant PL in InGaN SQW-LED structure"

The measurement of bias and temperature dependent photoluminescence, photocurrent and their decay times allows to deduce important physical properties such as barrier height, electron-hole overlap and the magnitude of the piezoelectric field in InGaN quantum wells. However the analysis of these experiments demands for a detailed physical model based on a realistic device structure which is able to predict the measured quantities. In this work a self-consistent model is presented based on a realistic description of the alloy and doping profile of a green InGaN single quantum well light emitting diode. The model succeeds in the quantitative prediction of the quantum confined Stark shift and the associated change in the electron-hole overlap measured via the change in the bimolecular decay rate using literature parameters for the piezoelectric constants. The blue shift of the emission under forward current conditions can be attributed to the carrier induced screening of the piezoelectric charges as predicted by the model. [C2113]

"Detection of Terrorist Threats in Air Passenger Luggage: Expertise Development"

Currently, detecting potential threats in air passenger baggage heavily depends on the human examination of X-ray images of individual luggage items. In order to improve the performance of airport security personnel in searching images of air passenger luggage it is important first to understand fully the requirements of the demanding task. Here, an experiment is reported where eye movements of naive observers and screeners were recorded when they searched 30 X-ray images of air passenger luggage for potential terrorist threat items such as guns, knives and improvised explosive devices. Compared with novices, the advantages of the screeners were speed and accuracy in detecting threats. Eye position data revealed that screeners were faster to fixate on target areas and once they fixated on targets their hit rate was significantly higher. Most of the IEDs were missed by both naive observers and screeners due to interpretation errors which indicated the importance of training. Stimulus salience at the first fixation locations of naive observers and screeners was compared to

investigate expertise development. It was found that experience did not change attention preference on stimuli properties at the beginning of the observers visual search. The implications and further studies are discussed. [C2114]

"Application of LED Light Source in NO2 Concentration Measurement"

LED, as a new light source, has high light intensity, low power consumption, long life time, high reliability, and is easy to drive and connect to IC. Now it's taken into application on transportation, advertisement and instrument display. In this paper, the method for its spectrum acquirement has been introduced. And it analyzed its characteristics. The main characteristics that affect its performance are wave length, band width and dominant wavelength. In this paper, LED is applied on NO2intensity measurement with spectral absorption method. The structure of the measurement system and its operating principle is introduced. And this system has the merits of low power consumption and small capacity. The measuring results are reliable. LED can be used in NO2intensity measurement. And with this method, it's possible to make a portable/ real-time measurement system. [C2115]

"New fabrication of organic light-emitting devices by thermal printing method"

The fabrication of organic light-emitting devices (OLEDs) by thermal printing method was demonstrated. The polarized electroluminescence of the fabricated OLEDs were obtained. [C2116]

"Degradation Induced Recombination-zone Shift in Mixed-host Organic Light-emitting Device"

We investigate the degradation phenomena in a mixed-host organic light-emitting device by using an ultra thin red-emitting dopant as the probe for monitoring the recombination rate in the emitting layer. After the current stressing, the recombination peak shifts toward the hole-transport-layer side and the recombination zone becomes broader. [C2117]

"Recent Performance of Nonpolar and Semipolar GaN-Based Light Emitting Diodes and Laser Diodes"

This article discusses recent advances of nonpolar and semipolar GaN-based light emitting diodes (LEDs) and laser diodes (LDs). Devices fabricated on these alternative orientations are already beginning to realize significant performance milestones. Nonpolar GaN has been employed to facilitate high-power LEDs and to realize CW operation of novel AlGaN-cladding-free LD structures. Semipolar GaN has also been successfully used to demonstrate LDs and to realize high-power, high-efficiency green LEDs. [C2118]

"Tunable white light generating nanocyrstal-hybridized LEDs"

We hybridize CdSe/ZnS core-shell nanocrystals on InGaN/GaN near-UV/blue LEDs to generate light widely tunable across the visible spectral range and within the white region of the chromaticity diagram with adjustable tristimulus coordinates. We present the design, growth, fabrication, and characterization of these nanocrystal-hybridized LEDs. [C2119]

"Novel Package Technology of Ultra High Power Light-Emitting Diodes by Electroplating"

First Page of the Article [C2120]

"Flexible Color Moving-Image Displays Using Ferroelectric Liquid Crystal with Polymer Dispersion"

Flexible color moving-image display panels have been developed using polymer-dispersed ferroelectric liquid crystal (FLC). The molecular-aligned polymer networks and walls stabilized FLC molecular behaviors and plastic substrate gap, respectively. The fast-response FLC panel was laminated with a flexible light-guide sheet with three-primary-color LED edge-light for field-sequential color driving method. [C2121]

"High Power and High External Efficiency m-Plane InGaN LEDs"

In this paper, we report on the growth and fabrication of high power and high efficiency nonpolar m-plane (11 macr00) nitride light emitting diodes (LEDs) on low defect density bulk m-plane GaN substrates. The LEDs were grown by MOCVD on free-standing bulk m -plane GaN. All MOCVD growth was performed at atmospheric pressure, at typical V/III ratios (>3000), and at typical temperature ranges (875 to 1185degC). Standard processing was used to fabricate the LEDs. After device fabrication, the LEDs were diced and packaged using standard die and wire bonding techniques and then molded with epoxy. [C2122]

"Reducing the impact of charge carrier induced absorption in organic double heterostructure laser diodes"

In this paper, the transient properties of the pulsed operation of organic DH devices are investigated by numerical simulation. In this virtual device, the optical and electrical material properties are in the range of typical materials used for OLED fabrication. The simulations suggest a pathway to circumvent polaron absorption, which is assumed to be the key obstacle for electrically pumped organic laser diodes. [C2123]

"Recombination Zone Distribution and Current Enhancement in Amibipolar Organic Light-emitting Material"

Recombination zone distribution can be determined by fitting the current-voltage characteristics and spectra of the ambipolar organic light-emitting device (OLED). Besides, a thin probe was inserted at different positions of the device to directly monitor the recombination distributions. Furthermore, it increases the recombination current and improves the power efficiency. [C2124]

"Numerical modelling of Quantum Dot Superluminescent diodes"

A detailed numerical modelling for the analysis and design of quantum dot superluminescent diodes is presented (QD-SLD). The proposed model includes the peculiar characteristics of the QD material system such as the non-homogeneous distribution of the QD size (inhomogeneous gain broadening) and the presence of other states (wetting layer and SCH states) besides the states confined in the QDs. The power vs current characteristics and the output spectra of a 3 mm InAs/GaAs QD-SLD with both anti-reflection coated facets are calculated. [C2125]

"Top Emission Organic Light Emitting Diodes Using Novel Transparent Cathodes"

We have developed semi-transparent metal cathodes and passivation layers which do not render any damages on underlying organic layers in the top emission organic light emitting device (TEOLED) configurations. Optical and electrical properties of these metal cathodes and passivation layers have been investigated. We have achieved high efficiency TEOLEDs using our transparent cathode and passivation layers. [C2126]

"Dense low threshold PQR lasers can outdo LEDs (Blue Quest)"

PQR lasers with ultra-low threshold current and sharp discrete multi-mode properties can outdo conventional LEDs. We have confirmed many advantages of low injection, high efficiency, high frequency PQR arrays over the conventional LEDs. We also present blue PQR laser arrays from GaN structures, which are promising for display applications as well as high efficiency solid state lighting. [C2127]

"P-Substrate Small-Aperture Holey Light-Emitting Diodes for Fiber-Optic Applications"

An oxide-confined holey light-emitting diode (LED) on p-type GaAs substrate in the 830 nm range is reported. The device is consisted of bottom DBR, quantum wells, and top DBR, with a holey structure for light extraction. The internally reflected spontaneous emission can be extracted out of the etched hole. [C2128]

"A new method for measurement of the fundamental device parameters in a GaN-based light emitting diode"

We propose a simple and new method which is able to characterize internal device parameters such as the internal quantum efficiency, nonradiative recombination rate, radiative recombination rate, and the internal carrier density in a light emitting diode. The method utilizes measurements of both the power versus current curve and the carrier lifetime. [C2129]

"A Wavelength Reusable Metro WDM Star Network with a Hybrid MAC Protocol"

In this paper, we introduce a reliable, scalable, and cost-effective wavelength division multiplexing (WDM) network based on a quality of service supporting reservation based medium access control (MAC) protocol. The network efficiency is significantly increased by spatially reusing wavelengths and exploiting multiple free spectral ranges (FSRs) of arrayed waveguide grating (AWG). [C2130]

"Theoretical and Experimental Analysis of Temperature-Insensitive 655-nm Resonant-Cavity LEDs"

Visible InGaP/InGaAlP resonant-cavity light-emitting diodes with low temperature sensitivity output

characteristics were demonstrated. By means of extending the resonant cavity to a thickness of three wavelength (3 lambda), the degree of power variation between 25 and 95degC for the devices biased at 20 mA was apparently reduced from -2.1 dB for the standard structure design (1-lambda cavity) to -0.6 dB. Numerical simulation showed that the insensitive temperature dependence of output characteristics was attributed to the reduced electron leakage current. [C2131]

"Azimuthal Anisotropy of Light Extraction from Photonic Crystal Light-emitting Diodes"

Photonic crystal light-emitting diodes exhibiting anisotropic light extraction efficiency have been investigated experimentally and theoretically. Images of the anisotropy in the azimuthal direction are obtained using annular structures with triangular lattice. Depending on the lattice constants, 6-fold symmetric patterns with varying number of petals are obtained. [C2132]

"LCD: Future Prospects and Impact on Human Lifestyle"

Summary form only given. Displays serve as the main interface between "humans", who are at the center of information society, and "machines", or information processing systems. Displays have over 100 years of history, starting from the invention of the CRT (cathode ray tube) in 1897. After the CRT, several other types of display devices, including LCD, PDP, FED, and OLED displays, were developed and commercialized. Although liquid crystal material was discovered 150 years ago, LCDs have been under development for only 30 years, and TFT-LCD, which is now the mainstream display device, has been undergoing commercialization for only 20 years. In the evolution of the information society, TFT-LCD has been the most successful display device because of its ability to provide timely and cost-effective display performance and functionality. Among the many display technologies, only TFT- LCD technology enables manufacture of displays spanning from 1 inch to over 100 inches diagonal size. This scalability has contributed to an expansion of applications. The technological advantages of LCDs ensure they maintain a market leading position, while also offering promise of continued expansion of displays into new applications. Looking back on the past ten years, there have been three great "waves" in the TFT-LCD industry. These are the success of the notebook PC in the late 90s, the replacement of CRT monitors by LCDs after 2000, and the recent rapid growth of large size LCD-TVs. Ubiquitous applications result in display devices becoming ever more important in our lives. The TFT-LCD industry is now preparing for the 4thwave, which is enormous compared to the previous waves. LCD technology evolution and continuous innovation were stimulated by new demand as the technology moves toward "anytime, any where, anysize" ubiquity. [C2133]

"Observation of Micro-Bubbles Generated by Laser-Induced Breakdown in Water"

Discriminations between extraneous material and bubbles in liquid is important in the field of medical industry. We have generated micro-bubbles by YAG laser-induced breakdown (LIB) in water. We observed bubbles generated by LIB, and characterized them in size and light scattering. [C2134]

"Narrowed Edge Emission spectra from Leaky Modes of Multi-Layer Dielectric Waveguides"

We present spectrally narrowed edge emission from multi-layer waveguides in organic light-emitting diodes (OLED). For TE modes, narrowed spectral peaks with only 4 to 10 nm of full width at half maximum (FWHM) are obtained. We explain the narrowing nature using leaky waveguide modes. [C2135]

"Characterization of Novel Holographic Gratings Formed with Hyper-branched Silsesquioxane Systems"

A transparent photopolymer film was prepared by embedding the epoxy cured octaaminophenyl silsesquioxane (hyper-branched POSS) into poly(vinyl chloride) (PVC) matrix containing vinyl monomers. Holographic gratings with 80% diffraction efficiency were successfully generated in that films by irradiation of laser light with 532 nm wavelength. [C2136]

"GaN-diode pumped Pr3+ :ZBLAN fiber-lasers for the visible wavelength range"

This article presents a work on Pr3+:ZBLAN-fibers, where GaN-laser diodes emitting at 443 nm are used to directly pump the fibers. Lasing is achieved at different transitions at red, cyan and green wavelengths. These visible transitions make this laser an interesting candidate for the light source in projection and display applications. [C2137]

"Flexible lock-in detection system based on synchronized computer plug-in boards applied in

sensitive diode-laser gas spectroscopy"

A flexible and compact digital lock-in detection system, with software-based balanced detection for tuneable diode-laser spectroscopy measurements is described. The system is based on two data acquisition cards for a standard computer. One data acquisition card contains a software-controlled arbitrary waveform generator (CH-3150, Exacq Technologies) that is used for laser modulation. A pigtailed single mode VCSEL laser (L2K-P760-LD-SM, Laser2000) is used to scan across oxygen lines at about 760 nm. After the laser, the light is split by a single-mode fiber splitter. The scanning frequency is typically 130 Hz and a sinusoidal modulation of about 132 kHz is applied. [C2138]

"Nanostructured metallic electrodes for optoelectronic devices"

Recently, arrays of subwavelength slits or holes in metal films have attracted a lot of interest due to the anomalously high transmission of light. The properties of the transmission resonances can be controlled by the periodicity and the width and height of the slits/holes in the array. Our aim is to employ the plasmonic effects in the design of metal-semiconductor-metal (MSM) photodetectors and light emitting diodes. [C2139]

"Analysis of fractal dimension of light scattering in polyhedral mirror-ball structures"

We experimentally observed fractal patterns in polyhedral mirror-ball structures and analyzed fractal dimension of the basin boundaries by using models. Regular-tetrahedral mirror-ball structures have been already proposed as a chaos mirror and a three-dimensional optical billiard, in which the centers of four spherical reflectors are located at the vertices of a regular tetrahedron. We extended the regular-tetrahedral mirror-ball structure to a regular-hexahedral (cubic) mirror-ball structure. We used a commercially available software for the calculation of the box-counting dimension of the fractal patterns. We found that the fractal dimension increases as the number of surface of the polyhedral structures increases, except dodecahedron. [C2140]

"Strong Light Extinction by a Single Molecule"

In this paper direct measurements of light extinction by single molecules are reported. We use both near-field aperture tips and confocal microscopy at cryogenic temperature to tightly confine the excitation light to an area comparable to the absorption cross section of a single molecule, which results in directly observable 10% extinction of the laser beam. It is concluded that the access to both the incoherent and coherent emission of single molecules opens up a broad range of studies on the light-matter interaction of single solid state emitters. [C2141]

"Techniques to Improve MWIR Light Emitting Diode Emission Power"

This paper presents some techniques to increase mid-wave mid-infrared (MWIR) light emitting diode (LED) light emission in the 3-4.5 mum wavelength regions using the Inter-band cascade structure. MWIR LEDs show practical applications in infrared scene generation, infrared counter measures, spectroscopic chemical and biological monitoring, medical diagnostics, and gas sensors. [C2142]

"High-efficiency light-emission from novel GaAs deep-centers for high-speed 1.5 μm fiber-optics"

We demonstrate the first LEDs at 1.3-1.5 μm using GaAs deep-centers having higher (90%) efficiencies and larger Einstein B-coefficients than bulk InGaAs. An observed absence of deep-center self-absorption (Franck-Condon shift) could make possible near-zero threshold lasers. [C2143]

"The Site Selectivity of the E-beam Excitation of Eu ion in GaN"

GaN is a very promising semiconductor host for rare-earth (RE) based electrically-pumped light emitters. Recently, simulated emission in Eu-doped GaN has been reported under optical excitation, rekindling the hope that an electrically-pumped rare-earth-doped semiconductor laser can be realized. In these laser experiments performed under pulsed UV excitation, it was noted that by changing the resonator length the emission wavelength is shifting suggesting that different types of Eu ions are contributing emphasizing the importance to understand the excitation mechanism for different incorporation sites of the ion. This is the purpose of this work. [C2144]

"Non-radiative decay processes in Er3+ organic complexes"

A model for the non radiative de-excitation of Er3+ions in erbium(III)tris(8-hydroxyquinoline) based on the energy transfer process between the 4I13/2-4I15/2transition of Er3+and C-H stretching overtones is developed. The spectral overlap between near infrared emission and ligand's C-H groups overtones absorption is evaluated.

Experimental near infrared photoluminescence decay is obtained. [C2145]

"68-fs passively mode-locked diode-pumped Yb3+ :CaGdAlO4 laser with an average power of 520 mW"

Yb3+:CaGdAlO4is directly pumped with a 15 W 100 mum core fiber-coupled laser diode (LIMO) emitting around 980 nm. Two Gires-Tournois interferometers, each providing a negative group-velocity dispersion of -550 fs2, are inserted in the cavity to compensate the dispersion introduced by the crystal. A semiconductor saturable absorber (SESAM) is used to initiate and stabilize the passive mode-locked regime. To avoid a post compression, all the mirrors in the cavity mirrors were replaced by low GVD mirrors. The highest average power has been obtained with a 5% output coupler. [C2146]

"Modeling and Design of a Highly Compact Chaotic Cavity for Optical Gas Sensing Applications"

We present a novel class of compact, robust, and potentially cost-effective chaotic cavities for trace-gas sensing applications. The cavity consists of a single, closed, reflecting surface and can support up to 15.5 meter of optical path length with a cavity volume of only 68 cm3. The design is based on quasi-chaotic ray dynamics in a 3-dimensional (3-D) deformed sphere. Within the cavity, light traces out a quasi-stable trajectory that has been improved to achieve long optical path length and little beam overlap. The results show that the proposed chaotic cavity effectively refocuses the beam as the light bounces off the cavity wall. We modeled, fabricated, and tested a prototype cavity. The chaotic cavity can successfully achieve a 40-pass trajectory with a pulsed AlGaInP diode laser emitting at 661 nm. The experimental results agree well with calculations. [C2147]

"Field-deployable microfluidic sensor for phosphate in natural waters"

A microfluidic sensor for long-term monitoring of phosphate levels has been developed incorporating sampling, reagent and waste storage, detection, and wireless communication into a compact and portable device. The sensor is based on the yellow method for phosphate determination, a simple colorimetric technique involving the formation of vanadomolybdophosphoric acid when a phosphate-containing sample is mixed with an acidic reagent containing ammonium molybdate and ammonium meta vanadate. The sensor has been applied to on-site analysis of effluent from a wastewater treatment plant. The data was validated by comparison with the plant's existing online monitor, and a good correlation between the two sets of data was achieved, showing that the phosphate sensor is capable of operating satisfactorily at low mg L-1levels over extended periods. [C2148]

"Are organic LEDs and Lasers similar to inorganic devices?"

In this paper, we compare chemically prepared materials to those grown under high vacuum conditions (MOCVD, MBE, etc.). We also compare colloidal grown semiconducting nanocrystals to quantum dots and thin film organic devices to inorganic ones. We also show that unique properties of organic materials emphasize different physical processes such that when a non ab-initio model is used, like in any device analysis, the device-physics looks different. We touch upon device analysis and design which are unique to organic devices and emphasize the way "abundant-models" can be modified/extended to allow engineering work. [C2149]

"Emission characteristics of high power LEDs studied by confocal microscopy"

We have developed a method that allows us to measure the emission profiles of millimetre-sized high-power light emitting diodes with micron resolution. The optical cross-sections recorded provide detailed information on the light intensity distribution of LEDs within the substrate till a distance of several tens of millimetres, which can be used to map out strategies for an optimization of the power efficiency or the tailoring of the light distribution of high power LEDs. [C2150]

"Black-Box Identification of a Grating-Stabilized External-Cavity Diode Laser"

Diode lasers have many useful properties and have found a variety of uses including CD and DVD players, barcode scanners, laser surgery, water purification, quantum-key cryptography, spectroscopic sensing, etc. Nevertheless, their intrinsic linewidth, or the precision of their emitted wavelengths, is not good enough for many cutting-edge applications such as atom interferometry or high-performance atomic clocks. Using active feedback control we can narrow the linewidth of a diode laser, not allowing the frequency of emitted light to drift away from a reference value. Nevertheless, such feedback designs are challenging because of a lack of first principles models and difficult sensor dynamics. This paper describes our diode laser system and reports our results identifying the system using black-box techniques. [C2151]

"Low Cost Quantum Secret Key Growing for Consumer Transactions"

We present the design and development of a novel free-space quantum cryptography system complete with purpose-built software that can operate in daylight conditions. Current commercial quantum cryptography systems are expensive, use purpose-built components and are made-to-order. [C2152]

"A simple, extremely large bandwidth, modulator-free QKD system"

In this paper we propose and analyze a continuous variable QKD system that uses thermal light (or amplified spontaneous emission, or ASE) as a source of inherently Gaussian-modulated, truly random light (from an optical amplifier or an LED) and requires no modulators. This greatly simplifies experimental implementation and can lower system cost. Furthermore, it is easily scalable to higher bandwidths. [C2153]

"Photo-ionization mass spectrometry for on-line analysis of organic compounds in human breath and in tobacco smoke upon inhalation"

Soft photo ionization mass spectrometry was applied successfully for on-line characterization of organic compounds in tobacco smoke during the smoking process (including mouth space measurements) and in the exhaled breath. [C2154]

"Compact SPR Gas Sensor for Mobile Robot Olfaction Using Metal Nanostructure and LED Light Source"

This paper reports on the development of compact surface plasmon resonance (SPR) sensors to be used for mobile robot olfaction. The proposed sensor uses a periodic metal structure formed on top of the self-assembled layer of polystyrene particles of 200 nm in diameter. With the grating of this size, SPR can be excited even with an LED light source. The change in the absorbance is simply measured using a photodiode. The experimental results are presented on a silver nanostructure sensor and a gold nanostructure sensor to show the potential of these sensors. [C2155]

"A Novel Ring Shaped Photodiode for Reflectance Pulse Oximetry in Wireless Applications"

We present a pulse oximeter for use in home-care applications in a sticking patch with integrated electronics. The core in the pulse oximeter is a large ring shaped backside silicon pn photodiode placed around a Ledtronics dual LED with wavelengths of 660 nm and 940 nm. The concentric photodiode gives optimal gathering of light and thereby enabling lower LED drive currents and lower power consumption. To further optimize the photodiode a two layer SiO2/SiN interference filter is employed yielding 98% transmission at the wavelengths of the LED and damping of other wavelengths. The presented photodiode has an inner-outer radius of 3.29 -4.07 mm and an area of 18 mm2, however, photodiodes with ring center radii ranging from 2.8 -4.9 mm have been fabricated. Using the pulse oxymetry sensor photoplethysmograms clearly showing the cardiovascular cycle are recorded. An on-chip integrated Au thermistor for surface body temperature measurements is found to have a repeatability of plusmn0.26degC. [C2156]

"The layout design of LEDs in an LED-based reading light system using a Genetic Algorithm"

We present a genetic algorithm (GA) to design an optimal layout of LEDs for an LED-based reading light system with an irregular Fresnel lens to improve the traditional layouts of LEDs in the system performances of illuminance, uniformity, and heat dissipation. [C2157]

"Characteristics of Ti-doped sapphire for fluorescence thermo-sensor"

Fluorescence thermometer based on peak intensity of photoluminescence (PL) is evaluated using Ti doped sapphire (Al2O3) crystal. Broad PL peak is seen at lambda=725 nm. PL peak intensity is found to be sensitive to temperature. Fluorescence thermometer based on temperature dependence of PL peak intensity is reported using Li doped sapphire crystal. [C2158]

"CMOS-integrated flip-chip, micro-pixel InGaN LED arrays for on-chip microfluorimetry"

4times16 arrays of micro-pixellated InGaN LEDs, each of diameter 72 mum, have been flip-chipped onto CMOS driver backplanes which also contain single-photon avalanche photodiodes. Pattern-programmable control is demonstrated in continuous and nanosecond modes. Such devices show promise as miniaturized excitation and detection systems for microfluorimetry studies. [C2159]

"Flatten and invariant broadband spectra of transverse junction light- emitting diodes under a large range of bias current at 1.06 μm wavelengths"

Transverse junction white-light light-emitting-diodes at 1.06 μm wavelengths with different p-type junction depths were employed to achieve similar and invariant broadband spectra under large range of bias currents due to uniform distribution carriers of in their multiple-quantum-wells. [C2160]

"Micro-pixel flip-chip AlInGaN LED arrays with high CW and nanosecond output power"

Flip-chip AlInGaN micro-LED arrays with different wavelengths and pixel diameters have been fabricated, giving, per pixel, CW output power densities up to 32.5 W/cm2at 20 mA and pulsed output of up to 150 pJ in 36 ns pulses. [C2161]

"Phosphor-Free GaN-Based Cascade Transverse Junction Light Emitting Diode Arrays for the High-Power Generation of White-Light"

By utilizing GaN based four cascade transverse p-n junctions with blue/green multiple-quantum-wells, demonstrated phosphor-free device can eliminate current crowding problem and generate near visible white-light spectra with invariable shape under a wide range of bias current. [C2162]

"Integration of CMOS and MEMS Technologies in the Development of a Neural Imaging and Interface Device: Showcase of an Emerging Bioimaging Technique"

Previously, we reported a new neural imaging approach based on a CMOS imaging device. Using the device, we demonstrated real-time in vivo protease imaging inside the mouse hippocampus. In this work, we explore MEMS microfabrication technologies to develop a next generation device. By embedding electrodes onto the sensor chip and improving the packaging process, we have realized a single device capable of imaging and neural interface. Pt electrodes are embedded onto strategic sites on the image sensor for electrical stimulus and recording. On-chip fluorescence imaging is realized by integrating LED chips and coating the device with a corresponding excitation light filter. Tests were carried out to characterize fluorescence imaging and electrical current injection capability of the device. These tests show that the device can be used for simultaneous imaging and stimulation inside the brain. We have also tested the device in vivo and verified physiologically that the brain continued to function normally with the device implanted inside. [C2163]

"Optical system for flashover prediction in high voltage transmission lines"

Leakage current detection is a promising method for measuring pollution levels on insulators of overhead transmission lines. This paper describes the development of a leakage current sensor based on a light emitting diode (LED) as well as the development of a processing module that detects and stores the most important components of the leakage current signal. The relative humidity is also detected and stored for further analysis. The sensor is constructed with a single LED coupled to an optical fiber. The processing module uses a PIC 16F877A microcontroller and can register leakage current peak rates during two months in three different levels. [C2164]

"A study on GOOSE communication based on IEC 61850 using MMS ease lite"

IEC 61850 "communication networks and systems in substation" is not only the most advanced and universal standard for communication but also a comprehensive system oriented standard for substation automation system (SAS). The feature of IEC 61850 is that it covers communication, qualitative properties of engineering tools, measures for quality management, and configuration management. Based on high speed peer to peer communications (publisher/subscriber concept), the generic object oriented system event (GOOSE) is a model to transmit status information in fast way to multi devices, and is applied to trips, blockings, and all indications for automatics. The paper presents a study about communications in SAS and supplies a detailed analysis of the process of transferring GOOSE message supported by MMS EASE Lite tool from the user's view point. The experiment results show the advantage of using such communication and MMS EASE Lite tool. [C2165]

"White CdS Nanoluminophore based Tunable Hybrid Light Emitting Diodes"

The study aims to fabricate and demonstrate hybrid white light emitting diodes that integrate white emitting CdS nanoluminophores with high light quality. Results show that the white light properties of these hybrid WLED (including (x,y) chromaticity coordinates, color temperature, and color rendering index (Ra)) are conveniently tuned as desired across the white region by controlling the number of these surface state emitting nanoluminophores hybridized on the n-UV LED platform. In this tuning process, with the increasing number of

the hybridized surface state emitting nanocrystals, it is observed that (x,y) and Raincrease while Tcdecreases. [C2166]

"Design of a photoplethysmographic sensor for biometric identification"

Photoplethysmographic (PPG) signals contain rich personal information that can be used to distinguish individual subjects. This paper discusses the design of an analog amplification circuit for PPG signals to remove the DC component of the signal. By adding an amplifier bias-adjusting circuit, a high signal-to-noise ratio AC signal can be acquired from the raw PPG signal. This hardware improvement results in better signal quality and makes identification data-processing easier. [C2167]

"Wavelength detection using narrowband reflectance filters"

We have developed a novel system to detect the wavelength of an optical beam that is compact, inexpensive, yet capable of extremely high wavelength resolution. The system is comprised of a one- dimensional photonic crystal slab (PCS) narrowband reflectance filter operating as a position sensitive sensor and a linear charge-coupled device (CCD) sensor array. Depending on the wavelength of the incident light, the PCS provides a transmission minimum at different locations along its length, as shown in Fig. 1. The position of the transmission minimum is recorded by the CCD sensor array and is used to determine the incident wavelength. Using this technique, we show that wavelength changes as small as 0.011 nm can be resolved. Such a system could be utilized for a wide variety of applications including spectroscopic identification of compounds and rapid testing of light emitters such as light emitting diodes (LEDs) and Organic LEDs, in a compact and economical fashion. [C2168]

"An Experimental Platform for Evaluating Color Breakup Phenomenon"

An RGB-LED-backlit LCD was implemented for psychophysical study of color breakup phenomenon. The backlight module can generate colors either sequentially or simultaneously to assess human subject's detectability of color breakup phenomenon. [C2169]

"Optical Properties of Ru(dpp)3 for Phosphorescence Biosensors"

The saturation intensity and photobleaching lifetime of tris(4,7-diphenyl-1,10-phenanthroline) ruthenium(II) chloride (Ru(dpp)3) are measured and applied to the design of oxygen sensitive optodes for enzymatic biosensors. Photobleaching limits the excitation intensity in practical sensor systems. [C2170]

"High-Quality White Light Generation using Dually Hybridized Nanocrystals and Conjugated Polymers"

Hybridizing different sizes of CdSe/ZnS core-shell nanocrystal emitters layer by layer with highly fluorescent polyfluorene as conjugated polymer on n-UV InGaN/GaN LEDs, we achieved high-quality white light with color rendering index > 80, fulfilling the future solid state lighting requirement. Here we also demonstrated the ability to tune the white light properties as desired by carefully designing and realizing the hybrid device parameters including the type and film thickness of closely-packed NC emitters, the concentration and film thickness of polymer emitters, and the order of NC and polymer films. Given their high light quality and tunable optical properties, these hybrid organic-inorganic white light sources provide a high potential for future lighting and display applications. [C2171]

"Polymeric, Electrically Tunable Optical Elements based on Artificial Muscles"

We present a technology for the implementation of electrically tunable diffractive optical elements. Integrated into displays, such electroactive polymer based optical elements enable the reproduction of all perceivable colors. [C2172]

"Failure Mechanisms Associated with Lens Shape of High-Power LED Modules in Aging Test"

High-power LED modules encapsulated with different lens shapes after a thermal-aging test were studied experimentally and numerically. Samples from different manufacturers were aged at 80, 100, and 120degC under a constant driving voltage of 3.2 V. The results showed that the LED modules encapsulated with a hemispherical-shaped plastic lens exhibited a better lifetime due to their better thermal dissipation than those with cylindrical- or elliptical-shaped plastic lenses. Results also showed that the optical power of the LED modules increased after removing the plastic lens, because the degradation of the material of the plastic lens decreased the amount of light. The key module package related failure modes under thermal-aging were

identified as the degradation of the plastic lens and lens material. A finite-element method (FEM) showed that the thermal and major principle stress distributions of the LED modules were significantly dependent on the aging temperature. Both experimental and FEM simulated results clearly indicated that a uniformly thermal dissipation to minimize the thermal effect along the thermal path from the LED chip to the plastic lens is essential to extend the operating life of high-power LED modules. [C2173]

"Organic Photodetector Focal Plane Arrays Fabricated on Hemispherical Substrates by Three-Dimensional Stamping"

We demonstrate a new approach to print organic photodetector arrays on 3D transparent plastic substrates. A 15x15 matrix with a feature size of 500 mum is fabricated, with dark current density is 3.1 muA/cm at -IV. [C2174]

"Simulation of light emission from a semiconductor nanowire/nanotube"

An optical modeling of light emission from a cylindrically layered semiconductor nanostructure is presented. The internal quantum efficiency and the assignment of total emission to lateral-surface emission and waveguide emission of a ZnO nanowire and a ZnO nanotube are studied and discussed. [C2175]

"Optical Gain Analysis of Staggered InGaN Quantum Well Active Regions for Lasers Emitting at 420-500 nm"

Staggered InGaN quantum wells are analyzed as improved gain media for laser diodes emitting at 420-500 nm, with enhancement of -48% in the peak gain and differential gain for the staggered structure emitting at 460 nm. [C2176]

"Nitride-Based UV Lasers"

The ultraviolet (UV) laser diode (LD) is attracting much attention for various novel applications such as in medical engineering, sterilization and high density optical storage. Group III nitrides are one of the most promising candidates to realize UV LD. The external quantum efficiency of group-III nitride-based light-emitting diodes (LEDs) with emission wavelength shorter than 360 nm is still far inferior to that of nitride-based visible-short-wavelength LEDs. Simulation results show that there is no theoretical barrier which hiders the realization of short wavelength UV LDs (Chow, 2005). At the moment, however, the shortest emission wavelength of nitride-based LD is limited to 343nm on SiC (Edmond, 2004) and 350.9 nm on a sapphire substrate (Iida, 2004). In order to overcome the barrier for emission wavelength and to realize much shorter wavelength UV LDs, in addition to the control of conductivity for both n-type and p-type layers, the growth of low-dislocation-density high-Al-content AlGaN with low internal loss is essential. [C2177]

"Multilayer white organic light emitting diode with optimum emitting layer sequence"

Yellow organic light emitting diode (OLED) with red/green emitting layer (EML) sequence showed higher efficiency than device with green/red EML sequence because of the electrical carrier conduction difference in EMLs. Based on this result white OLED with additional blue emitter was demonstrated with maximum efficiency of 18.3 cd/A at 100 cd/m2and good color stability. [C2178]

"Improved Photoluminescence of InGaN Quantum Wells Grown on Nano-Patterned AGOG Sapphire Substrate by Metalorganic Vapor Phase Epitaxy"

Metalorganic vapor phase epitaxy of InGaN quantum wells on GaN template grown on nano-patterned AGOG sapphire substrate leads to improved luminescence intensity by 1.89-2.21-times, presumably due to the reduced defect density. [C2179]

"Recent Performance of Nonpolar/Semipolar GaN-based Blue LEDs/LDs"

Violet InGaN/GaN light emitting diodes (LEDs) was fabricated on semipolar GaN bulk substrates. The output power and external quantum efficiency at a driving current of 20 mA were measured. The first nonpolar m-plane nitride laser diodes (LDs) were realized on low extended defect bulk m-plane GaN substrates. [C2180]

"Human factors studies evaluating synthetic and peripheral vision displays in general aviation"

General aviation (GA) accidents occurring due to lack of orientation awareness in space have increased considerably in the past decade [1]. Spatial disorientation limits a GA pilot's ability to detect and recover quickly

from unusual attitudes. At the DASC 2006 our paper titled "flight test evaluation of synthetic and peripheral vision displays in general aviation" described an initial study into the use of Synthetic and Peripheral Vision displays for minimizing spatial disorientation [1]. This paper presents a follow-on study consisting of a series of human factors flight trials evaluating a prototype synthetic and peripheral vision display system. [C2181]

"Formation of InGaN self-assembled quantum dots on GaN by metal-organic chemical vapor deposition with NH3 periodic interruption growth"

Self-assembled InGaN QDs on GaN epi-layer were grown by metal-organic chemical vapor deposition. In the growth of InGaN QDs, NH3was supplied in cyclic interrupted mode with interval of 3 seconds and 5 seconds. This work enables the fabrication of dense, uniform InGaN QDs, and is potentially applied to optical materials systems. [C2182]

"Influence of strong reverse-bias on the leakage behavior of light-emitting diodes"

Leakage current is an important property in InGaN light-emitting diodes (LEDs). An LED chip is operated using strong reverse-bias to increase its leakage current. The leakage current behavior of the operated LED chip is compared with that of an unoperated LED chip. [C2183]

"Junction temperature measurement of light-emitting diodes by voltage-temperature relation method"

The voltage-temperature relation of a light-emitting diode is adopted to determine the junction temperature. This study compares two different methods for junction temperature measurement. Both methods yield results are consistent with the largest difference being only 3.5 K. [C2184]

"Characteristics of ultraviolet nonpolar InGaN/GaN light-emitting diodes using trench epitaxial lateral overgrowth technology"

Ultraviolet nonpolar InGaN/GaN light-emitting diodes were grown on trench epitaxial lateral overgrowth (TELOG) a-plane GaN template by metalorganic chemical vapor deposition. Electroluminescence measurements revealed main peak at 373 nm when injection current was 40 mA. Furthermore, cathodoluminescence observed the low-defect density wings emitted 373 nm peak and the TELOG coalescence areas emitted 443 nm due to different incorporation of indium Meanwhile, polarization measurement shown a degree of ultraviolet peak is 28.7%. [C2185]

"The Reflectivity enhancement of Ni/Ag/(Ti or Mo)/Au Ohmic Contact for Flip-Chip Light-Emitting Diode Applications"

The proposed multilayer structures Ni/Ag/M/Au, with blocking metal (M) of Ti and Mo, to form both ohmic and reflective contact for flip chip light emitting diode (FCLED) application, are fabricated. During the annealing process of conventional three-layer Ni/Ag/Au contacts, serious Au intermixing with Ag and Ni was found to result in poor reflectance (63% at the wavelength of 465 nm). It is found that the inserted (between Ni/Ag and Au) diffusion barrier (Ti or Mo) can block Au inter diffusion effectively and hence improves the correspondent FCLED reflectivity (as high as 93%). [C2186]

"Carrier dynamics in ZnO nanorods revealed by pump-probe and the time-resolved photoluminescence"

Using a mode-locked Ti:sapphire laser, we have performed time-resolved pump-probe and PL measurements for ZnO nanorods of which the size were determined to be 30-40 nm in diameter and about 1 mum in length by filed-emission scanning electron microscopy (FESEM). The excited carrier dynamics was analyzed from the complementary time-resolved processes in pump-probe and PL. [C2187]

"Self-sssembly and morphology control in a swarm-bot"

This paper proposes a distributed control mechanism for a self-propelled self-assembling robotic system that allows robots to form specific, connected morphologies. Global morphologies are 'grown' using local visual perception only. The robots in the system do not have access to a blueprint of the global pattern and the algorithmic rules are solely based on what a single robot can see in its immediate surroundings. None of the robots have any predefined position in the final morphology, except for the seed robot that initiates the self-assembly process. Robots that are part of the connected entity indicate where new robots should attach in order to grow the local structure appropriately. The paper demonstrates the efficacy of the mechanism by letting

groups of up to 9 real robots self-assemble into four different morphologies: line, star, arrow, and dense. [C2188]

"Semiconductor Nanowire Lasers"

Semiconductor nanowires can function as both gain medium and optical cavity, and thus represent a unique class of miniaturized laser sources for the assembly of nanoscale photonic systems. In this talk we will review the rational design and synthesis of nanowires and nanowire heterostructures as laser sources, describe how their structure design interplays with optical properties, and discuss exciting device applications. Group III-nitride nanowire structures will be used as a model system to illustrate our approach towards nanowire lasers. First, the general synthetic strategy for rational growth of semiconductor nanowires and the underlying physical mechanism of lasing in these materials will be reviewed. Second, structural characterization and photoluminescence studies of homogeneous GaN nanowires will be discussed. These studies will illuminate how basic structural characteristics affect threshold for ultraviolet room-temperature lasing in these homogeneous structures. Third, multicolor nanowire lasers based on InGaN multi-quantum well (MQW) radial nanowire heterostructures will be described. Cross-sectional transmission electron microscopy studies allow direct visualization of well-defined internal interfaces and demonstrate our ability to control quantum well growth down to atomic level. These functional nanowire structures were optically pumped individually to lasing from 380 to 494 nm at room temperature, depending on the alloy composition of MQWs. Key factors contributing to the lasing threshold were evaluated by three-dimensional finite-difference time-domain calculations. Last, current injection schemes for electrically-driven nanowire light-emitting diodes/lasers with the emphasis on n-GaN/InGaN MQW/p-AlGaN/p-GaN radial nanowire heterostructures will be discussed. [C2189]

"Robustness and self-repair in modular robots"

This video shows an uncut sequence of a 15 module robot in a bi-pedal configuration subject to a variety of disturbances yet staying on task. As the robot walks, a large disturbance is introduced. A human kicks the robot in its midsection causing the robot to fall into three separate clusters of five modules. Each of these pieces diagnose their state sensing gravity and their connectedness. They each perform a self-righting maneuver, then begin to search for each other. This is a first demonstration towards the development of solving larger self-reassembly problems that include greater levels of randomization and entropy (more pieces more widely distributed.) The 2006 Robotics Science and Systems workshop on self-reconfigurable robots developed as one of the grand challenges for this area, the ability to survive and self-repair after an explosion. This work will push the technologies required for integrated sensing, localization, distributed control, under highly unstructured conditions. [C2190]

"Layout guidelines for optimized ESD protection diodes"

In this work, various layout options for ESD diodes' PN junction geometry and metal routing are investigated. The current compression point (ICP) is introduced to define the maximum current handling capability of ESD protection devices. The figures-of-merit ICP/C and RON*C are used to compare the performance of the structures investigated herein. [C2191]

"Use of coded infrared light as artificial landmarks for mobile robot localization"

This paper presents mobile robot localization using coded infrared light as artificial landmarks. Different from RFID, identification using infrared light has highly deterministic characteristics. IRID(infrared identification) is implemented with IR LEDs and photo transistors. By putting several infrared LEDs on the ceiling, the floor is divided into several sectors and each sector is set to have a unique identification. The coded infrared light tells which sector the robot is in, but the size of the uncertainty is still too large if the sector size is large, which usually occur. Dead-reckoning provides the estimated robot configuration but the error is getting accumulated as the robot travels. This paper presents an algorithm which fuses both the encoder and the IRID information so that the size of the uncertainty becomes smaller. It also introduces a framework which can be used with other types of the artificial landmarks. The characteristics of the developed IRID and the proposed algorithm are verified from the experiments. [C2192]

"Metamaterials for automotive applications"

In this paper, topology design optimization for electromagnetic materials, a left- handed leaky wave antenna for millimeter-wave applications, and left-handed dipole antennas have been presented along with some thoughts for future investigation. All have been the subject of recent metamaterial studies at TCRL and TEMA. Metamaterials will clearly open up a whole new field for automotive electronics applications. [C2193]

"The Optical Beacon Calibration System of the ANTARES Neutrino Telescope"

The ANTARES collaboration is about to finish the construction of an underwater neutrino telescope at 2500 m depth in the Mediterranean Sea. The aim of the ANTARES telescope is the detection of high-energy cosmic neutrinos using a 3-dimensional array of 900 photomultipliers distributed in 12 lines. These photomultipliers collect the Cherenkov light induced by the muon produced in the neutrino interaction with the surrounding matter. In order to achieve a good angular resolution, the detector requires a relative time calibration of the order of ~ 0.5 ns. Intending to calibrate the detector at subnanosecond level, a set of pulsed light emitters called Optical Beacons has been designed. They consist of a source of light (LED or laser) with a well- known time emission. The design of these devices and the results obtained with this system will be presented. [C2194]

"Investigation of soliton generation in nonlinear left handed transmission lines"

In this paper we address the issue of nonlinear left-handed (LH) metamaterials and the possibility of using these structures for practical applications. In more detail, we are qualitatively investigating the effect of nonlinearity and dispersion of a left-handed nonlinear transmission line (LH-NLTL) loaded with varactor diodes for the purpose of generating solitons. In RF engineering, solitons have been successfully used for pulse compression transmission lines and harmonic generators. [C2195]

"In-vivo pan/tilt endoscope with integrated light source"

Endoscopic imaging is still dominated by the paradigm of pushing long sticks into small openings. This approach has a number of limitations for minimal access surgery, such as narrow angle imaging, limited workspace, counter-intuitive motions and additional incisions for the endoscpic instruments. Our intent is to go beyond this paradigm, and remotize sensors and effectors directly into the body cavity. To this end, we have developed a prototype of a novel insertable pan/tilt endoscopic camera with an integrated light source. The package has a size of 110 mm in length and 10 mm in diameter and can be inserted into the abdomen through a standard trocar and then anchored onto the abdominal wall, leaving the incision port open for access. The camera package contains three parts: an imaging module, an illumination module, and a pan/tilt motion platform. The imaging module includes a lens and CCD imaging sensor. The illumination module attaches to the imaging module and has an array of LED light sources. The pan/tilt platform provides the imaging module with pan of 120 degrees and tilt motion of 90 degrees using small servo motors. A fixing mechanism is designed to hold the device in the cavity. A standard joy stick can be used to control the motion of the camera in a natural way. The design allows for multiple camera packages to be inserted through a single incision as well. [C2196]

"Divergence-Ratio Axi-Vision Camera (Divcam) a distance mapping camera"

A novel distance mapping camera, the divergence-ratio axi-vision camera (Divcam), is proposed. The decay rate of the illuminating light with distance due to the divergence of the light is used as a means of mapping the distance. Resolutions of 10 mm over a range of meters and 0.5 mm over a range of decimeters were achieved. Special features of this camera are its high resolution, real time operation, simplicity, compactness, light weight, portability, and yet low fabrication cost. [C2197]

"Evaluation of the performance of SCM-based access networks using the spectrally-sliced ASE from a semiconductor optical amplifier"

We report on the distribution of SCM signals using the spectrally-sliced amplified spontaneous emission (ASE) from a SOA. Also, we have developed a model for the ASE, and have obtained good agreement with the measurements. [C2198]

"Multi-Use Light Engine-Fast Projection"

This demonstration shows a display device delivering thousands of binary frames per second. Binary images are delivered over a standard DVI interface and can be created on the fly in real time on an nVIDIA graphics Card. The images are synchronous to the input and triggers for LED illumination, camera shutters, or motion control can be created. This system can be configured into a projector of into other forms. [C2199]

"Focal Pre-Correction of Projected Image for Deblurring Screen Image"

We propose a method for reducing out-of-focus blur caused by projector projection. In this method, we estimate the Point-Spread-Function (PSF) of the out-of-focus blur in the image projected onto the screen by comparing the screen image captured by a camera with the original image projected by the projector. According to the estimated PSF, the projected image is pre-corrected, so that the screen image can be deblurred. Experimental

results show that our method can reduce out-of-focus projection blur. [C2200]

"703-nm InGaAsP Quantum-Well Ridge-Waveguide Lasers"

An InGaAsP/AlGaInP quantum-well (QW) laser emitting at 703 nm on a GaAs substrate was demonstrated. Although quaternary InGaAsP is reported to have an immiscible region, compressively strained, thin InGaAsP was successfully grown on a GaAs substrate as an active layer. The ridge-waveguide structure of the laser has a 2-mum stripe and achieves extremely low operating current at a 40-mW CW from 20 to 80degC with a characteristic temperature of 151 K. These InGaAsP QW lasers have been operating for over 640 hours during a 40-mW-constant-power CW life test at 40degC. This laser diode is suitable as a light source for spectroscopic measurement due to its single longitudinal mode and stable fundamental lateral transverse mode. [C2201]

"Epitaxial Growth of (In)GaPN Systems for Monolithic Optoelectronic Integrated Circuits on Si Substrates"

The fundamental problems of the growth of III-V compounds on a Si substrate were overcome. As a result, structural defect-free GaPN and InGaPN layers were grown on a Si substrate. LEDs and Si MOSFETs, which are elemental devices for OEICs, were monolithically merged in a single chip. The developed processing flow was based on a conventional MOSFET processing flow. The growth and fabrication process technologies are effective for the realization of monolithic OEICs. [C2202]

"Hopping and Drift--Diffusion Currents in Organic Devices"

In physical model, the carrier transport in organic devices can be described by hopping mechanism however a number of reports were successfully applied the drift--diffusion model used normally in continuous media to numerically simulate the carrier transport in discrete organic material. In this paper the carrier transport derived from hopping and drift--diffusion models were investigated in the organic device composed of ITO/MEH--PPV/A1. The calculated current densities from both models exhibit the same feature since the boundary current at the contact were evaluated with the same current components. However the slightly differences were found in the internal electric field and carrier density. This is probably due to the slightly modification of the carrier rate equation in the nearest neighbor hopping approximation and Sharfetter-Gummel spatial discretization. [C2203]

"Blue Emission Mechanism of NPB/ZnSe Hybrid Structure"

The electrical and optical properties of organic-inorganic hybrid light emitting diodes (HLED) have been investigated. The HLED is consisted of organic material N,N'-di(naphthalene-l-yl)-N,N'- diphenyl-benzidine (NPB) as a hole transport layer and inorganic material zinc selenide (ZnSe) as an electron transport layer and emitting layer as well. The electrical and optical properties have been characterized by current-voltage measurement and electroluminescence (EL) spectroscopy, respectively. The current of HLED decreases with increasing ZnSe thickness, while the threshold voltage increases. The EL spectrum exhibits two peaks at 457 nm and 500 nm, due to electron-hole recombination from energy gap of ZnSe and recombination from defect states in ZnSe layer, respectively. The emission mechanism is described by electric field in organic and inorganic layers. [C2204]

"A New Organic Thin-Film Transistor Based Current-Driving Pixel Circuit for Active-Matrix Organic Light-Emitting Displays"

A new current-driving pixel circuit for active-matrix organic light-emitting diodes (AMOLEDs), composed of four organic thin-film transistors (OTFTs) and one capacitor, is proposed using a current scaling method. Designing pixel circuits with OTFTs has many problems due to the instability of the OTFT parameters with the material characteristics still unknown. Despite the problems in using OTFTs to drive the pixel circuit, our work could be set as a goal for future OTFT development. The simulation results show enhanced reliability between the OTFT parameters with improved linearity between input data and OLED luminescence at low current levels. Also, large variation of OTFT parameters such as threshold voltage and mobility was successfully compensated to reliable values [C2205]

"Visible Photoluminescence from InGaPN/GaP Lattice-Matched Single Quantum Well Structures Grown by MOVPE"

Optical properties of InxGa1-xP1-yNy/GaP lattice-matched single quantum wells (SQWs) with different well widths (Lz= 1.6-6.4 nm) at different In (x = 0.050-0.135) and N (y = 0.025-0.071) concentrations have been investigated by low-temperature photoluminescence (PL) and PL-excitation (PLE). The PL spectra showed the strong visible emission from the samples which attracted to a variety of optoelectronic device applications such as light emitting and laser diodes. Comparing to the bulk film, the PL peak position and the fundamental

absorption edge of PLE spectra exhibit blue-shift, which correspond to the principally determined by the quantum confinement effect to the well. Comparison between the absorption edge of PLE spectra and the finite square well calculation demonstrate that the effective bandgap energy of InGaPN/GaP system is might be originated from the N-related localized states. With increasing N concentration, the PL peak position exhibits red-shift, which is due to the lowering conduction band edge of InGaPN. On the other hand, the integrated PL intensity is significantly decreased for the SQW with higher In and N concentrations. This probably caused by the larger number of non-radiative process which associated to N-induced trap states. [C2206]

"Design and Control of A Low Power DC-DC Converter fed by a Photovoltaic array"

In this paper, we present a DC-DC converter fed by a PV array for stand alone applications up to 50 W. It is dedicated to rural areas in countries having abundant sunshine and where there is no grid connection to the utility network or the power supply is weak as in many underdeveloped countries. Using a single PV array of 50 W as typical power, the aim is to have a simple system, robust, free- maintenance and highly efficient. The design of the structure has led to a double boost for the DC-DC module (325 V as output voltage) where a high gain is needed (the input rated voltage is approximately 17 V). Using simulation packages, we have extracted the required characteristics of the power components (switches and diodes) and set the switching frequency. The natural switching behavior of the boost converter is particularly adapted to the use of a sliding mode controller which has been studied. A linear controller based on a linearized model of the DC-DC converter has also been designed and tested. Both controllers have been implemented and the results in terms of dynamic and static performances, robustness and efficiency are promising. [C2207]

"Mysterious Material InN in Nitride Semiconductors-What's the Bandgap Energy and its Application?"

The progress in nitride semiconductors is reviewed. The current status in the growth and characteristics of InN, which remains the most mysterious compound, is reviewed. The phase diagram for InN growth, the optical absorption characteristic, polarity, temperature dependence of photoluminescence, future prospects are described. The application of InN for light emitting devices is discussed. [C2208]

"Novel bandwidth measurement method for partially coherent light sources"

In the paper a new method of bandwidth measurement for light sources emitting broadband spectrum is presented. The method is based on depolarization of partially coherent light which takes place in birefringent crystals. Selected results of bandwidth measurements for halogen lamp, laser diode, superlumminescent diode, and He-Ne gas laser are also presented to underline advantages of the proposed method. [C2209]

"Next-Generation Digital High-Bandwidth Spectroscopy Sensor Systems"

A key barrier to the forward progress of modern fluorescence sensor systems is their relatively large and bulky nature. As inexpensive digital signal processors (DSPs) and as solid state components, such as light emitting diodes (LEDs) and photodiodes (PDs), become available this will foster an environment that will continue to allow a paradigm shift in which digital systems replace analog ones, thus reducing many costs and improving performance (including reduced power). The goal of this activity is to provide contributions to the emerging field of high bandwidth fluorescence sensor systems for in situ monitoring and analysis. While this area is rapidly expanding in scope, this paper will provide basic research in high bandwidth all-digital sensor front-ends, which forms the interface between the "real-world" and the computational intelligence of the sensor system. The expected outcomes are: fundamental research that will provide new insight into the architecture and quantization problems of this front-end, thus providing reduced weight, power consumption, and computing resource utilization. [C2210]

"Photocatalytic Oxidation and Alkylation Processes in Microreactors"

A microflow reaction system with immobilized a photocatalytic TiO2layer was developed and the processes of oxidation of aromatic compounds and amine N-alkylation in microspace were examined. The photocatalytic microreactor has a remarkably large surface-to-volume ratio in comparison to conventional batch reactors and these model reactions proceeded very rapidly with considerably large efficiencies. The results suggest the feasibility of a photocatalytic microreaction system on organic reactions. [C2211]

"Designing and Making a Scintillometer. Atmospheric Measures and Signal Processing"

Energetic balance between the ground and the atmosphere is a powerful tool leading to a better understanding of global warming. From all the techniques, scintillometry is the most suitable one to give access to sensible heat

flux along distances of several kilometers. In association with an adaptive process, such as the Gabor transform, this device can give a new approach of atmospheric phenomena. [C2212]

"Tailoring freeform lenses for barcode lighting"

In this paper we will describe a high efficiency lighting system for imaging barcode readers equipped with a freeform element which shapes the incoherent beam emitted by LEDs, in order to form a sharply defined, high uniformity, illumination pattern. The freeform optical element has been designed assuming the polynomial expansion of the surface equation; the coefficients have been calculated running a least-mean-square optimization, targeting both the uniformity of the pattern and its irradiance value. Computer ray tracing has been carried out for both the generation of the surface and the simulation of the lighting pattern. The injection-molded prototypes we realized showed a good agreement with the predicted performances. A collection efficiency as high as 65% has been achieved along with an outstanding sharpness of the illuminated area within the whole depth-of-field of the reader. [C2213]

"Quantum Dot Superluminescent Diodes-Bandwidth Engineering and Epitaxy for High Powers"

We present experimental and theoretical work describing the engineering of broadband quantum dot superluminescent diodes for a wide range of applications. The key differences, advantages, and challenges of using quantum dots are discussed. [C2214]

"Quinary TlGaInNAs DQW Structures: Effect of Growth Temperature and Growth Rate on Tl Incorporation"

TlGaInNAs-based DQW structures grown at various growth parameters were studied by secondary ion mass spectroscopy (SIMS). Enhanced Tl incorporation could be obtained using TlGaNAs barriers. A direct relationship between the Tl incorporation and N composition is clearly established by the analysis of the effect of growth temperature, growth rate, ECR power and nitrogen flow rate. The Tl incorporation increased with the increase of Tl flux in the case of DQW structures with TlGaAs barriers. In the case of DQW structures with TlGaNAs barriers, the Tl incorporation reached saturation at some Tl flux, indicating the N enhanced higher Tl incorporation. [C2215]

"Wide Emission Spectra from Multi-stack InGaAs Quantum Dots"

Multi-layer InGaAs quantum dots have been grown and investigated to have 165 nm broad-band emission at lambda=1300 nm by tailoring the In and Ga compositions for the dots and caps in the stacked layers. [C2216]

"Nine-fold photoluminescence enhancement using photonic crystals with graphite lattice"

We manufactured an optically active InP-on-insulator structure using spin-on-glass bonding. A ninefold improvement of photoluminescence was obtained by patterning a photonic crystal with graphite lattice into the InP layer. [C2217]

"Novel lithographic technology for OLED-based display manufacturing"

Common cathode organic electroluminescent diode matrices, based on a new CN-derivative of poly(2,7-fluorene phenylidene) have been developed by photolithography. Optical characterization reveals their interesting properties as white-light emitters. In addition, 7times5 pixel alphanumeric display prototypes have been manufactured using a novel lithographic technique that saves processing steps and costs. [C2218]

"Considerations of the Driving Electronics of LED Video Display"

An overview of the electronics used to drive the light emitting diodes (LEDs) displays is presented. The common problems and the solutions are given. The driver technologies overview indicates the remaining challenges: the high current distribution and the LED dimming range. New driver topology suggested could solve the mentioned shortcomings. [C2219]

"LED Far Field Pattern Approximation Performance Study"

Some factors influence on light emitting diode (LED) far-field pattern (FFP) approximation performance is analyzed. The mean square root intensity error, mis correlation factor and half power and peak angles variance have been suggested for performance evaluation. The polynomial order, range and the noise influence have been analyzed. The best function candidate has been named. [C2220]

"Tutorial T2: Organic Electronics: Technology, Devices, Circuits, and Applications"

The field of organic semiconductor based electronics has seen significant and unprecedented progress in the past decade. Low-cost, less energy-intensive and high-throughput production, implementation on flexible and non-planar surfaces, novel applications, as well as the potential to move to more environmentally friendly electronics makes this technology particularly attractive. A wide range of applications of organic electronics are being currently explored, including displays, lighting, solar cells, printed RFID tags and disposable low-cost sensors. Work in some areas, such as organic light emitting diodes used in displays, have matured and have moved into production. Other fields, such as organic RFID tags and sensors are already in industrial development, and preliminary products are expected within the next few years. This tutorial will start with a brief background of organic semiconductors. This will be followed by four sessions, each covering an area of organic electronic application-solar cells, display and lighting, RFID tags and sensors. The physics, device, circuit and production aspects relevant to each of the application will be covered in the sessions. [C2221]

"Research on the Models of OLED-On-Silicon Pixel Circuits"

In modern information society, the display devices play an important role. Presently, Organic Light-Emitting Diode (OLED) has been emphasized and regarded as one of the best technology for its many advantages, such as active-matrix driver mode, high brightness, fast response time, high efficiency, wide visual angle, thin and light-weight etc. Much work of this paper has been done in AM-OLED technology, mainly focusing on the models of AM-OLED pixel circuit structure design and parameters assurance, AC-driving pixel circuit design and application. This research is prepared for integrated peripheral driving circuit design and application in the future. [C2222]

"Application of Advanced Thermal Analysis Method for Investigation of Internal Package Structure"

This paper presents an application of thermal analysis methods for the investigation of the internal structure of electronic device packages. The problem is illustrated based on the example of two silicon carbide power diodes. These diodes provided by different manufacturers have the same ratings and package type but one of the diodes exhibits oscillatory behaviour when used in a power converter. The presented results of thermal tests and analyses confirmed that there exist important differences between the two devices in their internal structures, possibly indicating the presence of some imperfections in the die attach or the wire bonds. These faults, in turn, have negative impact on their electrical performance in the investigated circuit. [C2223]

"Nanoimprinted photonic crystals enhanced light emitters via surface plasmon"

A method to enhance the light-emission efficiency of organic thin films via nanoimprinted photonic crystals and coupled surface plasmons is reported. The photonic crystal (PhC) is made in a polymer film doped with rhodamine 6G. The photoluminescence (PL) spectra of the sample are investigated. [C2224]

"Electronics Produced by Roll-to-roll Self-Aligned Imprint Lithography"

In this presentation, we present a method for fabrication using self-aligned imprint lithography (SAIL). The self-aligned process solves the layer-to-layer registration issues arising from the dimensionally changes of flexible substrates. The imprint process eliminates the need for photolithography and greatly lowers the cost for large area electronics because it is compatible with roll-to-roll processing. The basic concepts of the SAIL process are presented along with electrical characteristics of devices produced by roll-to-roll SAIL processes. [C2225]

"Configurable High Side Power Switch in Smart Power Technology"

This paper presents a design approach based on the splitting of the power transistor for smart power applications. The design approach is applied to realize a high side power switch with a configurable output in smart power technology. Experimental results are also presented and discussed. [C2226]

"An Efficient Approach for Target Tracking and Error Minimization by Kalman Filtering Technique"

Target tracking and size estimation have always been an active field of research because of its widely spread applications in navigational, air defense and missile interception systems, etc. In this paper error-minimization and to increase hit probability has been focused keeping in view the limitations imposed by practical constraints. An efficient practical approach has been modeled and tested practically in this research work, which tackles a maneuvering target and its dynamics in real time. The proposed approach develops a dynamic control for target tracking and its operation is based on dynamic switching of dynamic models. [C2227]

"Brightness Control Methods for Illumination and Visible-Light Communication Systems"

We have developed two brightness control methods for illumination and visible-light communication systems. One method is pulse width modulation (PWM), the other is changing modulation depth. Using these proposed methods, we can achieve both dimmer i.e. brightness control and wireless communication at the same time. We discussed the relationship between PWM frequency, LED brightness, and communication performance. The results show that we can control brightness from 0% to 87.5% when we use PWM and data transmission possible when PWM frequency is high enough. Brightness can be controlled from 0% to 100% and communication performance is better than that of PWM when we change modulation depth. [C2228]

"Chatterer Ping-pong Table"

An intelligent ping-pong table is proposed in this paper, which can detect the position where the ball has dropped. The sensing system is constructed with piezoelectric sensors, an A-D converter, and a personal computer. Piezoelectric sensors are arranged in the four corners of the acrylic boards of the ping-pong table for sensing the dropped position. The system controls the illumination and the sound effect for the position where the ball dropped. The illumination and the sound effect are expectable for exiting the game. The position detecting method can be applied for sensing the position on a plane [C2229]

"Optical-output power degradation of AlGaN-based deep-UV light emitting diodes by plasma treatment"

Optical power degradation in AlGaN-based deep-UV LEDs treated with low pressure O2-plasma treatment is reported. This process was performed prior to the metallization of p-type contacts, with and without transparent layer using disk-LEDs geometry. Following the rapid thermal annealing (RTA) of Ti/Al/Ti/Au, (n-contact) and Ni/Au, (p-contact), their current-voltage characteristics were analyzed. A significant increase in the p-contacts resistivity of the samples processed without a transparent layer was observed after treating with oxygen plasma for 15 s (at 0.25 mbar, and 30 W). This can be attributed to the generation of point-like defects and the donor-like nitrogen vacancies in the bare GaN-p-contact pads. A drastic change in the thermal stability of p-contact led to a significant loss in the optical output power in these devices. Furthermore, a noticeable decrease in the p-contact stability and their adhesion properties were also observed. This was mainly due to the Fermi level movement toward the conduction-band in p-GaN. Results on the comparative study of the L-I characteristics of the processed LED's, for their p-contacts treated with- and without-plasma are also discussed. Present study emphasizes the need to address the plasma damage related issues, as it can significantly degrade the optical output efficiencies of high-power flip chip AlGaN-based deep-UV emitters. [C2230]

"Light emitting devices in the visible obtained by PECVD and ion implantation"

Field-effect induced luminescence has been achieved from Si nanocrystals under alternate polarization. The emitting devices have a typical metal-oxide-semiconductor structure with a semitransparent polycrystalline Si top contact ~250 nm thick. The active layers have a thickness of ~45 nm and have been fabricated either by Si+ ion implantation into thermally grown silicon oxide or by plasma enhanced chemical vapour deposition (PECVD). The performances of both kinds of test structures have been analyzed and compared. In implanted devices, the application of a pulsed negative excitation gives rise to a luminescence combining a continuous and an alternate component. In particular, the continuous one proportionally increases with the Si amount, meanwhile the alternate one appears to be more sensible to quantum confinement effects in the Si nanocrystals. The threshold voltage of electroluminescence is about 3-4 V. PECVD devices exhibit a higher threshold (~18 V) and, in contrast with implanted samples, no continuous component is observed. Energy filtered transmission electron microscopy (EFTEM) results suggest that these differences are due to the partial depletion of silicon nanocrystals in PECVD devices in a tiny region close to the substrate. [C2231]

"Context Information based Cyber Security Defense of Protection System"

Summary form only given. With the development of substation automation system, it is now feasible for the intelligent electronic devices (IEDs) based protection system to collect its measurements from electronic instrument transformers through communication network such as Ethernet based LAN. Application of wide area broadband network in power utilities introduces underlying danger for protection system to mal-operate when receiving fake data packages from intruder. This paper proposes to identify vicious fault using context information such as voltage and current of the same substation. When protection system detects fault based on measurements transmitted through network, it collects all measurements of the substation and feed these data to a Probabilistic Neural Network (PNN). Thereafter, the fault caused by fake data that differs from the known fault pattern can be identified and blocked. [C2232]

"A Context-aware Reminding System for Daily Activities of Dementia Patients"

Older people with dementia often decline in short-term memory and forget what to do next to complete their activities of daily living (ADLs), such as tea-making and tooth- brushing. Therefore, they need caregivers to remind they what to do to complete these activities. However, the steady growth of aging population makes the (relatively) shortage of traditional care resources more and more serious. In this paper, we propose a prototype called CoReDA (context- aware reminding system for daily activities) to help elderly with dementia complete different ADLs instead of caregivers. By using the wireless sensor node-PAVENET, CoReDA can obtain elderly people's information of tool usage in different ADLs. Based on this information, CoReDA uses TD (X) Q-Learning technique to provide elderly people their personalized guidance to complete ADLs. [C2233]

"Ultra Small HD Video Camera Using MPEG4 Codec with SD Memory Card as Storage"

We developed an ultra small HD video camera that can capture 720P/30 fps video movie and a 5.1 M pixel still image simultaneously. A new HD MPEG4 codec enables to record 23 minutes of HD video on a 2 GB SD memory card. A full-color organic EL is applied as a display with many better features than LCDs. [C2234]

"Encapsulation of OLED device by Using Anisotropic Conductive Adhesive"

Organic light emitting diodes (OLEDs) is one of the most potential display technologies in the flat panel display (FPD) field, and its applications include simple monochrome large-area lighting to full color, video-capable graphics displays and so on. As organic materials are susceptible to humidity and oxygen, encapsulation is a key issue for OLED device reliability. In the present paper, two kinds of OLED samples have been studied; one encapsulated by adhesive matrix with fillers, and one without encapsulation. Variation of the electrical parameters of the OLED samples with respect to exposure time has been measured. The primary experiment investigation was carried out for the OLED sample sealed with an anisotropic conductive adhesive. Encapsulation material analysis, such as choices of different fillers/absorbent in the adhesive matrix, optimization of polymer matrix etc., will be conducted in future work. [C2235]

"Automatic measurement and grading of LED dies on wafer by machine vision"

Dramatic changes are unfolding in lighting technology. Semiconductor light-emitting diode (LED), which was once used mainly as simple indicator lamps in electronics and toys, has now become one of the most popular lighting device in our daily life. As the LED industry becomes prosperous, techniques for improving production efficiency become more and more important. A system integration method is proposed in this paper for improving the LED measurement and sorting speed in the testing process. This approach combines the mechanical technology, optical measurement instruments, and machine vision to create an affordable, flexible, and highly efficient LED grading system. The average speed of measurement and sorting is 3.5 LED dies per second based on repeated testings and evaluations. The experimental results demonstrate the effectiveness and robustness of the proposed system. [C2236]

"Fabrication Study of a LED Thermosonic Flip Chip Bonding Apparatus"

The current light-emitting diodes (LED) flip chip has the advantage of high speed electricity, small volume, good heat dissipation and high I/O density for modern display technology. Thermosonic bonding system for LED seeking to feature with lower temperature and lower pressure for industrial application is overwhelming. Development of such potential precision, fine pitch and with shorten ultrasonic time for manufacturing process is studied in this paper. This apparatus consists of (1). a mechanism system comprised with the precise positioning, loading and unloading stages, (2) control system for chip placement and visualization of LED, (3) the flip chip bonding head module consisted with ultrasonic bolt-clamped Langevin type transducer (piezo actuator), horn device and tool for chip and substrate compression, and (4) a chip vacuum head is design for the bettering bonding processing. Experiments results with consideration of temperature, pressure, ultrasonic power and ultrasonic time are conducted by using Taguchi method for optimization. Results show the in laboratory developed thermosonic flip chip bonding system can be potentially used for back light module in display technology. [C2237]

"OFDM Visible Light Wireless Communication Based on White LEDs"

White LEDs are set to penetrate many areas of everyday life. An interesting property of these devices (in addition to their lightening capabilities) is that they can be utilised for data transmission. In the past, primarily OOK (on-off keying) has been used for digital data modulation of such devices. OOK imposes limitations on the achievable data rates. Therefore, in this paper OFDM is considered in combination with higher order modulation schemes. A hardware demonstrator with an entire link chain (transmitter and receiver) is developed and measured BER (bit

error ratio) results are reported. The system uses pilot sub-carriers to correct frequency synchronisation errors, training sequences for channel estimation and time synchronisation routines. Forward error correction (FEC) coding is used. It is shown that for COFDM (coded OFDM) with QPSK (quadrature phase shift keying) modulation and a single LED, a BER of 2 times 10-5is achieved for a distance of 90 cm between transmitter and receiver. [C2238]

"Portable Bidirectional Optical Wireless Terminal with Organic Light Emitting Diode Display"

A portable information terminal can simultaneously display and transmit data/image bidirectionally in an indoor optical wireless communication environment. [C2239]

"An Guidance System Based on Q-Learning for Supporting Dementia Patient's Activities of Daily Living"

First Page of the Article [C2240]

"Property Modifiable Discreet Active Landmarks"

This paper explains the design and implementation of a discreet landmark capable of modifying its properties in order to be able to differentiate itself from its surrounding environment. In this case, differently from common devices, our landmark does not make use of neither light, wave reflection, or radio frequencies, but it makes use of temperature properties of a peltier device which is able to increase or decrease its temperature. By having different characteristics from its surroundings, in this case a temperature landmark can be robustly found and tracked in complex indoor environments using thermo infrared cameras. The proposed system composition and configuration, landmark finding, extraction and tracking methods are also explained and effectiveness of this system is described and evaluated. [C2241]

"Aimulet: Stoic Information Terminal for Location-Based User Supporting Systems"

We have been developing specific guest guiding system based on compact battery-less information terminals, Aimulet. Implemented conventional Aimulet has features of location and direction sensitive information service device without batteries. On the other hand, the Annulet has two subjects, one is multi-lingual service and another is interactivity. These subjects are solved by using wavelength division multiplex technique and active RFID or/and reflectivity modulation. These techniques are applied to the EXPO 2005, Aichi Japan and other demonstrations. [C2242]

"OLED Device Operational Lifetime: Insights and Challenges"

This paper discusses some of the most important intrinsic and extrinsic factors that affect the organic light-emitting devices (OLEDs) stability. OLEDs lifetime can be greatly improved through materials design by improving the redox properties, thermal properties, and charge transporting properties. Extrinsic factors, such as materials purity, are also discussed. [C2243]

"Reversible Degradation of GaN LEDs Related to Passivation"

This paper analyzes the stability of gallium nitride blue light emitting diodes (LEDs) at high temperature levels. It is shown that high temperature storage can induce significant degradation of the electrical and optical characteristics of the samples. The most important failure modes detected after thermal stress are output power decrease, emission crowding and forward voltage increase. The degradation process is attributed to the interaction between hydrogen in the PECVD-deposited SiN passivation layer and the p-side of the diodes. This mechanism induces the deterioration of the characteristics of the metal/semiconductor interface and of the p-type semiconductor layer, as confirmed by the results obtained on transfer length method (TLM) structures on p-GaN submitted to thermal storage. The degradation process has been found to be reversible. In particular it is shown that passivation removal and subsequent annealing are sufficient for an almost complete recovery of the electrical and optical properties of the LEDs. Finally, it is shown that the use of a sputtered SiN passivation layer can be an effective alternative to usually adopted PECVD for the reduction of high temperature instabilities of GaN LEDs, due to its reduced hydrogen content. [C2244]

"Real Case Study of a Neuro-Fuzzy Intelligent Car"

This paper present a real case study of an intelligent car. There exist an important number of applications, wherein it is required to recognize some plan forms. In these applications, but also in the case that the forms aren't anymore plans, the contour of the forms is an important descriptor from which we can leave in the

process of similarity finding between the objects represented by the respective forms in the digital images. By leaving from the contour of the form, there exist many possibilities to describe the forms. [C2245]

"Mechanisms of Operation and Degradation in Solution-Processable Organic Photovoltaics"

Organic photovoltaic devices are being intensely researched as a low-cost solar power conversion technology. In general, reliability and degradation mechanisms for these devices have not been examined by researchers in detail, however recent efficiency gains justify more concerted efforts toward achieving commercially viable device lifetimes. The molecular nature of these materials and the atmospheric processing techniques used for their fabrication provide for potentially low cost production. These aspects also bring with them unique challenges in achieving stable device performance. In this paper, I provide a brief description of the operational mechanisms of these devices, and I outline what is known about the mechanisms of degradation and the device lifetimes [C2246]

"Image Processing Method Based on Subpixel Analysis for Accurate Measurement of Dimensions"

The purpose of this article is to introduce you a new subpixel image processing method. This method is designed for use in the measuring device for the accurate measurement of dimensions in the building industry. The construction of the optical part of the measuring device and the new method of the image processing are closely connected. This is the reason to introduce measuring device construction too, especially the optical part of the measuring device. The construction of the optical part of the measuring device is discussed in an initial part of the article then the link between the construction of the measurement device and the image processing subpixel analysis method is presented. Realization of an algorithm for the subpixel image processing method is presented too. Some additional information about this measurement system is present in conclusion. [C2247]

"Self-Assembled Heterogeneous Integrated Fluorescence Detection System"

We present the current progress towards a fully integrated fluorescence detection system constructed via self-assembly of independently microfabricated excitation sources and photosensors onto a common template. The system template contains specifically shaped binding sites for micron-scale components and electrical interconnects. The self-assembly process allows for using materials such as plastic or glass for constructing the template that are incompatible with conventional microfabrication processes. The excitation sources are AlGaAs light emitting diodes and the photosensors are silicon pn junctions. These microcomponents are independently microfabricated and released from their respective substrates to yield a powder-like collection. The microcomponents are introduced over the template in a heated fluidic slurry and allowed to self-assemble onto the complementary-shaped binding sites. The self-assembly process is driven by capillary forces resultant from low melting point alloy coated on the electrical contact pads, fluidic forces, shape matching, and gravity. The final system offers a 3 times 3 array of individually addressable complete fluorescence detection units. [C2248]

"Convergence System for Home Information Control based on the Web and Mobile"

We have developed the convergence system that can control an appliance based on the mobile phone and Internet. The system can display the GPS information received from the satellite. In order to communicate between the mobile phone and the PC, UI (user interface) have several control functions about the LCD, matrix and motor, and so on. [C2249]

"Thermal Considerations for LED Components in an Automotive Lamp"

LED's in automotive lamp applications have been utilized effectively for functions with low light output requirements and for styling purposes. In recent years, high to ultra high power LED's are becoming a light source option for virtually every automotive lighting system. For exterior automotive lighting, these light sources have distinct advantages, but also unique thermal issues compared to conventional incandescent light sources. This study describes two methods of determining the junction temperature of an LED or array of LED's, direct and indirect. Both are based on temperature measurements, but the indirect method also requires a thermal resistance specified by the manufacturer. The direct method utilizes the intrinsic behavior of the junction voltage drop at low current (<0.1mA). A computer model for a typical plate finned heat sink design for a high power LED automotive lamp was experimentally calibrated. Design of experiment analysis was performed using a 3 level 3 input factor full factorial test matrix. The factors were defined as an active heat sink surface area, convection coefficient correlated to an airflow, and environment temperature. A quadratic model is generated from the results of the factors and significant interactions to the response. [C2250]

"Nitrogen Doped ZnO Nanomaterials for UV-LED Applications"

Dominant acceptor based excitons were observed in the photoluminescence spectra of nitrogen doped ZnO nanoparticles prepared by a low cost DC arc discharge method using carbon as electrode. Emissions corresponding to donor bound excitons and donor-acceptor pair recombination was also observed. High crystalline character of the particles was confirmed from the XRD pattern. Basic E2vibration corresponding to ZnO was observed from Raman spectra of all the nanoparticle samples prepared. The particles assumed rod shaped morphology as observed in SEM. The thin films deposited using ball mill dispersed nanoparticles by dip coating method showed acceptor bound exciton in low temperature PL spectrum. [C2251]

"Quasi-Active Power Factor Correction Circuit for HB LED Driver"

High Brightness Light Emitting Diodes (HB LEDs) are likely to be used for general lighting applications due their high efficiency and longer life. The paper presents a quasi-active power factor corrector (PFC) for driving a string of HB LEDs. The single-stage PFC circuit has a high efficiency and it does not increase the voltage/current stress on the active switch used in the switching converter driven by the PFC. The operation of the converter system for the LED is explained and experimental results are presented. [C2252]

"Solving high-voltage off-line HB-LED constantcurrent contro-circuit issues"

High Brightness LED manufacturing tolerances and drifts over temperature do not allow the use of simple current control methods. Therefore regulation circuitry more complex than popular current-limiting resistors is necessary. This paper describes a new topology, which takes advantage of the circuit's intrinsic time delays to continuously monitor the load current and constantly regulate it to a pre-set value. The paper presents experimental results to demonstrate the advantages of this method. [C2253]

"Power driver topologies and control schemes for LEDs"

This paper deals with power electronic drivers for LED strings. Due to the enormous progress recently achieved in the technology of light emitting diodes (LEDs) it can be expected that LEDs lighting will replace incandescent and halogen bulbs in general illumination in the near future. A LED light source typically consists of a series connection of single LED cells. It shows a similar behaviour like a zener diode. For efficiency reasons LED strings can not be supplied via series resistors but need switched mode power drivers with current control. Different standard DC-DC converter topologies are discussed which can be adapted to feed a constant current into a LED load. For future LED driver developments it has to be considered that LEDs can also efficiently be supplied by pulsating currents. This simplifies the converter and control design and reduces the number of components. Hence, different converter topologies are studied which are able to stabilise the average value of a pulsating output current. This also includes topologies with galvanic isolation. Resonant operating LED drivers seem to be specially suited for this task. Hence, a series resonant galvanic isolating LED driver is studied in detail. Under certain conditions this converter does not need a current sensor to stabilise the average current in the LED load. Finally, the features of different pulsating current waves are investigated concerning their peak, RMS and high frequency content. [C2254]

"Digital Architecture for Driving Large LED Arrays with Dynamic Bus Voltage Regulation and Phase Shifted PWM"

This paper introduces a digital architecture suitable for driving a large number of High Brightness Light Emitting Diodes (HB-LEDs) with improved system efficiency and reduced EMI. Key advantages are achieved by combining and coordinating control of the power converter and LED strings, resulting in a system with deterministic load behavior. Uniform phase shifting of LED strings is performed to minimize load current variations, resulting in reduced output capacitance, improved converter efficiency and reduced system EMI. LED string voltages are detected online and used in a feedforward path for dynamic bus voltage scaling, resulting in improved system efficiency at low dimming levels. Experimental results are presented for a 15 W boost converter with FPGA based digital control driving a 64 LED array with 8 LED strings. [C2255]

"Energy-Efficient Peak-Current Controlled Power Conversion IC Family Delivers 3 to 28 Watts in Universal-Input Flyback Power Supplies"

A monolithic SMPS IC that uses a peak-current, ON/OFF controller with a state machine is modeled and presented. A prototype of an energy-efficient flyback converter based on the IC was built and test results are presented to demonstrate its performance. [C2256]

"Open Hardware Platform Helps Students Getting Started in Analog and Digital Design"

A common multidisciplinary platform can improve and fine-tune the collaboration between several courses like

data communication, software engineering, analog electronics and digital design. Therefore, De Nayer Instituut developed a platform that consists of two low-cost boards. An interface experimentation board featuring an analog experimentation area and various in- and outputs. The second board is build around a microcontroller that can be used to control the experimentation board. Both boards can be used without the need for expensive hardware allowing the students to prepare or finish their assignments at home. [C2257]

"A New Carrier Transport Model for Light Emitting Devices with Quantum Well"

We present a new carrier transport model for light emitting devices with quantum well. These devices include light emitting diodes (LEDs) and laser diodes (LDs). Nearly all LDs and high efficient LEDs in production contain a quantum well (QW) or multi-quantum well (MQW) in a PN junction. When these devices are driven to produce light, large number of carries, electrons and holes, are injected into the QW. The electrons and holes are expected to recombine completely in the QW. The electrons and holes are not supposed to transport over the QW and reach the opposite side. The transport action in light emitting devices is different from that in a typical PN junction without QW, where most carriers transport to the other side without recombination. Thus, the Sah-Noyce-Shockley (SNS) model for a PN junction without QM cannot be applied to light emitting devices with QW. In this study, current-voltage curves calculated using the new model agree well with results measured on GaN/sapphire LEDs with InGaN quantum wells. Junction temperature Tj rather than case temperature Tc is used to achieve better agreement. [C2258]

"Differential P+/Nwell varactor High Frequency Characterization"

Here we report, the evaluation of two differential integrated diode varactor layouts. For a first time, differential structures connected to an integrated BalUn are characterized with a two ports vector network analyzer (VNA). Limitations of this method lead us to use four ports measurements. Results reveal the best layout for differential implementation and the sensitivity to common mode. [C2259]

"High Thermal Dissipation of Ultra High Power Light-Emitting Diodes by Copper Electroplating"

The thermal management has become increasingly important when comes to device applications using ultra high power light emitting diodes (UHPLEDs). To thermally manage the devices in a most effective fashion, we report a novel packaging technique in which a copper electroplating process is directly applied over the red, green, and blue LED chips. With the copper-encapsulated layer, the operation current subsequently administered to these LED chips can be increased easily from a conventional 350 mA to more than 1050 mA stable at room temperature. This process can be well adapted to AlInGaP-based red LED when its working current can be driven all the way up to 1650 mA. At 350 mA, the relative luminous intensity of these specially packaged red, green, and blue LEDs (RGB LEDs) clearly demonstrate a corresponding enhancement of 53%, 69%, and 23% when compared to those of conventionally packaged LEDs. Furthermore, as the injection current of these LED chips increases to 850 mA, the respective improvement in relative luminous intensity of these RGB LEDs chips becomes 431 %, 83%, and 18%, when compared to those of the conventional packaged devices. [C2260]

"Highly Conductive Flexible Transparent Polymeric Anode and its Application in OLEDs"

Highly conductive flexible transparent polymeric anode was fabricated by inclusion of single-wall carbon nanotubes (SWCNTs) into aqueous poly(3,4-ethylene dioxythiophene): poly(styrene sulfonate) (PEDOT:PSS) system. The transmittance and conductivity of the PEDOT:PSS/SWCNTs anode was studied as a function of the SWCNTs loading. Flexible transparent anode with low sheet resistance was fabricated and organic light-emitting devices fabricated using this PEDOT:PSS/SWCNTs as the anode exhibited a close performance to that obtained using indium tin oxide (ITO) anode. [C2261]

"Fault Tolerance Circuit for AM-OLED"

A novel circuit employing p-type low-temperature poly-Si thin-film transistors is introduced for active matrix-organic light-emitting diode (AM-OLED) circuits to automatically detect short defects and switch to a spare OLED. This design maintains the luminance of the OLED pixel without changing the driving current in the event of defects. Experimental results show that not only is fault tolerance capability obtained during operation, but also a significant amount (around 90%) of power consumption is saved compared with the standard driving circuits. [C2262]

"Characterisation and Identification of Rice Grains through Digital Image Analysis"

In the food industry there are various foodstuffs in the form of grains. Of particular importance is rice, being a commodity crop. The ability to recognize defining characteristics for identification is desirable as fraudulent

mislabeling of rice grain varieties is a growing problem. In the present work a digital imaging approach has been devised in order to investigate different types of characteristics to identify different rice varieties. Eight different common rice varieties were used in tests for defining features. These include existing standards for grain length and aspect ratio features, but also successfully show the effectiveness of compactness as a feature. A novel texture feature is also shown to be able to distinguish brown and milled rice in greyscale images. All of these techniques are employed in an inexpensive imaging system that is non-intrusive and nondestructive. A highly effective yet simple imaging setup and processing system is established, permitting image acquisition, image processing, and feature extraction. Features are assessed using unsupervised clustering techniques, showing the dissimilarity between different varieties to a degree that would allow successful identification. [C2263]

"Optical fiber turbidimeter for full range measurement in wine industrial processes"

This paper presents a new type of nephelometric turbidimeter capable of really functioning on-line. In addition, it takes advantage of the possibility of light conduction via optical fibres to avoid the electrical parts coming into contact with or close proximity to the liquid; the use of optical fibres also avoids interference, improving the Signal-to-Noise ratio and offering remote measuring. This type of turbidimeter is for general application in the literal sense but, the application is presented for measuring turbidity in the wine industry during wine-making processes, which presents added problems such as colour interference and the high interval of recordable values, which can reach levels of almost nil to over 4000 NTUs. [C2264]

"A Low Power Digital Baseband for Wireless Endoscope Capsule"

A design of low power digital baseband for wireless endoscope capsule is presented. The key design issues involved in this IC are discussed, including implementation of communication protocol, real time image filter and real time JPEG-LS encoder. Power dissipation is lowered through the architectural exploration. The baseband has been implemented in 0.18 mum CMOS technology. Measurement results show that 50% power reduction is achieved when image compression is enabled @ 30 fps for VGA image at 1.2 V supply voltage compared with the situation when image compression is disabled, 11% power reduction is achieved compared with the previous research. [C2265]

"High-speed front end for LED-Photodiode based fluorescence lifetime measurement system"

An optoelectronic front end for a high-speed solid-state based time-domain fluorescence measurement system is investigated. It consists of a source light emitting diode (LED) and photodetector (PD) pair connected to an original transimpedance amplifier. The amount of light reaching the detector from the fluorescence and the effect of different noise sources on the proposed system are evaluated. The simulation results show that a bandwidth greater than 80MHz could be reached for PD currents with amplitudes as low as 20nA. An actual circuit was built to confirm the projected capabilities of the system. [C2266]

"Silicon-Based, Multi-Chip LED Package"

A new silicon based multi chip white LED PKG for high power application is designed, fabricated and tested. The package is composed of Al layer coated reflector cup, silicon base which has micro through via hole for interconnection, and micro lens. Compared to the most conventional single chip LED PKG, multi chip white LED PKG has many advantages in cost, density, size, thermal resistance and optical efficiency. After numerical analysis, silicon based multi chip LED PKG which has 9 mm times 9 mm with 0.65 mm size is fabricated using simple MEMS technology. The thermal resistance of this new silicon package was about 4-5 K/W from junction to case in simulation and this result could be comparable to that of other high power LED package. Also, this PKG platform has over than 60% increase in optical extraction efficiency. The proposed multi chip LED PKG can find applications, such as a next generation solid state lighting, back light units and etc. [C2267]

"The Undestroying Quality Monitoring Method for the GaAs Detector Structures"

We propose a new undestroying quality monitoring method for the GaAs detector structures that allows to define the charge collection efficiency. Measured life time of nonequilibrium electrons and holes is 15 and 3.3 ns, respectively. [C2268]

"Subnanosecond Optoelectronic Switch"

New optoelectronic switching device was developed. Avalanche GaAs S-diode and light-emitting diode are integrated in the single crystal. It is presented main static characteristics of the device. [C2269]

"A New Driving Assistant for Automobiles"

This paper introduces an inexpensive car security system which addresses the needs for broader area coverage around the vehicle and stronger indication signals to drivers. The new driving assistant features simple ultrasonic-based sensors, implemented at the two front corners and the two blind spots of the vehicle. In order to report the close-by objects to the driver, the system employs a multitude of feedback devices, including tactile vibrators attached to the steering wheel, audible signals, and an LED display mounted on the dash board. The sensor system and the feedback devices are controlled in real-time by microcontrollers over a wireless communication network The final prototype system was installed and tested on a ride-on toy car. [C2270]

"Current-Voltage Characteristics of Detector Structures Based on Epitaxial Gallium Arsenide"

Results of investigation of temperature dependence of current-voltage characteristics (VAC) of detector structures based on epitaxial layers GaAs:Cr is reported. It was determined that forward branches of VAC determined by unipolar injection which changed by the double injection to the semiconductor. Reverse branches, down to the bias of 5 V, determined by generation current. In the range of high reverse voltage current caused by the ionization by collision of the deep levels created by chromium atoms. [C2271]

"Registration of Short Impulses of X-Ray Radiation Using the Detecting Block Based on GaAs Detectors"

The experimental researches have been led with the using of two intervals filled by air under atmospheric pressure (gas diodes) which were connected to pulse generator RADAN-220 [1]. The generator formed in the discharge interval in an idling mode the voltage impulse with amplitude ~220 kV, duration on half-height is about 2 ns and with rising edge about 0.5 ns. [C2272]

"An 8b Source Driver for 2.0 inch Full-Color Active-Matrix OLEDs Made with LTPS TFTs"

An 8b source driver for 2.0 inch QVGA active-matrix OLEDs is fabricated using LTPS TFTs. This driver uses an 8b DAC that is separated into two parts, a 1-to-3 DEMUX, and a pre-charge method. This scheme reduces the source driver size by 40%. The maximum DNL is under 1LSB. The output voltage variation of the source driver is less than 1 LSB even though the variation of the threshold voltage is plusmn0.5V [C2273]

"A Single-Inductor Step-Up DC-DC Switching Converter with Bipolar Outputs for Active Matrix OLED Mobile Display Panels"

A single-chip dual-output step-up DC-DC converter is implemented for active-matrix OLED mobile display panels. The bipolar outputs are regulated independently and integrated with a boost and a charge-pump topology sharing a single inductor. The chip is 4.1mm2fabricated in a 0.5 mum power BiCMOS process and operates at 1MHz with a maximum efficiency of 82.3% at an output power of 330mW. [C2274]

"Spectral Dependence of Absorption Coefficient in Bi12TiO20:Cd Crystal"

Spectral dependences of absorption coefficient in the range 450-1100 nm for the bismuth titanium oxide crystal doped with cadmium (Bi12TiO20:Cd) are researched. Experimental dependences have been measured up to an irradiation, after an irradiation by a semiconductor light-emitting diode (wavelength of 625 nm) and during process of a relaxation. [C2275]

"Display Electronics"

First Page of the Article [C2276]

"A Novel Design of Data Driver for Passive Matrix OLED Displays"

In this paper, a novel design of data driver for passive matrix organic light-emitting diode (PM-OLED) displays is presented. The proposed circuit adopts a new structure composed of current copiers. With the technique of sample & hold, the uniformity of the driving current can be greatly improved. The simulation results show that the nonuniformity of the output current is reduced from 5% of the conventional circuit to less than 1%. [C2277]

"Buck-Boost Combined with Active Clamp Flyback Converter for PV Power System"

This paper presents an LED lighting system with PV sources. The circuit of the proposed system adopts buck-boost converter associated with flyback converter to charge battery and to drive an LED lighting system. In this research, buck-boost converter is used as a charger for charging battery, and flyback converter with active

clamp circuit is adopted to drive the LED lighting. To simplify the circuit structure, switches of two converters are integrated with a synchronous switch technique. With this approach, the proposed system has several merits, which are a less component count, lighter weight, smaller size and higher conversion efficiency. Compared with the conventional converter with hard-switching circuit, the proposed one can improve conversion efficiency of 5% and achieve efficiency about 83% under full load at driving the LED lighting. Experimental results obtained from a prototype with output voltage of 10 V and output power of 20 W have verified its feasibility. [C2278]

"Design and Implementation of a High Switching Frequency Digital Controlled SMPS"

This paper describes design and implementation of a high switching frequency digitally controlled boost converter. A mixed control approach is applied to reach a high performance. An FPGA based implementation with 1 MHz switching frequency is build to verify the control methodology, and two controllers with 1 MHZ and 10 MHz switching frequency is applied on silicon. The raising edge of Vout to drive four LEDs is less than 100 mus. [C2279]

"Study on the Continuous Quality Improvement Systems of LED Packaging Based on Data Mining"

LED is one of the most widely used components in electric products. And the LED packaging is a very important process between semiconductor manufacturers and the electric product manufacturers. Based on the analysis of the characteristics of the LED packaging processes, a quality control model based on SPC (statistical process control) and data mining is put forward. The data mining is used as the quality data analysis tool and the quality diagnosis method. Then an infrastructure of the integrated continuous quality improvement systems of the LED packaging is put forward. In this infrastructure, there are three layers of the data collection layer, the data analysis layer and the result viewer layer. Furthermore, the data warehouse of LED packaging is designed with the snowflake schema. A 3 layer yield rate SPC is studied and the decision tree method is used as a quality diagnosis method based on the designed data warehouse. Finally, a prototype of the continuous quality improvement system is developed. [C2280]

"Study on the Quality Improvement of Injection Molding in LED Packaging Processes Based on DOE and Data Mining"

The LED (light emitting diode) packaging is a very important process between semiconductor manufacturers and the electric product manufacturers. And the injection molding process in LED packaging is critical to the quality of the final products. Based on the analysis of the injection molding processes, the main quality problems and their possible causes are studied. Then the RSM (response surface methodology) of DOE (design of experiment) is used for the optimization of the producing parameters. The optimized parameters, the mold temperature, the warm-up temperature, the screw pressure and the screw time, are found with DOE. In the running process, the CTQ (critical to quality) is controlled with SPC (Statistical process control) by different dimensions like product, product catalog, time and devices. Finally, a model of continuous quality improvement based on data mining is put forward. The association analysis is used for the parameter optimization in the running process. [C2281]

"Issues, Models and Solutions for Triac Modulated Phase Dimming of LED Lamps"

This paper discusses the difficulties in dimming Edison socket LED lamps directly from residential phase modulated dimmer switches. In order to explain these difficulties PSpice models for the dimmers are proposed that necessarily include diac characteristics to improve accuracy. A method to dim the LEDs from the residential dimmers is discussed. [C2282]

"Sequential Color LED Backlight Driving System for LCD Panels with Area Control"

In this paper, a sequential color light emitting diode (LED) backlight driving system for liquid crystal display (LCD) panels with area control is proposed. Due to improvement on luminous efficacy, fast response, long life, mercury free, and wide color gamut, LED has gradually substituted for cold cathode fluorescent lamp (CCFL) as backlight. Although some novel CCFLs with low content of mercury and wide color gamut have been proposed, it is difficult to shorten their on-off transition. Recently, a novel display technique, namely area control, requiring backlights with fast response has been proposed to improve the contrast ratio of LCD and reduce power consumption of the backlights. With the area control, a panel is partitioned into several areas, and the backlight brightness of each area is controlled individually. In addition, color sequential display (CSD) is introduced to further reduce the power consumption. A sequential color LED backlight driving system with area control has been built, from which experimental measurements have verified the feasibility of the proposed driving system. [C2283]

"Ambient electronics with organic transistors"

We have developed large-area, flexible pressure sensors and actuators using organic transistor active matrices. The new sheet-type devices include electronic artificial skins and sheet-type wireless power transmission system in the manufacturing processes, printing technologies such as inkjet and screen printing systems are employed. Thus, these large-area devices are potentially inexpensive to manufacture. Such a large-area feature of organic transistors is complementary to silicon-based conventional electronics that are high-performance, but expensive. The combination of silicon and organic electronics will be one of the key technologies in the forthcoming ambient electronics era. [C2284]

"A Probabilistic Approach of Designing Driving Circuits for Strings of High-Brightness Light Emitting Diodes"

Often, high brightness LEDs (HB-LED) are connected in series to create strings. According to their data sheets, the HB-LEDs have a variation in their forward voltage drop. This forward voltage variation may create a non-uniform illumination if the strings are connected in parallel. This paper proposes a probabilistic approach for modeling the forward voltage drop across the HB-LEDs and determining the value of the resistance needed in each string to control the current. The results of this paper show that when the probabilistic models are used, the value of the added balancing resistance is reduced compared to when using standard worst case models. [C2285]

"Experimental investigation on the performance characteristics of white LEDs used in illumination application"

The LEDs lamps' high efficiency, long life time and energy saving potential have made them emerge as a new illumination lighting source. The temperature in the p-n junction can be considered to have a linear relationship with the forward current. Therefore, a proper current regulation strategy is important to alleviate the light output degradation and to maximize the useful life of high power LEDs. This paper presents an extensive experimental investigation on the influence of different current regulation modes on the light output degradation and lifetime of LEDs. It has been found that pulsed current regulation mode may be the optimal regulation mode for maximizing the useful lifetime of power LEDs. [C2286]

"Evaluation of Underwater Wireless Optical Communication Link with Pspice Simulator"

There is significant need for high rate communication between observing platforms in monitoring the ocean environment. Due to radio waves suffers high attenuation in water and acoustic communication systems are relatively low data rates, we demonstrated an optical communication system that is capable of supporting underwater wireless communication in a high data rate. In this paper, a new and simple analytical method based on general simulator Pspice is developed to evaluate the capacity of underwater optical links with the effects of scattering and absorption in realistic ocean water. The cost measure of bit error rate for lighting emitting diodes (LEDs) links in underwater communication is presented. [C2287]

"A low power CMOS front-end for photoplethysmongraphic signal acquisition with robust DC Photocurrent Rejection"

A micro-power CMOS front-end for photoplethysmographic signal (PPG) acquisition is presented. The circuit is composed of a transimpedance amplifier (TIA), post amplifier and low-pass filter. The TIA is configured with a sample-and-hold (S/H), an error amplifier and a current-sink transistor in feedback to reject DC photocurrent generated from photodiode, which varies from person to person. To reduce power consumption, the LED is pulsed and thus the input to the TIA is a modulated current pulse. The low-pass filter is implemented by using the current-steering technique (CST). The proposed circuit is designed to generate PPG waveform with a fixed DC output to prevent signal saturation by rejecting the input pulsating DC photocurrent from modulated signal. Experimental results show that the circuit works properly from a 2.5-V power supply with a bandpass frequency from 0.1 Hz to 6.5 Hz and has a rejection range from 0.1 muA to 53.6 muA. [C2288]

"Printed Organic Transistors for Large-Area Electronics"

We have fabricated large-area, flexible pressure sensors using printed organic field-effect transistor (FET) active matrices. Polyimide precursors and silver nanoparticles are patterned on a polyimide film by using an inkjet printing system and cured at 180degC to form gate dielectric layers and electrodes for organic FETs, respectively. The channel layer of organic transistors is pentacene deposited in the vacuum system. The mobility of the transistors is 0.7 cm2/Vs and the on/off ratio exceeds 106. [C2289]

"Novel Semiconductor Illumination Technique Based on Color Complementation"

The light source is a main part in an image acquisition system, and LED light sources have been widely used in this field for their merits of shape flexibility, long service life, high frequency response, rich colors and low cost. In this paper, light emitting mechanism of LEDs and their spectral characteristics are firstly analyzed and the color complementation method in white LED design is introduced; then a novel illumination method based on color complementation is proposed according to rich colors of LEDs, in which high contrast images can be obtained with selective use of different color light sources after color analysis of the imaging object and background. Experimental results in vision inspection of ICs with ball grid array package (BGA) and chip scale package (CSP) show that with the method proposed, ineffective background information of images can be effectively filtered, data volume of images is significantly reduced and consequently the speed and precision of image processing is greatly improved. [C2290]

"Design and Implementation of a Digital High-Performance Photovoltaic Lighting System"

This paper presents the design and implementation of a digital high performance photovoltaic lighting system based on a microcontroller. In order to achieve high lighting efficiency, this lighting system module used the HBLED which possesses small size, long life and low power consumption. The proposed system consists of a photovoltaic module, a LED lighting module, a bidirectional buck-boost converter and a battery. The bi-directional buck-boost converter is the integration of a charger/discharger and a LED lighting-module drive circuit, which can fulfill maximum power point tracking (MPPT), multi-stage current charging control and LED drive control. In addition, a microcontroller (PIC16F873) is used to realize the system controller. Finally, experimental results are provided to verify the theoretical analysis and design procedure of a digital controlled photovoltaic lighting system. [C2291]

"Recent Progress in Organic Light-Emitting Devices"

Recent development in high performance organic light-emitting devices (OLEDs) will be discussed. A variety of wide-energy-gap charge transport materials have been prepared and used for phosphorescent OLEDs. For instance, 1,3,5-tris[3,5-bis(3-pyridinyl)-phenyl]benzene (TPPB) was synthesized and used as an electron transport layer. A high power efficiency of 37 lm/W was achieved for blue OLED using iridium(III)-bis[2-(4,6-difluorophenyl)pyridinate-N, C2']picolinate (FIrpic) as an emitter. Long lifetime has been achieved by using the tandem structure, so called multiphoton emission (MPE) structure. A long lifetime such as over 100,000 hrs at 1000 cd/m2has been achieved for an amber OLED. A white OLED exhibited over 30,000 hrs lifetime with the initial luminance of 5000 cd/m2, which promises that OLEDs can be used not only for displays, but also for general lighting. [C2292]

"High Performance Vertical-Type Organic Transistors And Organic Light Emitting Transistors"

We have fabricated organic static induction transistor (SIT) and organic light emitting transistor (OLET) combining SIT with organic light emitting diode (OLED). SIT and OLET have a grid-type Al gate electrode that was formed using a shadow evaporation mask in the organic semiconductor layers. The effective electrode area of SIT and OLET is approximately 4 mm2. By optimizing the device structure, excellent performances of SIT and OLET were obtained. The drain-source current (IDS) at a constant drain-source voltage (VDS) decreases with increasing the gate voltage (VG). The current is controlled by relatively small VG(-10 V) and a typical SIT characteristic is obtained in the OLET. The luminance of OLET also varies corresponding to the I-V characteristics. The maximum current and luminance values were approximately 10 mA and 10,000 cd/m2, respectively. We have also investigated the electrical characteristics of organic SITs having several gate gaps. The organic SIT with gate gap (Dg) less than 200 nm have much smaller off currents and much larger on/off ratios. [C2293]

"Fast Response Blue and Green Organic Light Sources with Different Fluorescence Lifetime Materials for the Wavelength Division Multiplexing Optical Interconnect Application"

We have demonstrated fast response blue and green organic light-emitting diodes (OLEDs) for optical interconnect applications. A fluorescence lifetime (FL) of an organic light-emitting layer (EML) was important parameter to increase a transmission speed of an OLED light source. We examined transient properties of the OLED with a short FL material as an EML. We have found that three species of organic materials have short FLs, which were 1.4 ns, 0.8 ns, and 1.6 ns for the l,4-bis[2-[4-[N,N-di(p-tolyl)amino]phenyl]vinyl]benzene (DSB), 4,4-bis(2,2-diphenyl-ethen-l-yl)-diphenyl, and 4,4'-bis(9-ethyl-3-carbazovinylene)-l,l'-biphenyl doped in 4,4'-bis(9-dicarbazolyl)-2,2'-biphenyl (CBP) films, respectively. These FLs are much shorter than that of tris(8-hydroxyquinoline)aluminum (Alq3), which was generally used as the EML. As a result, we have achieved the increase of the transmission speed by using the short FL material. In order to investigate the transmission speed of the OLED, we investigated the frequency dependence of an output power. It was found that the transmission

speed of the blue OLED faster than that of the conventional green device owing to the shorter FL of the blue emitting material. Furthermore, we have achieved the -3 dB cutoff frequency of 15 MHz by utilizing 0.5- wt.% DSB doped in CBP as the EML. We have also investigated the frequency dependence of the photoluminescence intensity to estimate the influence of the FL on the transmission speed. The -3 dB cutoff frequencies were 20 MHz and 160 MHz for 0.5- wt.% 5,6,11,12-tetraphenyl-tetracene doped Alq3 and non doped DSB films, of which the FLs are 9.2 ns and 2.0 ns, respectively. [C2294]

"Conductive Adhesives: Alternative to High Temperature Solders and The Future"

Isotropic conductive adhesives have excellent attributes as heat-resistant lead-free high temperature interconnection materials as well as those enabling low temperature manufacturing of circuits. Ag metallic particles from nano-scale to micron-scale are combined with organic matrix to provide sound high-temperature lead-free interconnection. Micron-sized Ag particles paste can provide flexible wiring in combination with silicone-based resin. The ultra flexible skin sensor for a robot was successfully fabricated from the newly developed Ag-silicone conductive adhesive. Ag nanoparticle pastes have been successfully adopted to ink-jet wiring and the multilayered circuit layers on a SiP structure with Ag nanopastes demonstrated the potentials of the new printed electronics technology. Lowering process temperature for Ag nanoparticle pastes finally reached room temperature wiring in air atmosphere. [C2295]

"Unique Transparent Resin and Vacuum Printing Encapsulation Systems (VPES) Packaging Method for New White LED"

As you know, LED (light emitting diode) industry is full of vigor. They are used by signal, car, and backlight of mobile telephone and so on. In particular, white color LED attracts attention very much, If it is applied to lighting equipments in future, it is certain that it becomes a very big market. In general, colorless transparent resin is used by transparent epoxy resin, but there are many problems of materials fitting white color LED. Because blue LED is emitting high temperature and UV light from chip itself. In recently, it appears "the high power chip LED" through large electric current for these applications. This means that the transparent resin deterioration becomes very fast. Therefore, it is a fact that LED quality declines. So that we solve this difficult problem, we investigated new materials except epoxy resin such as silicon resin and hybrid resin. And we developed special transparent epoxy resin, too. We get very good result after humidity test (85degC/85%/1000 hr/20 mA). However, a new problem comes out to new materials (silicon resin), the materials choice is necessary by LED specifications. We prepare some materials matching for each PCB material and each reliability condition. Secondly, we suggest high density packaging technology using VPES. These good advantages are very fine pitch and low height, high density packaging technology, good mass production, and low cost systems. Shape of LED made by VPES is very unique shape. For example, it has a characteristic that a field of vision corner is very large. We expect that this technology apply to "new high power LED" applications. In the main subject, we will take up backlight for LCD. You will understand how this technology is tied to energy saving. [C2296]

"SocialButton-Mobile Technology Enhancing Social Interaction"

We are exploring the use of small displays as an instrument to enhance social communication. Our focus is on encouraging communication between strangers by revealing the existence of common friends. In the following we present the concept of the SocialButton, a wearable mobile device which displays aspects of friend-of-a-friend networks. A group study has provided us with an initial understanding regarding the potential of the SocialButton to influence our social environment. [C2297]

"Novel AC Driver and Protection Circuits with Dimming Control for Light Emitting Diodes"

The purpose of this paper is to present AC driver and protection circuits of Light Emitting Diodes. For the presented circuits, AC power source can be applied to drive LED without further conversion stage and the circuits provide failure indication and protection. The presented system consists of a full-bridge LED modules, power device and control circuit for dimming control and protection circuits. The LED modules for each upper and low arm are with pulse-width modulation control in every half fundamental cycle. The indication and protection circuits activate whenever short circuit and open circuit of LED module occur. Moreover, the current path is switched off when short circuit of LED occurs. Experimental results derived from a test AC driven white LED lighting system are presented to fully confirming the function of performance of the proposed circuits. [C2298]

"New IGBT Concepts for Consumer Power Applications"

High voltage IGBTs up to 1500 V are widely used in consumer power applications. The introduction of the FieldStopreg technology in combination with a trench gate structure brought improvements in terms of

conduction losses and switching losses. Additionally, the integration of powerful reverse diode structure led to Infineon's reverse conducting (RC) technology and offers further platform for new IGBT devices. New voltage classes of RC-IGBTs are proposed in this paper, which bring benefits to the application such as low EMI or high efficiency. This paper discusses new devices for soft-switching applications such as induction cooking, microwave ovens and rice cookers in 600 V, 900 V, 1000 V, 1200 V and 1600 V. [C2299]

"Recent Advances in Si Nanocrystal LEDs by Employing Transparent SiCN Electron Injection Layer"

We present recent progress in Si nanocrystal LEDs by applying a transparent SiCN electron injection layer and demonstration of the 8 times 8 micro-LED array with a high performance for bio-sensing applications. [C2300]

"Resonant photoluminescence from crystalline Si with photonic crystal nanocavity structures"

We fabricated silicon photonic crystal nanocavities and observed intense photoluminescence (PL) form crystalline silicon at cavity resonant wavelengths. More than 300-times stronger peak intensity and a 50-fold enhancement of integrated PL intensity were demonstrated. [C2301]

"Evaluation of Power LEDs Drivers with Supercapacitors and Digital Control"

This paper describes the complete design and implementation procedures of a low-cost digital controller for a High Efficiency LED driver, using supercapacitors as the primary power sources. The main advantages of these Power LEDs are the high luminosity, high efficiency and long operating life. Due to these improved behaviour, the number of LED-based applications is continuously increasing. Nowadays, the cost of digital processors is constantly decreasing, and the trend is that still lower costs will be achieved in the future. In addition, digital processors offer extra features, e.g. communication protocols, software protections, and so on. Therefore, this study has an evident practical interest. [C2302]

"Drivers for OLEDs"

Organic light emitting diodes (OLEDs) are expected to become important light sources in the future. In contrast to point source inorganic LEDs, OLEDs are large area device. This in combination with different materials results in differences in performance and electrical behaviour, which on their turn result in different drivers. This work gives an overview of OLED characteristics. Based on these characteristics a simplified equivalent circuit is obtained and driver requirements are derived. It is found that AM dimming is preferred. Additionally, some OLED characteristics are compared with those of inorganic LEDs. [C2303]

"Visual Performance for Incandescent and Solid-State Cap Lamps in an Underground Mining Environment"

Miners depend most heavily on visual cues to recognize underground mining hazards; consequently, illumination plays a critical role in miners' safety. Some hazards are located in the miners' peripheral field-of-view (10 degrees to about 60 degrees off-axis) or on-axis (0 degrees). The objective of this research was to determine if there were visual performance improvements when using solid-state cap lamps with light- emitting diodes (LEDs) as compared to incandescent light bulbs commonly used in miner cap lamps. Recent research has indicated that an increased short-wavelength content of the spectral power distribution of LEDs relative to incandescent lamps improves peripheral visual performance for low-light (mesopic) conditions. The visual performances of nine subjects were quantified by measuring the subjects' speed and accuracy in detecting floor objects located on axis and at plusmn20 degrees off axis. The objects were located near field (1.83 meters) and far field (3.66 meters). Upon presentation of the objects, subjects would count and point to each object using a red-laser pointer. The object detection response time and number of missed objects were recorded. The results of the visual performance comparison for an LED, a prototype LED, and an incandescent cap lamp are presented. There we no missed objects when subjects used the LED-based cap lamps but, there were three missed object occurrences when subjects used the incandescent cap lamp. The mean detection time when using the incandescent cap lamp was 55.3% greater than the prototype LED cap lamp and 43.5% greater than the LED cap lamp. It can be inferred from this data that the spectral distribution of LED-based cap lamps could enable significant visual performance improvements as compared to incandescent cap lamps. [C2304]

"Evaluation on the Efficiency of Power LEDs Driven with Currents Typical to Switch Mode Power Supplies"

Electronic ballasts are necessary to use light emitting diodes (LEDs) for illuminating purposes powered from the

mains. As a consequence this paper shows an examination of two white LEDs considering the resulting losses in luminous efficiency if the LEDs will be driven with different current waveforms as they typically occur in switch-mode power supplies. Therefore it is possible to estimate to which extend more circuitry effort is advisable. [C2305]

"Distributed Emergency Lighting System LEDs Driven by Two Integrated Flyback Converters"

This paper presents the project of a distributed emergency lighting system by using light emitting diodes. The converter applied to supply this network consists of the integration of two flyback converters. The integrated converters are responsible for the battery charge maintenance and LEDs' supplying. Simulation and experimental results are shown in order to validate the proposed idea. The design has been accomplished according to the IEEE STD 446, 1995 and Brazilian standards NBR 10898,1999. [C2306]

"Luminescence characterization and room-temperature 1.6 μm electroluminescence in si/β-fesi2 /si double heterostructures on si(001) by molecular beam epitaxy"

We have fabricated Si/β-FeSi2/Si double heterostructures light-emitting diodes on Si(001) by molecular beam epitaxy and 1.6 μm electroluminescence was realized at room temperature. The origin of luminescence was investigated using time-resolved photoluminescence measurements. [C2307]

"Influence of insulator length on the electron temperature in the coaxial electrode of Plasma focus device"

Summary form only given. We have generated the argon plasma in the diode chamber based on the established coaxial electrode type and investigated the emitted visible light for emission spectroscopy. We applied various voltages 2-3.5 kV to the device by 0.5 kV. and obtained the emission spectrum data for the focused plasma in the diode chamber on the diverse argon pressure. The Ar I and Ar II emission line are observed. The electron temperature and ion density have been measured by the Boltzmann plot and Stark broadening from assumption of local thermodynamic equilibrium (LTE). We changed the length of insulator which is covered with the anode and cathode and measured the electron temperature on the its diverse insulator type. It can be shown that the electron temperature will be influenced by the insulator length in argon plasma with coaxial electrode. [C2308]

"Automatic Parking Benchmark Problem: Experimental Comparison of Nonholonomic Control Methods"

This paper presents several experimental results for typical nonholonomic control methods. Although numerous nonholonomic control methods have been proposed, few is known about the advantages and disadvantages of each method. So in this paper an automatic parking system is used as a benchmark to test several typical nonholonomic control approaches experimentally. The emphasis is put on the applicability and control performance. [C2309]

"Investigating Intensities of Very High Voltage Rise dv/dt Pulsed Power Source in Atmospheric Microplasma"

Summary form only given. Fast rising voltage excites plasma discharges applied to light emitter and reactive treatment. Fast-rising voltage pulse, maximum rise up voltage as high as 436 MV/s, was generated by a compact pulse power generator. The micro-discharge apparatus consists of a bottom electrode made of a stainless steel sheet with 17 x 24 mm and an upper barrier coated by transparent conducting indium tin oxide film (ITO), and gap width (600 -1050 micro-m) filled with air at normal atmospheric pressure. Micro barrier discharge was excited in air. Sequences of images were recorded at micro-second to several hundred nano-seconds. The intensity distributions were calculated statistically. In this preliminary research, experiment was conducted in high voltage pulse at 2 kHz was supplied from pulse-power generator. Images taken at 100 ns, an area of 120 x 130 pixels of in tensity was determined by using Sobel edge enhancement method. Evolution of the intensity of each pixel were measured and investigated during voltage rise at varied voltage (6-7 kV). [C2310]

"UV LED Triggered Spark Gap"

Summary form only given. Spark gap is used extensively in all kinds of pulse generators, traditional Trigatron type spark gap relies on a pulsed high voltage (usually around 30 % of hold off voltage) to trigger the main gap breakdown. The statistical delay is inversely proportional to pressure and related to streamer propagation time. On the other hand, laser triggered spark gap require high cost YAG laser to provide very strong intensity

(~109W/cm2, tens of mJ energy) to ionize SF6or air to initiate breakdown. UV flash lamp has also been used to trigger Thyratron in Back Light Thyratron (BLT). The emergence of high power (1-3 W) U V LED presents a new opportunity in triggering a spark gap. LED is compact, low cost, low voltage, and with very low jitter. One or several UV LEDs are positioned in the center of a Trigatron type spark gap to initiate the main discharge. Preliminary results of breakdown waveform and delay are discussed. [C2311]

"On Precise Photoelectric Measurement Device for Dimension"

In modern manufacture, the need of precise dimension measurement with no touch is bigger and bigger. This paper studies and designs a precise photoelectric measurement device for dimension integrated with optics and signal proceeding technology. Using narrow-spectrum of high brightness LED as lamp-house, even parallel light comes into being when passing special optical structure. Adopting high resolution linear CCD sensor and subdivision technology and integrated with digital signal proceeding technology, the system has achieved steady micron-grade dimension measure. We select TMS320-F240 DSP as microprocessor, and use touch screen with big screen to display graph. The device is convenient and exact to use, and its application foreground is very good in various fields such as precision machining to the manufacture. [C2312]

"Towards a monolithically-integrated electrically-pumped Si light emitter technology using epitaxial erbium oxide"

We present epitaxial erbium oxide films on Si as a potential light emitter technology for integration with CMOS electronics. These films offer strong photoluminescence and can be integrated into heterostructures for providing photodetection and electroluminescence. [C2313]

"Full Spectrum Emission and Hybrid OLEDs from Silicon Nanoparticles"

This study demonstrates that in-line etching processes can be created to size the nanoparticles and produce a surface passivation layer. Photoluminescence measurements have been carried out to examine the dry etching process. It is found that the PL of Si nanocrystals (Si-NCs) blueshifts when the dry etching reduces the size of Si-NCs, consistent with the well-know quantum confinement effect. Hence, Si-NCs are considered promising materials for optical applications including light emitting diodes. [C2314]

"Optical Properties of Silicon Three-Dimensional Photonic Crystal Fabricated by Self-Aligned Two-Directional Electrochemical Etching Method"

We have developed a new fabrication process of three-dimensional photonic crystal (3DPC) structures using the self-aligned two-directional electrochemical etching method. We performed optical measurements to clarify the properties of the fabricated 3DPC structures and observed a decrease in the reflectance. We also observed for silicon nanocrystals deposited on the 3DPC structures that the photoluminescence (PL) intensity was increased and the PL decay time was reduced at the same wavelength centered around 750 mn. These experimental results are attributed to the cavity modes formed at defects in the 3DPC structures. [C2315]

"Charge Transport and Electroluminescence in PECVD Grown Silicon-Nanocrystals-Based LEDs"

Electrical carrier injection into PECVD grown silicon-nanocrystals-based LEDs was examined by I-V, C-V, and impedance measurements. Electroluminescence was measured as a function of gate AC frequency. The correlations between conduction mechanism and electroluminescence are discussed. [C2316]

"Novel sensor and algorithm for motion tracking in indoor and outdoor environments"

We propose a real time tracking system efficient in indoor as well as outdoor environment based on the modulated/phase-stamp imaging technique and its associated device, the correlation image sensor (CIS). For each pixels, the CIS captures simultaneously the frame-averaged intensity and the correlation of the time-varying intensity with chosen reference signals. In the indoor case, we use a pair of sinusoidal wave as reference signals, and track leds modulated with the same signal. In the outdoor case, we take advantage of the property of modulated imaging to compute optical flow and use it to track the target. [C2317]

"Highly efficient resonant-cavity light-emitting diodes for compact color projectors"

An overview of red-green-blue highly efficient resonant-cavity light-emitting diodes is presented. First, the main parameters of dipole emission in planar cavities are reviewed. From these, we derive design rules to improve the device external efficiency. We point out some guidelines for comparison of light-emitting diodes, and use these to review the different device structures in different material systems and at different wavelengths. [C2318]

"Two Mode Interactions in Quasi-Stadium Laser Diodes"

We found alternate oscillations in AlGaAs/GaAs single-quantum-well (SQW) quasi-stadium laser diodes (QSLD). The alternate oscillations in QSLD can be well explained by the interactions of two different cavity modes due to the geometrical symmetry of QSLD. Unlike the alternate oscillations in semiconductor ring lasers that need the waveguides to extract the light signals, the alternate oscillation signals in QSLD are obtained from the emitting lights spreading over the space. We also showed the alternate oscillation frequencies are inversely proportional to the amplitudes of two different cavity modes. This result is consistent with the theory of locking of two modes explaining the locking phenomenon between two nearly degenerated modes due to the nonlinear interactions in an active medium. [C2319]

"Extracting Hand Vein Patterns from Low-Quality Images: A New Biometric Technique Using Low-Cost Devices"

A new biometric technique using hand-dorsa vein patterns attracted attention these years. In this technique, extracting vein structures is a key procedure. For conventional algorithm, it is necessary to use high-quality images, which demand high-priced collection devices. That is because vein pattern images usually have low contrast, high-quality images are proper for segment. In our research, an extracting method for low-quality image is presented. The proposed method makes using low-cost devices possible. The results show that we could extract the vein networks as successfully as using high-quality images. In this paper, the principle of vein imaging is discussed, a new method to acquire vein images, which could enhance the contrast, is proposed, and the algorithm of extracting the vein pattern from low quality images is put forward. Our innovations are designing a new method to obtain good contrast vein images and proposing a novel denoising algorithm. [C2320]

"Recognition of Sun-pest Infected Wheat Kernels Using Artificial Neural Networks"

In this study it is aimed to recognize sun-pest infected kernels in a sample sub-group of wheat kernels taken from a bulk of Bezostaja wheat. Recognition of the damaged kernels is realized by evaluating light transmittance data of the kernels through use of artificial neural networks (ANN). Wheat kernels in the sub-group are left to fall in an oblique groove with semi-circular cross-section. While the kernels cross a LED light source, light transmitted through the kernel fall on a sensor just across the light source. Analog signals induced by the sensor are recorded and histograms of these signals are evaluated by using ANN in order to recognize sun-pest infected wheat kernels in the sub-group. Two different ANN models: multi layer perceptron (MLP) and self organizing map (SOM) models were used in the recognition process. [C2321]

"Pneumatically-Actuated Tunable Microlens for Endoscopic Optical Coherence Tomography"

A pneumatically-actuated micro-lens integrated in the sample arm of a time-domain optical coherence tomography (OCT) system is presented. A 50 mum thick polydimethylsiloxane (PDMS) membrane is spun onto the front side of the lens. Deep-reactive ion-etching (DRIE) is applied to create the aperture of the lens. Dynamically shifting the focal length for each A-scan step enhances the axial scan length and the contrast of the backscattered interference signal of the structures beneath the surface. The successful integration of the micro-lens with an OCT system allows its use in endoscopic in-vivo applications. [C2322]

"High efficiency LEDs by Microcavity and Photonic Crystal Extraction"

We discuss the impacts of microcavity and photonic crystal structures in LEDs. In addition to improved light extraction, such structures lead to enhanced directionality, while relying on planar fabrication processes. [C2323]

"Microlens Array Film with Full Fill Factor for Enhancing Outcoupling Efficiency from OLED Lighting"

This paper reports a microlens array (MLA) film with full fill factor and presents its application to organic light emitting diode (OLED) for improving outcoupling efficiency. Gapless MLA film having high sag ratio is proposed and fabricated by simple micromachining process including trench formation and conformal vapor phase deposition of polymer. As applying MLA film to OLED panel, the outcoupling efficiency increased by maximum 48%. High-sag MLA optical film with full fill factor is expected to give remarkable optical efficiency to various display or lighting applications of the flat panel light sources including OLED. [C2324]

"High Piezoresistive Organic Film for Plastic Pressure Sensors"

A flexible pressure sensor based on a bi layer (BL) organic film has been fabricated. The conducting

microcrystalline layer of an organic molecular conductor is used as a high sensitive piezoresistive material to detect and transmit pressure data. The polymeric matrix serves as both diaphragm and support for the placement of the conducting layer over it. Remarkably, the different electronic circuits can be directly designed on the conducting microcrystalline layer using a very simple technique. The sensors based on BL films can be employed in innovative applications such as smart clothing and robotic interfaces. [C2325]

"BER Characteristic of Ground-to-Train Communication System Using Free-Space Optics Technology"

We propose a ground-to-train communication system using free-space optics between a train and the ground. In this paper, we evaluate BER characteristic in outdoor experiment using test train. The experimental results lead to the conclusion that the proposed system is a promising candidate for train communication from the viewpoint of BER characteristic. [C2326]

"A Model for Nano-composite Polymer Dielectrics under Electrical Stress"

A simple model is used to explain the characteristics of nano-composite polymer dielectrics under high fields. The important, indeed dominant, role of the particle-polymer interface in determining the proportion of unmodified polymer matrix available to normal conduction is emphasised. By considering the specific conditions for a titanium dioxide / polyethylene composite, it is shown how the combination of particle and polymer interface entities can act as distributed electron-hole recombination centres. [C2327]

"Ensuring data integrity via ICmetrics based security infrastructure"

Society has grown to trust and depend on electronic systems. However, rising complexity, reduced time to market and increased commercial pressure contribute to eroding dependability. At the same time the value of data and high social dependence on the now ubiquitous embedded systems that underlie most products and equipment attract malicious exploits. Tampering of electronic systems to compromise their integrity and the security of their stored and transmitted data is a growing problem in today's connected devices. This manuscript describes research relating to a new concept called ICmetrics capable of improving the security of system-on-chip (SoC) based devices and their data by providing a reliable means of identifying each device and verifying the absence of tampering using each device's unique features and properties. Specifically, this manuscript outlines a methodology to extract low level feature values from a SoC via reconfiguration of its existing debug support circuits that were originally intended to aid system-level development and monitoring. This novel approach to feature extraction yields an area saving of over 30% percent compared with dedicated circuits. [C2328]

"Basic Experiments on Paralle Wireless Optical Communication for ITS"

In this paper, we propose parallel wireless optical communication with an LED traffic light as a transmitter and a high-speed camera as a receiver. Today, it is proposed to use visible light communication for road-to-vehicle communication, which assists drivers by providing various information. It is also proposed to use LED traffic light as its transmitter. Thus in this paper, we propose a road-to-vehicle communication system using a high-speed camera. In our proposing system, we receive data by capturing the transmitter with the high-speed camera, making it possible to recognize each LED separately. We have examined communication speed and conducted experiment of parallel data transmission under laboratory condition. [C2329]

"A New Receiving System of Visible Light Communication for ITS"

This paper discusses a new receiving system for visible light communication applied to intelligent transport systems (ITS). We use a light emitting diode (LED) traffic signal as a transmitter that sends information to vehicles that feature a receiver. There are, however, several problems associated with applying visible light communication to the field of ITS. First, we have to transmit information over long distances; second, the relationship between the transmitter and the receiver position changes with time; and third, the communication is affected by a lot of optical noise. Here, we propose a new receiving system to solve these problems and construct a prototype. Evaluation experiments on the system demonstrate its validity. [C2330]

"Environmental Effects on Measurement Uncertainties of Time-of-Flight Cameras"

In this paper the effect the environment has on the SwissRanger SR3000 time-of-flight camera is investigated. The accuracy of this camera is highly affected by the scene it is pointed at: such as the reflective properties, color and gloss. Also the complexity of the scene has considerable effects on the accuracy. To mention a few: The angle of the objects to the emitted light and the scattering effects of near objects. In this paper a general

overview of known such inaccuracy factors are described, followed by experiments illustrating the additional uncertainty factors. Specifically we give a better description of how a surface color intensity influences the depth measurement, and illustrate how multiple reflections influence the resulting depth measurement. [C2331]

"Novel Infrared Emitter for Low Cost Optical Devices"

Erbium (III) tris(8-hydroxyquinoline) (ErQ3) solution was deposited on glass substrates using spin-coating processing under high temperature conditions. 1.52 mum centered infrared photoluminescence induced by laser and LED sources was measured, confirming ErQ3as a potential material for application to optical communications devices. Spin-coating of ErQ3allows for more flexibility for infrared emitting OLED implementation and design as with imprinting lithography. [C2332]

"Nonlinear Gain and Related Effects in Quantum-Well Heterostructures"

The gain saturation in quantum-well heterostructures under the change in the populations of the subband levels is described in detail. The nonlinearity parameters are introduced and their change with the pump, radiation frequency, temperature, and the quantum well level distribution is examined. The main attention is given to quantum-well heterostructures based on III-V compounds, including GaInAsSb, GaInAs, GaInAsP, GaAs, and GaInN, which emit in the spectral interval from the mid-infrared to visible light. [C2333]

"Wireless System Of Loading Of The Advertising Information In Light-emitting Diode Panels in Trais"

Are considered in this work principle of construction of wireless system of load of the information in the light-emitting diode panels located in mobile objects (trams). Work result is the block diagram of system. [C2334]

"A New Vehicle Intelligent Navigation Alarm System Based on SB5227 Microprocessor"

The vehicle navigation alarm system has played an important role in avoiding traffic accidents, but the function singleness, structure faultiness and price highness are open questions for the existing products. A new multifunction intelligent navigation alarm system based on ultrasonic ranging microprocessor SB5227 is developed to caution the driver with speech and LED for over acceleration, hard braking, up/downhill, backing, high-speed, bad weather, etc. This system has the characteristics of better practicability, higher reliability and higher cost performance. It can be used to prevent traffic accident effectively when combined with GPS. [C2335]

"Key technologies for solid state lighting"

The latest development of the key technologies including improvement of the internal quantum efficiency and external quantum efficiency of the high-power GaN-based LEDs, packaging and system application was reviewed and analyzed in detail. [C2336]

"Soft imprint lithography for pixel array manufacturing in OLED"

A soft imprint lithography (IL) process is presented to fabricate the pixel array pattern for organic light-emitting diodes. In this study, we successfully fabricate the OLED pixel array of sizes from 50 mum to 5 mum. [C2337]

"Influence of Copper Phthalocyanine on the Performance of Distyrylarylene Blue Organic Light Emitting Diode"

The current-voltage characteristic analysis reveals that the mechanism of enhancing the performance of the distyrylarylene blue organic light emitting diode by using Copper phthalocyanine is the improved hole injection from anode to hole transporting layer. [C2338]

"Thermal management of a passively cooled LED-based large area direct backlight for LCDs"

Influence of temperature on color and luminance uniformity of LED-based direct backlight is investigated. A thermal management scheme is proposed. The color difference introduced by temperature is reduced by 50%. [C2339]

"A novel white OLED with a doping of rubrene into ZnL"

A novel white OLED was fabricated with a single layer consisting of Rubrene and ZnL. While the Rubrene ratio is 0.9%, the CIE coordinate is(0.308,0.347). The luminescence brightness is 3120 cd/m2when voltage increased

to 25 V. [C2340]

"Luminescent properties of a ternary gallium complex with a noncyclic crown Schiff base and 8-hydroxyquinoline"

A ternary gallium complex with mixed ligands were synthesized. The photoluminescence and electroluminescence of the complex were investigated. The device exhibited bright green emission and the maximum brightness of 3800 cd/m2was achieved. [C2341]

"Classification of Human Poses using a Vision based Technique"

This paper presents work being carried out to estimate human pose using vision based methods. The data acquisition system uses an active marker technique synchronized with a three camera stereo vision system. The locations of the markers are then used to reconstruct a skeleton representation of the human pose. PCA and clustering techniques are used to classify the pose. [C2342]

"Real Case Study of a Neuro-Fuzzy Intelligent Car"

This paper present a real case study of an intelligent car. There exist an important number of applications, wherein it is required to recognize some plan forms. In these applications, but also in the case that the forms aren't anymore plans, the contour of the forms is an important descriptor from which we can leave in the process of similarity finding between the objects represented by the respective forms in the digital images. By leaving from the contour of the form, there exist many possibilities to describe the forms. [C2343]

"Crystal Structure, UV-vis Absorption and Fluorescent Properties of a Novel Coumarin Derivative"

A novel 3-(1H-4-methyl-benzotriazol-1-yl)-4-methyl-benzo[7,8]coumarin(MBMBC) containing an electron-transporting moiety (benzotriazole) was characterized single crystal X-ray crystallography and UV-vis absorption spectra. The compound exhibits strong blue emission and may prove to be important class of OLED material. [C2344]

"HCI(Human Computer Interaction) Using Multi-touch Tabletop Display"

In this paper, we describe the development of multi-touch tabletop display system and the classification of hand gesture commands for interacting with our system. And also, we analyze the suitability for interactive tabletop in light of the respective input and output degrees of freedom, as well as the precision and completeness provided by each. Our system is based on FTIR (frustrated total internal reflection) principle and hand gestures for necessary instructions are predefined using position sensing and tracking of multi-touch points and the number of fingertips. The system consists of two beam-projectors, diffuser film, infrared cameras and large acrylic screen that attached infrared LED. In recognition process, gesture commands are analyzed by comparing with predefined gesture instructions according to the number of contacted fingertips, Euclidean distance and angles between two bright spots. In this paper, vision based tabletop display system that we proposed provides much advantages understanding human and computer interaction. Also the efficiency of proposed method can be proved through controlling Google-earth. [C2345]

"Study of temperature-dependent electroluminescence in the high-power blue InGaN/GaN multiple quantum wells light-emitting diodes"

Temperature-dependent electroluminescence (EL) spectra of 1 mm times1 mm InGaN/GaN MQWs blue LED was investigated. The enhancement of the tunneling-recombination is found to be the key mechanism for the results. [C2346]

"Effect of Mg-doping adjacent to active region on the efficiency of InGaN blue MQW LED"

The effect of Mg-doping adjacent to active region on the efficiency of InGaN blue MQW LED was investigated. The tunneling recombination and the Mg diffusion models were used to explain the optimized Mg concentration. [C2347]

"Phosphor-free White-light Light-emitting Diodes Based on Prestrained InGaN/GaN Quantum Wells"

A prestrained MOCVD growth technique is introduced to enhance the indium incorporation of InGaN/GaN quantum wells for effectively emitting yellow-red light such that white-light light-emitting diodes can be fabricated

without using phosphors. [C2348]

"Combination of Nitride Semiconductor Nanostructures and Nano-photonics for Efficient Solid-state Lighting"

Nitride nanostructures and nano-photonics, including an MOCVD prestrained InGaN/GaN quantum well growth technique for orange and white LED fabrication and surface plasmon coupling with an InGaN/GaN quantum well for light emission enhancement, are reported. [C2349]

"The Effect of p-InGaN layer on ITO based ohmic contacts to p-GaN"

By epitaxy of a thin p-InGaN layer on p-GaN surface and optimization of InGaN/GaN heterostructures annealing condition, ohmic contact to p-GaN with high transparency was obtained by using electron beam evaporated indium tin oxide film. [C2350]

"Surface Plasmon Coupling with an InGaN/GaN Quantum Well for Enhancing Light Emission Efficiency"

After several fundamental phenomena of surface plasmon coupling with an InGaN/GaN quantum well for light emission enhancement are studied, we evaluate the application of such a coupling process to a light-emitting diode with experimental supports. [C2351]

"ITO/AIN/Al Ohmic contact for p-GaN with high reliability and optical reflectivity"

ITO/AIN/Al scheme is proposed as ohmic contact to p-GaN with high reliability and optical reflectivity. The LEDs with ITO/AIN/Al contact exhibited better thermal stability, electrical and optical performance than ITO/Al and Ag-based ones. [C2352]

"Time-resolved Photoluminescence Characterization of InGaN/GaN Quantum Wells"

Steady state and time-resolved photoluminescence (TRPL) of InGaN/GaN quantum well (QW) samples grown by MOCVD is investigated. The carrier competition between QW peak and yellow band can be generally explained by the effect of indium concentration in InGaN/GaN QWs. [C2353]

"High-efficiency AlGaInP LED with low thermal resistance fabricated by electroplating"

Higher light extraction efficiency AlGaInP-based LEDs were fabricated by using metallic substrate based on Cu and Cr electroplating technique, novel metal reflector and surface micro-structures. [C2354]

"The design and fabrication of nanostructure on p-type GaN surface for GaN-based LEDs with high light extraction efficiency"

The parameters of nanostructure on p-GaN surface for light extraction efficiency of GaN based LEDs were studied by using Monte-Carlo ray tracing simulation, and nanostructures were fabricated by using interferential exposure and ICP dry etching. [C2355]

"Actuator and sensor modeling for magnetic levitation system"

In this paper, we consider the modeling of the sensor and actuator characteristics of a magnetic levitation system. The sensor part consists of an infra-red emitting diode (IRED) and a strip of photo-transistors to widen the control range of the maglev. Actuator is a lab-built electromagnet made of coil. In order to levitate a load through small amount of current, we attach a strong magnet block to the top of the levitated object. The sensor used in this paper has nonlinear characteristics because the photo-transistors are not accurately positioned. Furthermore, the actuator also has some sort of nonlinearity. We propose to use a screw-based height gauge system for modeling the actuator characteristics and the relationship between the height of the levitated object and the sensor output. We adopt two methods to model the sensor and actuator characteristics: look-up table and segmented linear approximation. The merit of the proposed modeling method is that it is very cost-effective because the screw-based measurement system can be built at a reasonable cost. Finally we show the usefulness of the proposed modeling approach through a real control experiment. [C2356]

"Multiple Wavelength Emission From Semipolar InGaN/GaN Quantum Wells Selectively Grown by MOCVD"

Multiple wavelength emission is experimentally observed from semipolar InGaN/GaN quantum wells selectively grown by MOCVD. Selective growth rates on different mask opening areas result in a multiple wavelength emission from the same wafer. [C2357]

"Carrier Concentration and Junction Temperature Dependencies of Illumination Efficiency of GaN Power Light-Emitting Diodes"

Pulsed drive currents have helped us separate the effects that junction temperature and carrier concentration have on current-induced efficiency degradation of GaN power LEDs. Carrier concentration and junction temperature dependencies of illumination efficiency are presented. [C2358]

"An All-Fiber-Optic Confocal Interference Microscope Using Low-Coherence Near-Infrared Light Source"

An all-fiber-optic confocal interference microscope using a broadband near-infrared light source is demonstrated. Detection of interference fringes increases sensitivity and usage of a broadband source reduces undesirable interference between optical components. [C2359]

"Emission Intensity Improvement of InGaN Ultraviolet Light-Emitting Diodes Grown on Wet-Etched Sapphire Substrates"

Wet-etched pattern sapphire substrates (PSS) with stripes along the <11-20>sapphiredirection are fabricated and investigated. Dislocation reduction and light extraction enhancement are observed for the material grown these substrates. 400 nm UV LEDs with output power enhancement as much as 87% have been demonstrated on the substrate with a 0.9 mum etching depth. The enhancement of output power is thus attributed to the reduction of dislocation density as well as increased light extraction efficiency by the stripe-PSS. [C2360]

"Patterning and integration of polyfluorene polymers on micropixellated UV AlInGaN light emitting diodes"

The integration of polyfluorene polymer micro-pixels onto GaN-based micropixellated UV Light Emitting Diodes is demonstrated. Polymer down-converted visible emission from these hybrid organic/inorganic electroluminescent micro-arrays is achieved. [C2361]

"Mid-infrared optical upconversion by integrating an InAsSb photodetector with a GaAs light emitting diode"

We report the fabrication and experimental results of a midinfrared optical up-converter that was fabricated using wafer fusion technology. Midinfrared optical upconversion from 4.0 to 0.84 mum was demonstrated at temperatures up to 200 K. [C2362]

"Efficient point defect engineered si light-emitting diode at 1.218 μm"

We have demonstrated a Si LED with an internal quantum efficiency ˜ 10 % using a novel approach to enhance light emission based on point defect engineering, which uses state-of- the art technology. [C2363]

"Light emission from size reduced nanocrystal silicon quantum dots"

We performed HF treatment to silicon quantum dots with diameter of 8 nm plusmn 1 nm fabricated by VHF plasma decomposition process. We observed PL wavelength shift from 750 nm to 620 nm for 8 nm to 2.5 nm diameter nc-Si dots. [C2364]

"Enhancement of Light Extraction Efficiency of InGaN Quantum Wells LEDs Using SiO2 Microspheres"

Novel approach to improve the light extraction efficiency of InGaN quantum wells light emitting diodes (LEDs) using SiO2microspheres was presented, leading to ~232% increase of the LEDs output power. [C2365]

"High Light-Extraction GaN-based Vertical LEDs With Double Diffuse Surfaces"

High light-extraction (external quantum efficiency ~40%) 465-nm GaN-based vertical light-emitting diodes (LEDs) employing double diffuse surfaces were fabricated. The high scattering efficiency of double diffused surfaces could be responsible for the high light output power. [C2366]

"Enhancement of Light Extraction in GaInN Light-Emitting Diodes with Graded-Index Indium Tin Oxide Layer"

Enhancement of light extraction in a GaInN light-emitting diode employing a graded-refractive index ITO anti-reflection coating deposited by oblique-angle electron-beam evaporation is presented. [C2367]

"Enhanced light-extraction from InGaN quantum wells using refractive-index-matched TiO2"

Enhancement of the overall luminescence efficiency in InGaN quantum wells by increasing the light-extraction efficiency is demonstrated by lateral patterning of refractive-index- matched TiO2films on InGaN quantum well samples. [C2368]

"Gallium Nitride LEDs Incorporating Organic Semiconductor Heterojunctions"

We report on the incorporation of thin organic layers as part of GaN/InGaN blue light emitting diodes. The integration of two such contrasting classes of materials as electronic part of a single device structure may offer new opportunities in the design of flexible optoelectronic devices. [C2369]

"Continuous Long-Term Observations of UV Laser- and LED-Induced Fluorescence of Processed Drinking Water"

We have used a deep-UV laser-induced fluorescence system to monitor in real time organic species present in tap water. We have also tested a 265 nm UV-LED as an excitation source for our system. [C2370]

"CLEO 07 Invited Paper Visible Light Communications"

This paper shows that visible LED for lighting or indicating can be used for ubiquitous communication applications, for example, position finding, intelligent transport systems, and advertisement. [C2371]

"High-Efficiency Light Emitters using Gallium-Arsenide Deep-Centers for Long-Distance Fiber-Optics"

We demonstrate the first LEDs at 1.3-1.5 mum using GaAs deep-centers having higher (70%) efficiencies, lower absorption loss, more temperature-insensitive luminescence, larger Einstein B-coefficient than bulk InGaAs. This is an enabling technology. [C2372]

"Light Emitting Diodes with Extremely High Extraction-Efficiency for Electroluminescence Refrigeration"

InGaAs light emitting diodes with extremely high light extraction efficiency are fabricated by monolithically integrating the light emitting region with a suspended GaAs hemispherical lens. This design is being developed for electroluminescence refrigeration applications. [C2373]

"Color Control System for RGB LED Light Sources Using Junction Temperature Measurement"

The efficiency of LED lights is approaching that of fluorescent lamps. LED light sources are finding more applications than conventional light bulbs due to their compactness, lower heat dissipation, and most importantly, real-time color changing capability. Accurate control of colors for RGB LED lights is a challenging task, which includes optical color mixing, color light intensity control and color point maintenance due to LED junction temperature change and device aging. In this paper, we present a LED junction temperature measurement technique for a pulse width modulation (PWM) diode forward current controlled RGB LED lighting system. The technique can control the color effectively without the need for using expensive feedback systems involving light sensors. Performance of chromaticity and luminance stability for a temperature compensated RGB LED system will be presented. [C2374]

"Energy Scavengers: Modeling and Behavior with Different Load Circuits"

This contribution describes the modeling of vibration-driven energy scavengers, either based on electrostatic, electromagnetic or piezoelectric principles. Subsequently, the behavior of the scavenger model is tested with two different types of load: a resistive load and a rectifier with a fixed voltage at the output. Optimal power output of the scavenger is calculated for both load-cases. It is shown that a resistance is not in all cases the most optimal load to maximize the power output of a scavenger. This conclusion has a big influence on the design of the

power management circuit, needed to transform the scavenger output voltages to an appropriate shape for powering an electronic load. [C2375]

"Spatially Controlled Functionalization and Chemical Manipulation to Fabricate 2D Arrays of Gold Nanoparticles onto ITO"

In this study, we demonstrate the formation of 2D arrays of AuNts by controlled functionalization in regular linear fashion based on self-assembly and vacuum ultraviolet (VUV) lithography approaches. [C2376]

"Practical Considerations in High Power LED Junction Temperature Measurements"

Power densities approaching 500 W/cm2in the coming commercially available illumination LEDs has moved thermal management of power dissipation to the forefront in most package development efforts for this kind of product. These development efforts require a simple, accurate junction temperature measurement approach that can be implemented in the laboratory and on the production line. This presentation will describe the alternative junction temperature measurement approaches, then focuses on the most practical one with some discussion of measurement issues often encountered. [C2377]

"A Handheld Fluorometer for UV Excitable Fluorescence Assays"

We report the development of a handheld fluorometer for UV excitable fluorescence assays. The handheld detector serves as a demonstration platform for an integrated fluorescence sensor and comprises a CMOS detector coated with a polymer based optical filter and placed in close proximity to a UV LED which is used as an excitation source. The sensor function has been validated for metabolic activity and cytotoxicity assays. The fluorometer was able to determine NADH concentration as low as 17 muM and was able to track NADH production in live yeast cells over time and as the yeast cell concentration varied. The sensor was also used to discriminate the viability of human intestinal adenocarcinoma cells (Caco-2 cell line) using a live/dead stain after exposure to toxic and benign nanoparticles. The integrated fluorescence sensor is suitable for microscale fluorescence detection in lab-on-a-chip applications. [C2378]

"The future of high-power conventional semiconductor based Light Emitting Diodes (LEDS) against Organic Light Emitting Diodes (OLEDS)"

The aim of this report is to investigate the future of the conventional semiconductor based light emitting diode against organic light emitting diode which have found their way into many current lighting technologies. [C2379]

"Study on the Cooling Enhancement of LED Heat Sources via an Electrohydrodynamic Approach"

This study is to investigate the cooling enhancement design of Light-Emitting Diodes (LED) heat sources through an electrohydrodynamic (EHD) approach, where the forced convection of air is achieved by the ion wind due to gas discharge phenomenon. A LED array with eight high-brightness LED units is adopted as the LED heat source in our study. The cooling enhancement system is composed of a heat sink with fins attached to our LED heat source and an array of electrodes connected to a high-voltage DC power supply. The electric field generated by parallel electrodes results in forced convection of air due to ionized particles between fins of heat sink, which significantly enhances the heat transfer from the heat source to outer atmosphere. Two different types of electrodes, i.e. line-type and needle-type, are employed in our experimental measurements. Different operation parameters, such as the number of electrodes, the pitch of electrodes, the input power and the distance between the heat sink and electrodes are systematically studied to evaluate their influences on the cooling enhancement of our LED source. For the purpose of comparison, a traditional cooling fan is also tested in our experiments. The needle electrode is proven more effective than the linear electrode. The proposed EHD approach is found to have the advantages in power saving, noise control and installment space over the cooling fan. With our design, the heat sink temperature can be maintained in the range of 20-30deg C from its peak value 65deg C (without external cooling) with an DC voltage between 15 and 23 kV. [C2380]

"A New Brain Imaging Device Based on fNIRS"

A new portable brain imaging device based on continuous-wave functional near-infrared spectrometry (fNIRS) is presented. The source-detector part is composed of a multi-wavelength LED and a silicon photodetector that are directly placed on the scalp of the subject. The dimensions of the proposed device are small, as it has to be mounted on the head of an adult person. Acquired data are transmitted in real-time to a laptop for post processing using Matlab. Time- multiplexed light is used to achieve a higher SNR while keeping the device safe for long-term wearing. Preliminary evaluation on adults gave the expected accuracy and compare well with fNIRS characteristics found in literature, that are collected from bulky equipment. With a noise figure of -47 dB

and a sampling rate of 23 Hz, the presented device is appropriate to isolate hemodynamic variations, which are strongly related to local cerebral activity. [C2381]

"Development of High Efficiency Green and Deep Green Light Emitters in Piezoelectric Group-III Nitrides"

Green and deep-green light emitting diodes are still the weakest link in energy efficient solid-state lighting. We analyze the limiting factors of the external quantum efficiency and summarize our approach of dislocation and polarization control. [C2382]

"Memory effects of nonvolatile polymer memory devices with an active layer consisting of poly(N-vinylcarbazole) and C60 nanocomposites"

Promising applications of organic materials in next-generation electronic and optoelectronic devices have driven extensive efforts to form various composites. Electronic and optoelectronic devices fabricated utilizing organic materials, such as organic thin film transistors, organic light-emitting diodes, and organic solar cells, have been extensively studied. However, relatively little work has been done on organic memory devices fabricated utilizing hybrid composites. Among the various kinds of composites, hybrid composites based on fullerene C60and poly(N-vinylcarbazole) (PVK) organic materials have become particularly attractive because of their potential applications in organic electronic devices. Even though some works concerning the organic memory devices consisting of organic/metal/organic structures formed by using evaporation methods, very few studies concerning the memory effect of the organic/inorganic hybrid structures fabricated by using spin-coating techniques have been reported. This paper reports data for the memory effects of the effect of C60existence on the flat-band voltage shift of nonvolatile polymer memory devices with the PVK and the C60nanocomposites active layers was described. [C2383]

"High precision and high speed cutting of 4th generation OLED masks with LaserMicroJetГ,B®"

A new micro-machining technology-the water jet guided laser, also called as LaserMicroJet technology-has been developed for the manufacturing of sophisticated and heat sensitive OLED masks. [C2384]

"Can we fabricate efficient white-light InGaN/GaN quantum-well light-emitting diode without using phosphors?"

We report some recent developments in all-semiconductor multi-color and white-light light-emitting diodes. The potential of the development of phosphor-free all-InGaN/GaN quantum-well white-light light-emitting diode will be evaluated. [C2385]

"Nanoimprinted photonic component for light extraction applications"

In this paper, the preparation of nanocomposites based on the incorporation of pre-synthesized (CdSe)ZnS core-shell luminescent nanocrystals (NCs) both in a PMMA (poly-methyl methacrylate) homo-polymer and into properly functionalized PMMA co-polymers is discussed. By using this novel luminescent nanocomposite materials, 2D photonic crystals are fabricated by Nanoimprint Lithography (NIL) and characterized, showing an effective enhancement in light extraction, likely to impact the fabrication of high-efficiency LED based on polymers by a cost efficient lithography technique. [C2386]

"Continuous 2-Sided Roll to Roll Nanopatterning of a Polymer Film"

We report a concept of producing nanosize structures on the cellulose acetate film by using a continuous (roll to roll) NIL method. We show structures were both sides of the polymer film are imprinted at the same time, in one imprint cycle. In the process only the surface of the polymer film is softened during the process. The results are compared to one sided roll to roll imprinting. The imprint time for a 1 mm structure was ca. 0.005 s which is very short when compared to the average imprint time used in wafer scale thermal NIL. Aligning possibilities of the printed structures are discussed. Roll to roll imprinted structures are analyzed using optical microscopy and AFM. [C2387]

"Electrical Characterization of Nano-Floating Gate Capacitor with Silicon Carbide Nano-Particles"

We fabricated and characterized the electrical properties of nano-floating gate capacitors with SiC nano-particles embedded in SiO2layer. We also showed a capability of this structure to application of the nonvolatile memory device. [C2388]

"Fabrication of photonic crystal-patterned light emitting diodes using nanoimprint lithography"

This work reports on the economical and effective fabrication process of photonic crystal patterns on GaN-based light emitting diode (LED) structures using nanoimprint lithography (NIL) and inductively coupled plasma (ICP) etching process. Results reveal the capability of using NIL to fabricate sub-micron sized, photonic crystal patterns at reduced cost for high brightness LEDs. [C2389]

"Analytical Study of DC Characteristics of p-Si/Γ́Bμ-FeSi2 /n-Si Double-Heterostructure Light-Emitting Diode"

The analytical method is developed to calculate the equilibrium and forward-bias conditions of p-Si/beta-FeSi2/n-Si DH LED. The Poisson's equation is solved to investigate the equilibrium electric field and free carriers distributions. Diffusion and thermionic emission mechanisms are used to calculate I-V characteristics and ideal internal quantum efficiency. [C2390]

"Calculation of Bimolecular Recombination Coefficient and Internal Quantum Efficiency of Γ́Bμ-FeSi2 DH LED"

The analytical methods to calculate the bimolecular recombination coefficient B and internal quantum efficiency etamiddot of beta-FeSi2DH LED are developed in this paper. The calculated B of beta-FeSi2is 1.28 times 10-10(cm3/sec), which value is similar to that of InP. The diffusion and thermionic emission mechanisms are used to calculate the free electron current densities and the rate equation is used to calculate the internal quantum efficiency. The effects that influence etamiddot values are discussed in this paper. [C2391]

"Structure and Luminescent Properties of SrSi2 N2 O2 Co-Doped Yb2+ and Nd3+ Phosphor by Hydrothermal Synthesis Process"

The luminescence properties of Yb3+and Nd3+-activated strontium-silicon-oxynitrides have been studied by hydrothermal synthesis process. The X-ray diffraction (XRD) measurement, absorption spectrum, and photoluminescence spectrum of the powder phosphors were presented. It absorbs light efficiently in the blue region (450 nm~500 nm), that shows a single intense broadband emission at 570 nm. Then SrSi2N2O2is a good host material for green-yellow phosphors (570 nm), combines with blue LED light (470 nm) that it stimulates in the phosphor to generate a whitish light. [C2392]

"A study of luminescent and structure properties of α-SiAlON: Yb2+ phosphors prepared by hydrothermal synthesis process"

This contribution reports on luminescence properties of divalent ytterbium alpha-SiAlON were synthesized by hydrothermal synthesis reaction, α- SiAlON is a good host material for yellow phosphors, combines with blue LED light that it stimulates in the phosphor to generate a whitish light. The X-ray diffraction (XRD) measurement, absorption spectrum, and photoluminescence spectrum of the powder phosphors were presented. Evidence shows that phosphors sintered at 1000degC not only have higher absorb intensity in the NUV spectral region (280 nm ˜ 320 nm) and blue region (380 nm ˜ 480 nm) but also possess the higher PL intensity of evident yellow- green emission at 550 nm. [C2393]

"Investigations of the Use of PosEye for Position Measurements"

The PosEye system is basically a position measurement system which takes images of the reference. The infra-red LEDs which emits IR lights is captured by the CCD and is used as the reference. In this system the absolute positioning and orientation were made with the help of a PosEye. The PosEye is normally fixed on a robot arm or the object which requires orientation of its own position in correspondence to its reference points in the working area. This paper discusses general ideas about reference markers, set-up procedures, and issues behind the sensor. This mainly includes the principles of PosEye sensor, basics of vision and cameras. The paper details the experiments in which results were obtained through the PosEye system with the help of electronics and PosEye camera. In the experimental setup, the connection of PosEye with the electronic application is presented, the usage of PosEye and the robot control system communication with the PosEye system using coordinate system. The working of the PosEye system is observed by taking images on the reference plate and finding the co-ordinates (x, y, z). The manipulation of the obtained images to the robot for a movement is also studied. [C2394]

"Control System Development for Goniophotometer"

This paper discusses a design of a goniophotometer control system. A goniophotometer is used to measure the characteristics of any light source such as luminosity. A goniophotometer is used in the design, development and production testing of light emitting diodes (LED), lamps and illuminated signs and in the certification of the final products according to relevant national and international standards. To test the effectiveness of the developed control system, a lab scale model of a goniophotometer was built. The components are two stepper motors, a photoconductive cell light sensor, optical interrupter, power MOSFETS and a Microchip 18F2455 microcontroller. The control system design stage is divided into two major sections, hardware and firmware. The firmware developments involve the PIC 18F2455 programming using the C language. The development of a goniophotometer is important to test any lighting equipment to ensure that they function in fine and safe condition. Corrective measures taken based on the accurate readings made by a goniophotometer can avoid the unwanted problems such as eye damages. This research paper consists of five major parts: introduction, hardware development, firmware development, results and conclusion. [C2395]

"Investigation of Electrode Pattern Design for Nitride-based Light Emitting Diodes"

In this research, we study the influence of the electrode pattern design on turn-on voltage and conversation efficiency in light emitting diodes (LEDs). We found that some relationships existing between the pattern design of electrode and characteristics of samples. We designed several electrode patterns in the fixed sized LEDs. In our research, we found that the reduction of turn-on voltage is related to the increasing total length of P-electrode and N-electrode. Furthermore, we found that the reduction of turn-on voltage is also related to the parallel length of P electrode and N electrode. Base on the experiment results, we estimated the reduction of turn-on voltage is proportion to the total length of P electrode and N electrode. For conversation efficiency, we found it proportion to the area which deduct P electrode area from transparent conduction layer (TCL) and the area of P electrode paralleling N electrode. [C2396]

"New Current Programmed Pixel Circuit for Active-Matrix Organic Light-Emitting-Diode Displays"

A new current programmed pixel circuit for active-matrix organic light-emitting-diode displays (AMOLED) was developed by using low temperature polycrystalline silicon (LTPS) technology. The new pixel circuit adopted not only asymmetric current mirror to reduce pixel charging time but two storage capacitors to increase OLED current holding ratio. The proposed current programmed pixel circuit kept high aperture ratio of the pixel and accurate OLED current despite parasitic resistance of power lines. Therefore, this pixel circuit is suitable for large size and high resolution AMOLED displays. [C2397]

"Ultra High Power Light-Emitting Diodes with Electroplating Technology"

Heat dissipation and thermal management of devices package are now a critical problem for applications of high power light emitting diodes (LEDs). In this paper, a novel package method with copper electroplating on the red, green, and blue LED chips were performed. With the copper plating layer, the endurable injection current of these LED chips can be increased easily from typical value of 350 mA to more than 1680 mA in room temperature; especially the input power of the GaN-based single chip blue LED can be increased up to 12W. The relative luminous intensity at 350 mA of the novel red, green, and blue LEDs (RGB LEDs) have 53%, 69%, and 23% enhancement respectively compared with those of the conventional packaged LEDs. When the injection current of these LED chips were increased to 850 mA, the relative luminous intensity of the novel RGB LEDs chips have 431% and 83%, and 18% enhancement respectively compared with those of the conventional packaged ones. [C2398]

"The Fabrication and Characterization of InGaAs Oxide-Confined Resonant-Cavity Light-Emitting Diodes Grown on GaAs Substrate"

In this article, we have demonstrated the fabrication and characterization of InGaAs oxide-confined resonant-cavity light-emitting diodes (OC-RCLEDs) which emitted at 1125 nm. The output power can be improved by lateral oxidation from the sidewall of the RCLEDs due to the reduction of the light absorption beneath metal ring. The maximum output power of oxide-confined devices is 3.25 mW at 500 mA and the turn-on voltage is about 1.7 V. [C2399]

"High Brightness Light Emitting Diodes for Ocean Applications"

Light Emitting Diodes (LEDs) are emerging in the undersea world as a reliable, efficient light source capable of narrow or wide chromatic bandwidth. Use of gas discharge lamps as light sources in the deep sea is complicated by the need to pressure protect the sealed bulbs. LEDs provide a viable alternative for many diver, submersible, and unmanned vehicle applications. While they are proving versatile, they also have unique characteristics that require designers to think differently. This paper will highlight those differences, draw similarities, offer common

language, and suggest future developments. At sea tests with Woods Hole Oceanographic Institution's DSV ALVIN will be described. DeepSea Power & Light (DSPL) has been involved in severe environment LED lighting for over 10 years in a line of Pipe Inspection Video Cameras and has been involved in advanced underwater lighting since the company's inception 25 years ago. DSPL has successfully tested LED arrays to pressures in excess of that found in the deepest ocean trenches. [C2400]

"NUROV: The Network-controlled Underwater Remote Observation Vehicle"

NVKOV is a small, observation class, remotely operated underwater vehicle developed at the Hawaii Mapping Research Group (HMRG) of the University of Hawai'i at Manoa. Utilizing a 100BASE-T IP network, NUROV is controlled via a web browser virtual control panel with streaming video from its onboard camera. The vehicle has two horizontal thrusters, a vertical thruster, and a motorized tilt for the onboard color video camera. Illumination is provided by Light Emitting Diode (LED) arrays that are mounted on either side of the camera; these arrays tilt with the camera to always illuminate the camera's field of view. The thruster motors, tilt motor, and junction box are oil filled for pressure tolerance. The prototype housings are designed for shallow water up to 50 meters, but future housings for depths to 6000 meters are planned. While connected to a node in an ocean observatory, NUROV can be used to monitor and investigate the area adjacent to the node. In addition to usage while connected to ocean observatory nodes, NUROV may also be deployed from a ship, lowered to the sea floor by a fiber-optic electromechanical cable. With the addition of a network switch, multiple vehicles could be deployed simultaneously on a single cable. Connecting the NUROV network to the Internet would allow users located around the world to operate the vehicle and to view the streaming video; this would be particularly useful for international collaboration and educational outreach. [C2401]

"High luminance bluish-green organic light-emitting diode based on Coumarin 6 doped into a blue emission layer"

In this research, the interface barrier of the lowest unoccupied molecular orbital (LUMO) between LT-N421 and Alq3layers was reduced by inserting a DPVBi layer. Luminance was enhanced several folds when a DPVBi layer was inserted between LT-N421 and Alq3layers. Because DPVBi layer not only helped electrons injection into emission layer (EML) but it also blocked holes in the EML to increase the chance of holes and electrons recombination in EML and to improve the luminance of device. Another emphasis of this study was doping Coumarin 6 (C6) green dye in LT-N421, a new blue light-emitting layer. The performance of LT-N421 is better than that of DPVBi. The optimum doping concentration was 0.4 wt% of C6 doped in LT-N421, while the doping concentration of C6 was more than 0.5 wt%, it resulted in aggregation and led to self-quenching. The optimum structure of bluish-green organic light-emitting diode was successfully fabricated based on ITO/NPB (50 nm)/LT-N421:C6 (0.4 wt%, 32 nm)/DPVBi (8 nm)/Alq3(20 nm)/LiF (1 nm)/Al (200 nm). The CIE coordinate of the device was (0.22, 0.43) when the maximum luminance was 42400 cd/m2at 11 V. The current efficiency and power efficiency were 8.83 cd/A at 11 V and 3.96 lm/W at 6 V, respectively. [C2402]

"An investigation of luminescent and structure properties of Ca-α-SiAlON doped Eu2+ phosphors fabricated by hydrothermal synthesis process"

A novel yellow oxynitride phosphor, Ca- α-SiAlON:Eu2+with compositions of Ca(NO3)2, Na2SiO3, NaAlO2and Eu(NO3)3, was prepared by hydrothermal synthesis reaction. The X-ray diffraction (XRD) measurement, absorption spectrum, photoluminescence spectrum, and chromaticity of the powder phosphors were presented. It absorbs light efficiently in the NUV spectral region (280nm ˜ 350nm) and blue region (380nm ˜ 480nm), that shows a single intense broadband emission at 570 nm (yellow light). This phosphor may become a good candidate for creating white light, typically warm white light, when coupled to a blue light-emitting diode (λex=450 nm). [C2403]

"A Novel Top Emission Pixel Circuit Compensating for TFT Threshold Voltage Variation and Luminance Degradation of OLED"

This work demonstrates a novel pixel circuit composed of top emission architecture with a voltage programming method. Besides compensating for the threshold voltage variation of TFTs, the proposed circuit can improve the luminance degradation of active-matrix organic light-emitting diode (AMOLED) by using OLED voltage as a feedback of OLED luminance degradation. In addition, the reversed-bias voltage applied to OLED can suppress the degradation of OLED. The simulation results show that the proposed circuit can effectively compensate for TFT threshold voltage variation and improve luminance degradation of OLED. [C2404]

"The Thermal Accumulated Improvement of a-Si:H Flexible Electronics for AMOLED Application"

We propose several kinds of materials which have different thermal conductivity be the thermal conduction layers between the buffer oxide and substrate of a-Si:H TFT device. The thermal conduction layers, such as Cu, Al, Mo and Si3N4, have significant improvement for thermal accumulation during operation. To understand the transient thermal profile and temperature distribution, we performed by solving the temperature distribution and heat diffusion for a 2-D a-Si:H TFT model to avoid high temperature to damage the PI substrate for flexible electronics operation. [C2405]

"Estimate of carrier balance and exciton distribution in organic light-emitting diode"

Organic light-emitting diodes (OLEDs) have attractive advantages as flat panel display and flat lighting device. The EL performance of OLED is often described as the external quantum efficiency. The external quantum efficiency is defined as the product of light out-coupling factor, PL quantum efficiency, exciton factor (singlet, 0.25), and carrier balance factor. Carrier balance factor is described as the ratio of recombination current to the current flowing in a external circuit. We estimate the above parameters by means of assuming the exciton distribution due to concentration diffusion. We use naphthyl-substituted diamine derivative as a hole transport material and aluminum quioline as an emission material. The external quantum efficiency is enhanced from 0.92% to 1.1% by introducing hole-blocking layer. When the exciton distribution in steady state is assumed to be a simple exponential defined by the diffusion length, EL intensity can be calculated. By comparing the experimental value with the calculated value, we can estimate the range of the above parameters. [C2406]

"Efficient All-Inorganic Colloidal Quantum Dot LEDs"

We present the first all-inorganic QD-LEDs consisting of radio-frequency sputtered metal-oxide charge transport layers and a colloidal quantum dot electroluminescent region. These devices manifest a 100-fold increase in external quantum efficiency over previously reported structures. [C2407]

"InGaN/GaN MQW Nanorods LED Fabricated by ICP-RIE and PEC Oxidation Processes"

The InGaN/GaN nanorods LED was successfully fabricated by ICP-RIE and PEC processes. Compared with as-grown sample, the PL and EL peak-wavelengths of the nanorods with PEC show 8.6 and 10.5 nm blue-shift, respectively. [C2408]

"The Characteristics of a High-Q GaN Micro-cavity Light Emitting Diodes"

We report the characteristics of a GaN high-Q micro-cavity light-emitting diode (MCLED). The GaN MCLED showed a very narrow linewidth of 0.52 nm at 10 mA and a dominant emission peak wavelength at 465.3 nm. [C2409]

"Enhancement of Radiative Efficiency of Nitride-Based LEDs via Staggered InGaN Quantum Wells Emitting at 420-500 nm"

Polarization band engineering via staggered InGaN quantum well allows enhancement of radiative recombination rate, leading to significant improvement of luminescence and LEDs output power by > ~4 times. [C2410]

"Inorganic/Organic Hybrid Optical Upconversion Device"

We report a hybrid optical upconversion device that emits visible light upon the detection of input near infrared light through direct tandem integration of an inorganic InGaAs/InP photodetector with an organic light emitting diode. [C2411]

"Monolithically Integrated III-Sb Superluminescent Light Emitting Diodes on Si (100) Substrates"

We report on recent monolithically integrated III-V on Si device developments including a room-temperature, superluminescent light emitting diode. The integration scheme is enabled by spontaneously-formed, interfacial misfit arrays (IMF). [C2412]

"Recent progress in phosphorescent white organic light-emitting devices for displays and lighting"

A phosphorescent white organic light-emitting device (WOLEDTM) with 14% etaegeat 1,000 cd/m2(25% EQE with outcoupling enhancements), CIE coordinates (0.46plusmn0.01, 0.46plusmn0.01) and a 50% lifetime 21,000 hours at an initial luminance of 1,000 cd/m2has been demonstrated. [C2413]

"White Light Generation with Azide Functionalized Polyfluorene Hybridized on Near-UV Light

Emitting Diode"

We present white light generation using poly[(9,9-dihexylfluorene)-co-alt-(9,9-bis-(6- azidohexyl)fluorene] (PFA) for the first time. Hybridizing PFA on near-UV LED, we demonstrate high color rendering index up to 91.0. [C2414]

"Thermal management and thermal resistance of high power LEDs"

Summary form given only. The junction temperature of Light Emitting Diodes (LEDs) is a primary reliability parameter. Exceeding the maximum rated junction temperature could lead to accelerated light output degradation and sometimes even to catastrophic failures. Besides that junction temperature influences the desired LED properties in applications like light output efficiency, dominant wavelength and forward voltage. Therefore thermal management and proper thermal characterisation of high power LEDs is very important for a reliable product with good performance. By measuring the thermal resistance of a high power LED it has to take into account that the power applied to the device is converted into heat and light (-20-40% efficiency). This means that the thermal resistance of a LED can not be determined without knowing the energy flux emitted as light. Therefore in general the interpretation of a given thermal resistance of an optoelectronic device is not well defined. Establishing of a standard on how to do thermal resistance measurement for light emitting devices is necessary. [C2415]

"Fabrication of a Multilayer Polymer Light-Emitting Diode by Resonant Infrared Laser Ablation"

Multi-layer polymer light-emitting diodes have been fabricated in vacuum by infrared laser ablation of conducting and light-emitting polymers. The spectral output of the devices resembles that of similar spin-coated devices, but shows some fluence dependence. [C2416]

"Short time die attach characterization of semiconductor devices"

Thermal qualification of the die attach of semiconductor devices is a very important element in the device characterization as the temperature of the chip is strongly affected by the quality of the die attach. Voids or delaminations in this layer may cause higher temperature elevation and thus damage or shorter lifetime. Thermal test of each device in the manufacturing process would be the best solution for eliminating the devices with wrong die attach layer. In this paper we will present the short time thermal transient measurement method and the structure function evaluation through simulations and measurements for die attach characterization. We will also present a method for eliminating the very time consuming calibration process. Using the proposed methods even the in-line testing of LEDs can be accomplished. [C2417]

"Thermal and mechanical analysis of high-power light-emitting diodes with ceramic packages"

In this paper we present the thermal and mechanical analysis of high-power light-emitting diodes (LEDs) with ceramic packages. Transient thermal measurements and thermo-mechanical simulation were performed to study the thermal and mechanical characteristics of ceramic packages. Thermal resistance from the junction to the ambient was decreased from 76.1degC/W to 45.3degC/W by replacing plastic mould to ceramic mould for LED packages. Higher level of thermo-mechanical stresses in the chip were found for LEDs with ceramic packages despite of less mismatching coefficients of thermal expansion comparing with plastic packages. The results suggest that the thermal performance of LEDs can be improved by using ceramic packages, but the mounting process of the high power LEDs with ceramic packages is critically important and should be in charge of delaminating interface layers in the packages. [C2418]

"Micro-pixellated flip-chip InGaN and AlInGaN light-emitting diodes"

Fip-chip GaN-based micro-LED arrays have been fabricated consisting of 256 (16 times 16) micropixels, each of diameter 72 mum. Output characteristics are compared to broad-area reference LED devices fabricated from the same wafers. [C2419]

"HVPE-grown n-InGaN/p-GaN Single Heterostructure LED With p-side Down"

An HVPE-grown n-InGaN/p-GaN single heterojunction LED with p-side down and emission at ~ 480nm has been demonstrated. Benefits of the p-down geometry for such an LED associated with polarity are discussed. [C2420]

"MOCVD Epitaxy and Optical Properties of Self-Assembled InGaN Quantum Dots via Stranski-Kastranow Growth Mode Emitting at 520-nm"

Self-assembled In0.35Ga0.65N quantum dots emitting at lambda~510-520 nm were realized by metal organic chemical vapor deposition via Stranski-Kastranow growth mode, with quantum dots density of 4 times 109cm-2. [C2421]

"Visible LEDs: Past, Present, and Future"

The paper presents the progress in light emitting diodes, and its critical importance for future illumination use. [C2422]

"Identifying differences between CAD and physical mock-ups using AR"

Since the last ten years product development in automotive industry is changing radically. Most physical mock-ups have vanished and are now replaced by digital ones. But they are still needed for final evaluations or issues, which cannot be adequately simulated. During their production, deviations from the CAD model may be made. Since digital and real mock-up must match for the further product development, the transfer of differences between physical and digital mock-up to the CAD format is a crucial issue. In this paper an augmented reality (AR) based tool-chain is presented, which allows matching the CAD data with real mock-ups and documents the differences between them. Essential functions like measurement and online construction are provided, allowing the end-users to create information in AR space and feeding them back into the CAD model. [C2423]

"LED replacement for fluorescent tube lighting"

Fluorescent tubes have long been the mainstay of lighting for many premises, due to relatively high efficiency and long life. LED efficiencies are set to exceed those of fluorescent tubes, with dimming and controllable colour rendering readily achievable. Two multichip LED lamps are presented, mounted in a four foot fluorescent fitting, with ballast replaced by driver electronics. The first lamp employs white LEDs with optional cyan and red/orange spectral improvement; the second lamp is based on primary colours. Spatial distribution, intensity and spectrum of light output are compared to those produced by a fluorescent tube with the same power input. Lighting systems are sensitive to power system voltage disturbances resulting in visible light flicker; the sensitivity of the white LED lamp is compared with that of fluorescent tubes under voltage modulation and transient dips and swells. [C2424]

"Design and development of a versatile testing system for analog and mixed-signal circuits"

In this paper the design and development of a test system based on a microcontroller is presented. This system is versatile to test various analog and mixed-signal systems without any hardware modification. Preliminary results from the application of the system to the production line testing of emergency light products are presented showing the effectiveness of the proposed testing scheme. [C2425]

"Laser Pointer Tracking in Projector-Augmented Architectural Environments"

We present a system that employs a custom-built pan-tilt-zoom camera for laser pointer tracking in arbitrary real environments. Once placed in a room, it carries out a fully automatic self-registration, registrations of projectors, and sampling of surface parameters, such as geometry and reflectivity. After these steps, it can be used for tracking a laser spot on the surface as well as an LED marker in 3D space, using inter-playing fish-eye context and controllable detail cameras. The captured surface information can be used for masking out areas that are problematic for laser pointer tracking, and for guiding geometric and radiometric image correction techniques that enable a projector-based augmentation on arbitrary surfaces. We describe a distributed software framework that couples laser pointer tracking for interaction, projector-based AR as well as video see-through AR for visualizations, with the domain specific functionality of existing desktop tools for architectural planning, simulation and building surveying. [C2426]

"Spectral Solution for Detecting Isomorphic Graphs with Nondegenerate Eigenvalues"

Graph Isomorphism (GI) is to find a bijection between the vertices of two graphs G1and G2, such that any two vertices in G1are adjacent if they are adjacent in G2. There are several application areas in which graph isomorphism is required, such as study of organic compounds isomers, algorithms' similarity analysis in profiling of Embedded Systems, VLSI circuits equivalence etc. The complexity of Graph Isomorphism problem is thought neither to be in P nor in NP-Complete although this has not been proved yet [1], [2]. We classify the graph on the basis of their Adjacency Matrix (AM) eigenvalues. A Non- degenerate eigenvalue corresponds to a distinct eigenvector instead of a subspace as in the case of degeneracy, making the problem simpler. We employ spectral decomposition of AM for finding a solution. Furthermore, we redefine the isomorphic transform equation by including eigenvectors into it. Index [C2427]

"Designing a low cost microcontroller-based device for multipurpose learning"

A low cost microcontroller based device for multipurpose electronic learning has been developed. This paper describes the design methodology and the development of its hardware and software. Four applications and the development of the general purpose device have been explained in this paper. The technique presented can be applied, following the approach described in a small or in a large project. [C2428]

"RF Signal Synchronized Low Cost Motion Capture Device"

This paper describes RF synchronized monocular PSD-based motion capture sensor to employ with commercial video game systems such as Microsoft's XBOX and Sony's Playstation II. The system is compact, low-cost, and only requires a one-time calibration at the factory. The system includes a PSD(Position Sensitive Detector), active infrared (IR) LED markers that are placed on the object to be tracked and RF module to synchronize the marker LED with PSD MCU. A series of experiments were performed to evaluate the performance of our prototype system. From the experimental results we see that the proposed system has the advantages of the compact size, the low cost, the easy installation, and the high frame rates to be suitable for high speed motion tracking in games. [C2429]

"Delay Time and Power Supply Current Characteristics of CMOS Inverter Broken by Intentional High Power Microwave"

This paper examined delay time and breakdown effects of CMOS inverter by impact of high power microwave. The experiments employed a waveguide and a magnetron to study the supply current characteristics of CMOS inverter broken by high power microwave. The CMOS inverters were composed of a LED circuit for visual discernment. Also CMOS inverters broken by high power microwave were observed with supply current and delay time. When power supply current increased 2.14 times for normal current at the 10 kV/m, the CMOS inverter was broken by Latch-up. Also the CMOS inverter broken by Latch-up returned to function of original condition because parasitic impedance inside chip was increased with time. Based on the result, CMOS devices were applied to the data which understood microwave effects of electronic equipment. [C2430]

"Evaluation of the spectral function for the chain nanostructures TTF-TCNQ"

The photoemission spectral function for organic charge transfer salt TTF-TCNQ is calculated with a new, simple and efficient method. This method is presented for calculation of the ground and a few excited states of Hubbard chain nanostructures. [C2431]

"A low cost WDM-PON using spectrum sliced F-P LDs with Cyclic Arrayed Waveguide Gratings"

We propose and demonstrate a low cost wavelength division multiplexing-passive optical network (WDM-PON) based on the spectrum sliced Fabry-Perot laser diodes (F-P LDs). By using cyclic arrayed waveguide gratings (AWGs), we achieve color-free operation with decision threshold control. [C2432]

"A Dual Phase Charge Pump with Compact Size"

In this paper, the regulated dual phase charge pump with compact size is presented. This charge pump uses the dual phase technique to reduce the output ripple and proposes a new power stage to define the stability of the overall system. This charge pump provides output voltage 5V and maximum load current 50 Am with the constant frequency regulation. This design is based on TSMC 035 mum 3.3V/5V CMOS technology. [C2433]

"Exact Analytical Expressions of GraГґB«tz Bridge Currents and Voltages Using Lambert W Function"

In the present study, we determine exact analytical expressions for the currents and the voltages of the circuit known as diodes-bridge or GraГґB«tz bridge. This circuit is used in electronics as full wave rectifier, it is formed by four non-ideal identical diodes and one diagonal resistance. At the beginning, we determine analytical solution for the transcendental equation giving the output current. Then, we derive analytical expressions for the voltages at the leads of all elements in the circuit. Next, we determine exact expressions for the currents through all the branches of the bridge. Finally, we calculate dynamical resistances of different diodes in the network. The proposed analytical solutions are all expressed as functions of the Lambert W function. [C2434]

"Aromatic Polyimides Containing Cyano Substituents for High Performance Applications"

Aromatic polyimides containing cyano groups have been synthesized by solution polycondensation reaction of an aromatic diamine having cyano group, namely 2,6-bis(m-aminophenoxy)benzonitrile, with certain aromatic dianhydrides, such as benzophenonetetracarboxylic dianhydride, biphenyl-tetracarboxylic dianhydride, hexafluoroisopropylidene bis(phthalic anhydride) or pyromellitic dianhydride. The polymers were easily soluble in polar organic solvents, such as N-methylpyrrolidinone, N,N-dimethylacetamide and N,N-dimethyl-formamide, and some of them exhibited remarkable film forming ability. The thin films prepared by casting polymer solutions onto glass plates were transparent and flexible. All the polymers showed high thermal stability, with decomposition temperature above 400degC and glass transition above 200degC. They exhibited a reasonable interval between glass transition and decomposition, which can be advantageous for their processing. [C2435]

"Design Aspects for Gate Driver of Power Switch"

This paper presents the design aspects of the gate driver for a power switch used in the automotive applications. The power switches are designed to have inductive and/or resistive load and gate driver was designed in an Infineon Smart Power Bipolar CMOS DMOS technology. In this work will be presented the concept block of the gate driver with focus on timing behaviour considering a low side switch sized for 1A maximum current load. [C2436]

"Advanced Laser Microprocessing for Substrates Microprocessing of Microsystems and Optoelectronics Devices Applications"

Lasers are an important tool in the fabrication of microsystems like MOEMS and photonic components and in particular their use in scribing for separating LED dies on sapphire substrates. This paper describes scribing and cutting of sapphire and GaN using UV lasers (355 nm and 266 nm harmonics of Nd:YVO4and 255 nm harmonic of CVL). Scribing of sapphire at speeds of 30 mm/s have been achieved and cutting of sapphire of up to 700 microns thickness has been demonstrated. [C2437]

"Silicon Photonics at University of Trento"

The communications and computing industries are challenged to fasten and enlarge information exchange. The electrical chip routing challenges in the computer industry have driven the interest for silicon photonics. The idea is to integrate photonic circuits into a standard microelectronics process. In this paper we will review the status of the field and report on our progresses. In Trento we are using nanocrystalline silicon to change the dimensionality of silicon so that very fascinating and new optical properties of the material appear. In particular, light emission starts to be a very efficient process in nanostructured silicon and light emitting diodes with high efficiency have been fabricated. We will discuss some of the main research lines. These cover a wide spectral range spanning from visible to infrared. Light sources, modulators, waveguides, logical gates are a few examples of the various photonic devices which have been developed based on silicon nanocrystals. [C2438]

"Fabrication of lenses for AlGaInP LEDs using Step and Flash Imprint lithography"

This paper describes a new data preparation technique, which allows for the design of optical lenses in a conventional CAD package and immediate transfer to a lithographic system, for example Electron Beam or Focused Ion Beam Lithography. Most importantly, we show that this approach could be used to fabricate lens arrays in templates for Step-and Flash Imprint lithography onto 4iquestwafers. One application for this is to enhancing AlGaInP LED performance by texturing the top current spreading layer. [C2439]

"Influence of insulator length on the downstream electron temperature and electron density in the coaxial electrode of plasma focus device"

We have generated the Ar plasma in the diode chamber based on the established coaxial electrode type and investigated the emitted visible light for emission spectroscopy. It is applied to the input voltage 4.5 kV, and obtained the emission spectrum data for the focused plasma in the diode chamber on the argon pressure 40 mTorr. We observed the nine emission lines of Ar II ; 407.3 nm, 410.6 nm, 422.4 nm, 426.8 nm, 427.9 nm, 435.0 nm, 438.1 nm, 444.5 nm and 488.0 nm. The downstream electron temperature and electron density have been measured by the Boltzmann plot and Stark broadening from assumption of local thermodynamic equilibrium (LTE). The length of Acrylic insulator had been changed, which is covered in the cathode by the 30 mm, 40 mm and 45 mm, respectively, to measure the downstream electron temperature and electron density in the experience. The centered wavelength of Stark broadening was 444.58 nm. This experiment can be shown that the downstream electron temperature will be influenced by the insulator length in argon plasma with coaxial electrode. Our results show that the maximum downstream electron temperature and electron density are 2.5 eV and 1.6Ч1016cm−3, respectively for the Our result have been appeared the maximum electron temperature of

2.50 eV and density of 1.6Ч1016cm−3for the plasma focus in coaxial electrode under the insulator length of 40 mm. [C2440]

"A low cost capacitive security card system"

A low cost and reliable capacitive security card system is designed, fabricated and tested. It consists of capacitive card reader system, an integrator, rectifying circuit, an 8051 microcontroller and LED indicators. Initially rectangular patterns of different lengths are being recognized successfully with a success rate of 100%. The patterns on the security card are scanned with a thin conducting plate, which is the part of the reading system, when card is inserted in the reading system. The variations in the heights of the patterns are being converted into voltages with the help of an integrator. Output of the integrator, after rectification, is fed to the ADC of the microcontroller. It is converted into numbers by it and compared with the number stored in the memory of the microcontroller. The designed system is capable of recognizing up to five columns (patterns) in a single row with a maximum number of 99999. [C2441]

"Novel transport mechanism of SiGe dot MOS tunneling diodes"

The blockage of the hole transport due to the excess hole in SiGe quantum dots was observed in the metal-oxide-semiconductor (MOS) tunneling diodes for the first time. The hole tunneling current from Pt gate electrode to p-type Si dominates the inversion current at the positive gate bias and is seven order of magnitude higher than the Al gate/oxide/p-Si device. The SiGe quantum dots confine the excess holes in the valence band, and form the repulsive barrier to reduce the hole transport current from Pt to SiGe quantum dots by three order of magnitude as compared to the Pt/oxide/p-Si device. This repulsive barrier also reduces the hole tunneling current from SiGe quantum dots to Pt for the accumulation current at positive gate bias. [C2442]

"Initial investigations into the role of the bremsstrahlung conversion target in the self magnetic pinch radiographic diode"

The self magnetic pinch diode is routinely used at AWE as a radiographic source [1,2]. This diode consists of a hollow cathode and a planar target separated by of order 10mm. The pinching of the electron beam relies on ions being drawn back from the anode thus reducing the self repulsion that the beam would otherwise experience and allowing the self magnetic field of the beam electrons to bring the beam to a focus. A grounded foil is generally used directly in front of the conversion target and the separation of this foil to the conversion target may be altered. A number of shot series were undertaken on the EROS machine at AWE with differing conversion target material and foil to conversion target separation, the electrical records were then used to look at the change in bi-polar flow within the diode. The shape of the conversion target was also altered such that it formed a band and a further set of shot series were undertaken on the EROS machine at AWE as this band target allows the amount of conversion material to be varied while still allowing a radiographic spot to be measured. The conclusion of these shot series is that the conversion target is not required in order for the diode to operate and that the quantitative degree of pinch experienced by the electron beam is not dependent on the presence of the conversion target. [C2443]

"Effects of anaesthesia on atrial fibrillation organization during catheter ablation procedures"

Effect of anaesthetic agents in restoration rhythm procedures during atrial fibrillation (AF) has not been fully investigated. Intra-atrial recordings belong to 27 patients diagnosed with AF were analyzed ldquobeforerdquo (baseline) and ldquoduringrdquo anaesthetic infusion. Organization measurements were evaluated in time-domain and frequency-domain, as well as approaches from non linear analysis. The frequency domain measurements showed that the average AF cycle length increased as an effect of anaesthesia. The results of time and frequency linear organization measurements showed a higher correlation during the anaesthetic infusion in the right atrium with an opposite effect in the left atrium. The same effects were corroborated with entropy analysis. The proposed methodology provide additional insights to the understanding of the role of the anaesthetic, by suggesting increased parasympathetic activation at atrial level. [C2444]

"A circuit with good linearity based on standard optocouplers"

This article presents a circuit with good linearity based on standard optocouplers. The circuit takes advantage of inverse feedback to improve the linearity. It chooses two ordinary optocouplers of same characteristic. One phototransistor is typically used in a feedback mechanism to control the LED (light-emitting diode) drive current which has the effect of compensating for the LED's non-linear time and temperature characteristics. The other output phototransistor is used to provide the galvanic isolation between the input and output circuit. Simulate the circuit in Multisim, the results show that the circuit has good linearity and it can be used not only in DC circuits, but also in AC circuits of low frequency. [C2445]

"A novel adaptive dimming technique with X-Y channels for LED backlight system of LCD TVs"

A novel adaptive dimming technique with X-Y channels for light emitting diode (LED) backlight system of LCD TVs is proposed. It has matrix structured LED modules with row and column switches to control the brightness of individual division block. It shows local dimming effects such as reduced power consumption and high dynamic contrast ratio with even using much fewer number of LED drivers of proposed method than that of conventional local dimming method. Therefore, low cost and compact design of LED drivers can be achieved. This paper also contains a new adaptive dimming algorithm and image compensation technique for proposed system. [C2446]

"High-speed, low input current transimpedance amplifier for led-photodiode pair"

A low current front-end transimpedance amplifier (TIA) circuit for a high-speed light emitting diode (LED) and photodetector (PD) pair is presented. It mitigates PD capacitance effects by using a low input impedance buffer between the PD and the amplifier's input stage. Our simulation results show that a bandwidth in excess of 100 MHz can be reached for PD currents below 100 nA in amplitude. An actual circuit was built to confirm the projected capabilities of the system. [C2447]

"Blue electroluminescence from metal/oxide/6H-SiC tunneling diodes"

Pt/oxide/n-6H-SiC tunneling diode has been fabricated using liquid phase deposited oxide as the tunneling oxide. At the negative bias, the electrons can be injected from the Pt gate to n-SiC, and recombine radiatively with the trapped holes in the defects near the oxide/SiC interface. The electroluminescence at room temperature from the SiC MOS tunneling diodes is observed for the first time. The light intensity decrease with the decreasing temperature. At the positive bias, the electron tunneling current from SiC to Pt gate is dominant, and the radiative recombination in SiC is not observed. [C2448]

"Electroluminescence response of plasmonic AlGaInP Light Emitting Diodes"

In this paper we present the electroluminescent characteristics of an AlGaInP visible light emitting diode with a top surface resonant plasmonic hole-array grating. Light output saturation effects appear to be suppressed in the textured LED as compared with a non-textured device leading to an improved spatial intensity distribution. [C2449]

"InGaN/GaN multiple quantum wells with surface micro hole array structures"

In this paper, the surface micro hole array photonic crystal structures were fabricated on p-type GaN of InGaN/GaN through photolithography and ICP dry etching process. We designed three different patterns of circle hole arrays, including square lattice array, triangle lattice array, and honeycomb lattice array. The hole diameter was around 6 mum, and the period of the lattice array was about 15 mum. There were two different depths in the lattice arrays, 1.1 mum and 100 nm. The increase in photoluminescence intensity of the InGaN/GaN multiple quantum wells with the square lattice array, triangle lattice array, and honeycomb lattice array structures have been 208%, 188%, and 90%, respectively. We found that the square lattice array structure induced the highest light extraction efficiency. [C2450]

"Electroluminescence from strained SiGe quantum dot light-emitting diodes"

In order to overcome the speed limitation of electrical interconnects, we integrate ultra large scale integrated (ULSI) circuits with the electro-optics. Besides the modulator, both the light emitting diode (LED) and the detector are essential to achieve this goal. In order to get greater functionality, we integrate Si chip with the Si based electro-optics. For the time being, the light emitter is the key point of the electro-optics based on Si. In this work, the metal-oxide-semiconductor tunneling diode is used to emit electroluminescence. Raman spectroscopy reveals that the expected pure Germanium (Ge) quantum dot (QD) grown by ultra high vacuum chemical vapor deposition (UHVCVD) at 625degC exhibits significant intermixing with the average Ge composition of ~ 56%. It also shows that the top SiGe quantum dot of the 20-layer QD sample (66% relaxation) have more relaxation than the 5-layer QD sample (58% relaxation). The photoluminescence (PL) emission peak intensity from the 20-layer QD is increasing with the temperature decreasing. Besides the 1.1 mum infrared from the band edge of Si, the 1.5 mum infrared emission due to the radiative recombination between the electrons in the Si conduction band and the holes in the SiGe valence band is also observed. The emission line shape can be fitted by the electron-hole-plasma recombination model. The electroluminescence from the top SiGe quantum dot shows that the 20-layer QD sample (0.76% compressive strain) has the higher emission peak energy at ~0.84 eV as compared with the 5-layer QD sample (0.93% compressive strain) with the emission peak energy at ~0.82 eV. [C2451]

"White light electroluminescence from europium oxide nanocrystal/organic composites"

We report the white light emission of hybrid N,N'-diphenyl-N,N'-bis(3-methylphenyl)-1, 1'- biphenyl-4,4'-diamine (TPD) / europium oxide (Eu2O3) nanocrystals composite by spin-coating. The organic-inorganic hybrid film consists of Eu2O3nanocrystals, TPD and polymethyl methacrylate (PMMA). The bandwidth of the white light emission spans as wide as 300 nm, which is attributed to the interaction between the organic and inorganic components of the hybrid film. The peak wavelength of the electroluminescence is tuned from 550 nm to 410 nm, when the forward biased voltage increases from 6 V to 9 V. We further investigate the hybrid film by scanning near-field optical microscope and confirm that PMMA improves the film quality and hence the luminescence. [C2452]

"Fabrication of optical gas sensors using porphyrin-based nano-assembled thin films: A comparison with bulk materials"

In this study two kinds of biological origins, porphyrin and bacteriorhodopsin that were embedded into polymer matrix and into inorganic sol-gel matrix, respectively, were employed as active elements for an optical sensor. To confirm the usefulness of the consequent nano-scale matrix in the detection of volatile organic compounds (VOCs), aromatics and amine compounds, anionic tetrakis-(4-sulfophenyl)porphine (TSPP) was alternately assembled with cationic poly(diallyldimethylammonium chloride) (PDDA) on quartz plates. The performance and sensor parameters of the nano-scale thickness porphyrin-based thin film and bacteriorhodopsin thick film are compared. The sensing principle is based on monitoring the optical changes of the Q-band at 700 nm for the porphyrin film and at 570 nm for the bacteriorhodopsin film. This work was a first step in the development of a fiber-optic gas sensor which employs thin films as sensitive elements for the detection of different gases. [C2453]

"The dependence of excitonic characteristics on the interface charge distribution with multiquantum barrier"

Unique correlations between the excitonic characteristics and hetero-interface charge distribution of InGaN/GaN multiple quantum well light-emitting diodes (LEDs) were investigated over a broad range of temperatures. The dependence of non-unity ideality factors extracted from the current-voltage analysis on temperature determines the carrier-transport mechanisms in the heterodevices. Furthermore, the carrier tunneling processes via the extent of the charge population consequently cause anomaly more pseudo-temperature (To) and further characteristic energy (Eo), result in the abnormal deterioration of the luminescence intensities with small effective density of state. With respect to conventional GaN barrier devices, low-indium MQB devices inherently exhibit a small To over a variety of temperature ranges. The small To associated with a small characteristic energy and charge population of the multilayer interface states is obtained for each sample at the higher temperature regime. Accordingly, the high-indium MQB ensemble manifests a relatively higher characteristic energy than does the low-indium MQB ensemble. The characteristic energy Eofor the LEDs with InxGa1-xN/GaN multiquantum barriers were found to be decreased as increased In composition of InxGa1-xN/GaN MQBs. Correspondingly, the temperature-dependent electroluminescence observations suggest that the characteristic energy Eoanomaly caused the spectral intensity to deteriorate. [C2454]

"Electroluminescence from nanoparticles/organic composites"

We report the visible light emission of organic-inorganic light emitting devices by low-cost spin-coating. Different nanoparticles, CdSe, ZnO and Eu2O3, are employed to form organic-inorganic hybrid composites and generate the R-G-B and white light emission, while N,N'-diphenyl-N,N'-bis(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine (TPD) and polymethyl methacrylate (PMMA) are adopted as the organic matrices. We further investigate the hybrid composite film by scanning near-field optical microscope and find that phase-segregation enhances the electroluminescence of ZnO composite film. Meanwhile, the homogeneity of the Eu2O3composite film improves the white light emission. [C2455]

"The role and use of PEDOT:PSS in organic LEDs and photodiodes"

Summary form only given. We describe the application and influence of poly(3,4-ethylenedioxythiophene)-poly(styrenesulfonate) in polymer light-emitting diodes and photodiodes. The operating mechanisms of devices with and without PEDOT:PSS are compared and contrasted using a combination of current-voltage-luminance measurements, electromodulation spectroscopy and modelling studies. The properties of ITO-free flexible LEDs and photodiodes with PEDOT:PSS anodes are also described. [C2456]

"Photodetectors based on organic semiconductors: Optimization of device architectures"

Organic photodetectors based on various organic materials (small molecule and polymer) have been studied quite extensively. Number of properties those can be helpful for preparing an optimized device structure has also been studied. Some of them which we have studied are; variation of number of donor/acceptor interface and by studying the decay characteristics of the carriers, by providing a gradient in the concentration in the molecular level. [C2457]

"Development of passive matrix full color organic light emitting diode display"

With organic light emitting diode technology sufficiently well developed, there is rapid commercialization of it, primarily for information display. So far, most commercialization has taken place in small sized displays based on passive matrix driving. This paper discusses development of a passive matrix full color display based on organic light emitting diodes. The specific issues addressed in the paper are on selection of materials, metal lines, shadow mask technology for separating red, green and blue pixels and bonding of the driver to the display. [C2458]

"Frontier of organic light emitting devices"

We report recent progresses on organic light emitting devices such as organic light emitting diode (OLED), light-emitting organic field effect transistor (LE-OFET) and organic laser diode (OLD). We demonstrate very low driving voltage of OLEDs using a p-i-n structure which also provides high current carrier injection over kA/cm2. Further we demonstrate novel organic devices such as light emitting FET. We also discuss future prospect of OLD based on our recent materials' development and analysis of operation mechanism. [C2459]

"Interface dipole responsible for fermi level pinning in metal/3,4,9,10 perylenetetracarboxylic dianhydride interfaces"

Current injection behavior in metal/3,4,9,10 perylenetetracarboxylic dianhydride (PTCDA) interfaces have been systematically studied. Observed interface behaviors show that the barrier of charge injection cannot be explained by simple vacuum level alignment scheme. Moreover injection barrier is found almost independent of metal work function. These observations are explained by the changes of barrier height due to interface dipole barrier which compensate for the difference of work function of PTCDA and metals leading to a metal independent injection barrier or Fermi level pinning at metal/PTCDA interfaces. [C2460]

"Effect of the bilayer cathode on white and ultraviolet emission in polysilane based light emitting diodes"

Single layer polysilane based organic light- emitting diodes (OLEDs) are fabricated by inserting a thin layer of LiF between the emissive poly(n-butylphenylsilane) (PS-4) layer and Al cathode. It was found that the current in the devices is significantly enhanced as compared to devices with Ca/Al electrode. The enhancement may be caused by the increased electron injection due to the tunneling through LiF layer. Additionally, devices with LiF/Al cathode show reduced white emission when compared to devices having Ca/Al cathode. [C2461]

"Red shifted electroluminescence in OLEDs using organic alloy of hole transport materials"

Blue fluorescent 3,6-p-acetophenyl N-hexylcarbazole (ANHC) with HOMO level of -5.6 eV comparable to TPD (-5.4 eV) was synthesized. Carrier injection was found to be more efficient in OLEDs using an blend of TPD and ANHC compared to ANHC alone. The electroluminescence is red shifted in comparison to the photoluminescence of either TPD or ANHC. [C2462]

"Electroluminescence degradation study of tris-(8-hydroxyquinoline)aluminum-based organic light emitting diode and influence of light"

Organic light emitting diodes (OLEDs) based on tris-(8-hydroxyquinoline)aluminum (Alq3), the most widely used electroluminescent material in organic electroluminescent devices, have been fabricated. The electroluminescence degradation of Alq3-based OLED during the light exposure under the normal ambient has been studied. It is found that, during the light exposure of OLEDs in the normal ambient, luminescent quencher is formed in Alq3thin film in the OLEDs and this is acting as non-emissive electron-hole recombination center. Hence, during the operation of OLEDs exposed to light in the normal ambient, the recombination of charge carriers takes place in the Alq3and also in the nearby non-emissive electron-hole recombination center in the Alq3thin film in the OLED, quenching the electroluminescence from that of as-prepared OLEDs. [C2463]

"Thermal Performance Evaluation of Power SSL Module in LTCC"

The potential of SSL (solid-state lighting) is boundless, and SSL is the future of light. However with the heat flux increasing rapidly with high-power LEDs, thermal management is critically important for the light quality and lighting reliability in the power LED lighting system. By leveraging our low temperature co-fired ceramic (LTCC) technology, we have designed and fabricated an LTCC-based power SSL engine which consists of arrays of 36 LEDs with a total power of 36 watts and a on-chip power density of 100 W/cm2. The thermal performance evaluation and experimental validation of the light engine were carried out. Based on the thermal simulation and experimentation, we can conclude that the correlation between the experimental and simulation results is very good. The junction-board thermal resistance is 0.52degC/W for the power SSL module with an array of 36 LEDs. [C2464]

"High Brightness GaN LEDs with Engineered Sapphire Substrate"

The GaN based epitaxial systems are emerging as a front- runner for a variety of opto-electronic applications, such as LEDs and HEMTs. One major application is for solid state lightning, and essential requirements are high brightness, stable color rendering index and efficient heat dissipation. The significant problem is the sapphire substrate on which GaN is grown. Sapphire substrate is not recommended from the device point of view, and hence has to be removed or engineered for better device performance. In this work we have developed via-holes in sapphire filled with nanofiller material and studied the device behavior with the aim of having better heat dissipation. The devices made up of green and blue LEDs exhibited superior performance in terms of sharp turn-on voltage, output power and temperature stability. [C2465]

"Adaptive Packaging Solution for a Microlens Array Placed over a Micro-UV-LED Array"

A packaging solution has been developed to accurately align a microlens array over a micro-UV-LED array. The novel method provides static as well as dynamic alignment capabilities, the latter allowing the microlens array to be moved in vertical and lateral direction. [C2466]

"Studies on the Possibilities of In-Line Die Attach Characterization of Semiconductor Devices"

The qualification of the die attach of semiconductor devices is a very important element of predicting the reliability of the package, as the temperature of the chip is strongly affected by the quality of the die attach. This paper describes our latest findings on die attach quality testing of semiconductor devices using short term thermal transient measurements. Using estimates from simulations as well as from measured structure functions of power transistors with known die attach quality we found that cca the first 100ms section of thermal transients is sufficient to draw conclusion on die attach quality. In case of in-line application of the short term thermal transient measurements however, there are different difficulties such as lack of time for K-factor calibration of the individual devices under test. In this paper we describe certain techniques which have been validated on large number of power LEDs with the aim of application in in line testing of die attach quality. [C2467]

"Estimation of external quantum efficiency of Ge rich Si1-x-y Gex Cy on Si photodetectors at 1.3 μm"

In this paper, we have calculated the external quantum efficiency of Ge rich Si1-x-yGexCyon Si photodetectors at 1.3 mum assuming a large absorption coefficient of 2000 cm-1and 5000 cm-1. For this purpose, the existing theory of band gap and band offset of ternary SiGeC alloy grown on Si as well as the reported absorption data for the Si0.11Ge0.88C0.01alloy has been used. The work involves the determination of the composition (values of x and y) of the alloy satisfying the band gap and absorption requirements. An iteration technique is employed to make this estimation from the experimental data to take into account the changes due to altered alloy composition and other effects. The external quantum efficiency for the photodetector with estimated composition is then calculated and its variation with detection length is shown for different values of detection layer thickness as parameters. [C2468]

"Effect of high carrier injection on the performance of a mid-infrared DH-LED"

In this paper we present a simple analytical approach to determine the effect of high-level injection on the performance of a double heterostructure light emitting diode (DH-LED) suitable for use as a source in absorption gas spectroscopy and/ or in a futuristic optical fiber communication system in the mid-infrared spectral region at room temperature. The effect of high injection on the lifetime of the carriers (both radiative and non-radiative) and carrier confinement in heterostructure has been simulated analytically. It has been seen that an overall reduction in the carrier lifetime and carrier confinement under high injection actually reduces the quantum efficiency and limit the power output. [C2469]

"AlGaN based UV LEDs and high frequency transistors"

We discuss the recent advances in UV optoelectronic and high frequency electronic devices based on the AlGaN material system. The paper addresses the physical, electrical and optical properties of the material system and how they impact the device performance. We also describe the innovative approaches that lead to the solution of the growth and processing problems and thus enable the fabrication of high efficiency optoelectronic and electronic devices. [C2470]

"Electronics on plastic: A solution to the energy challenge, or just a pipe dream?"

For over 50 years, conjugated organic compounds have been recognized as an important class of electronic semiconductor materials, with potential application to light emission and detection. Very recently, these materials have been shown to generate extremely high efficient white light, and can also have high detection efficiencies. Due to their very low cost and low deposition temperatures, this suggests that organic thin film semiconductor light emitting diodes and solar cells may present a practical solution to mankind's greatest challenge: the use and generation of low cost renewable, and largely pollution free energy. In this talk, I will address both the reality and fantasy of this suggestion. While organic thin film devices can have extremely high performance, they also suffer from shorter operational lifetime than conventional semiconductor (e.g. silicon) devices. And, although their low cost has yet to be proven in large scale manufacturing environments, the potentially unlimited promise of this materials class is driving a substantial global research effort to determine their ultimate applicability to meeting our energy challenges. [C2471]

"Electroluminescence transient of polymer light emitting diodes: field dependence of overshoot and time delay"

Transient electroluminescence is widely used to obtain the effective mobility of carriers in single layer polymer light emitting diodes (PLEDs). We monitor the shape of the pulse mode electroluminescence (EL) of PLED with two different active layers viz. a new polymer derived from Bispyrrole (AVPV) and poly [2-methoxy-5-(2'-ethylhexyloxy)-p-phenylene vinylene] (MEH-PPV). We show that the occurrence of EL overshoot at turn-on and the transient shape is crucially dependent on the field and the cathode used. We argue that the apparent mobility depends on the injection efficiency of the cathode probably due to the variation in the degree of electron participation in the evolution of electroluminescence. The shape of the EL transient is dependent on the material and electrode combination due to the competition between dispersive transport and relaxation of carriers within the density of states. An anomalous dependence of mobility on field is observed when calcium is used as the electron injecting contact. Our results indicate a possible role of hot carrier dynamics in defining effective time delay in EL onset. In addition, field independence of time delay in the high electric field regime has been attributed to the tunneling of hot carriers directly to the transport states of the active layer instead of transport via the intermediate interfacial and bulk trap states within the energy gap of the conjugated system. [C2472]

"Buck-Boost Converter Associated with Active Clamp Forward Converter for PV Power System"

This paper presents an LED lighting system with a PV source. The circuit structure of the proposed system adopts buck-boost converter associated with forward converter. In this research, buck-boost converter is used as a charger for charging battery, and forward converter with active clamp circuit is adopted to drive LED lighting, and to respectively recover and reset energies stored in leakage inductor and magnetizing inductor of the transformer. To simplify the circuit structure, switches of two converters are integrated with a synchronous switch technique. With this approach, the proposed system has several merits, which are a less component counts, lighter weight, smaller size and higher conversion efficiency. Compared with the conventional converter with hard-switching circuit, the proposed one can improve conversion efficiency of 6% and achieve efficiency about 82% under full load when the proposed system is working in the driving LED condition. Experimental results obtained from a prototype with the output voltage of 10 V and output power of 20 W have verified its feasibility. [C2473]

"Opto-Mechatronic System Design of the LED Projector by Using Brushless DC Motor"

This paper will propose a possible mechanism design of LED projector. The opto-mechatronic system will be studied. The analytical scheme of optical path will be described in detail. As compared with the other light sources, laser light usually has many advantages: higher brightness, higher directionality, pure monochromatism, and higher coherence. However, the LED device does not have these advantages. Therefore, this paper will develop the mechanism to project LED light to target screen. Biconvex lens and hexahedral mirror are used to focus the LED light into one spot on the target screen. Brushless DC Motor is used to rotate the mirror to provide the required projection. [C2474]

"Electroluminescence of silicon nanoclusters excited by tunneling carrier injection"

In the present paper, we present an electroluminescence (EL) model for a tunneling carrier injection light-emitting diode based on insulator-embedded Si-nc. [C2475]

"Fabrication of transparent single wall carbon nanotube films with low sheet resistance"

We developed a very simple protocol to make SWCNT-network films, and fabricated transparent electrodes with low sheet resistance based on this method. The development of organic light-emitting diodes based on transparent SWCNT anode is under progress. [C2476]

"Determination of LED die strength"

LED (Light Emitting Diode), converting the electron current into the light through the p-n junction of semiconductor diodes, has recently gained popularity worldwide. The high-power LEDs are found in a number of applications to high-volume consumer markets, such as illumination, signaling, screen backlights, automotives and so on. In these applications, the high-power LED packages would be subjected to mechanical, thermal, and environmental loadings during manufacturing processes and services. The strength of LED dies, cut from wafers, has to be determined for the design need in order to assure good reliability of the packages in manufacturing and service. The objective of this study is to determine high-power LED die strength with size of 1 times 1 times 0.1 mm by point-load test (PLT) and line-load test (LLT) associated with a plate-on-elastic-foundation configuration. The finite element analysis and the related stress formulation are used to correlate the failure force of the tests to die strength. It is found that the good consistency of the strength data (~1.3 GPa) with a minor scatter from both the point- and line-load tests is for the specimens failed on chip surfaces, but not for the ones (-1.2 GPa and -0.6 GPa, respectively) failed on the ground surfaces. The inconsistency of strength data from both tests for failure on ground surfaces is found due to edge chipping, observed by scanning electron microscopy. As a result, it can be confirmed that the LED die strength has been successfully determined by these feasible and reliable test methods. [C2477]

"Wafer level encapsulation process for LED array packaging"

Solid-state lighting (SSL) using high brightness light emitting diodes (HB-LEDs) is the emerging trend for general lighting applications. It is expected a substantial portion of conventional incandescent and fluorescent lighting will be replaced by SSL in the next 5-10 years. There are two major factors controlling the propagation of HB-LEDs for SSL applications. One is the optoelectronic efficiency and the other is the cost. Both factors are closely related to the packaging of LEDs. Currently most LEDs are packaged on an individual component basis. Such a component level packaging process has relatively low throughput. Consequently it is more difficult to implement automation for large scale mass production, which is a critical element for low cost manufacturing. Therefore, a more efficient packaging process is in demand in the LED industry. In the present study, a wafer level encapsulation process for LED array packaging is developed. The silicon wafer is pre-fabricated with a pattern of grooves which serve as stoppers for epoxy flow in the subsequent encapsulation process. Epoxy encapsulant is dispensed from a syringe onto the wafer, and then is cured by UV light to complete the encapsulation process. This process can be easily automated and, hence, may increase the production throughput and reduce the manufacturing cost of LED packaging. In order to optimize the quality of this newly developed encapsulation process, there are several design and processing considerations to be investigated. These include the volume of encapsulant, the geometry of grooves, and some epoxy dispensing and curing parameters. A prototype with encapsulated LED arrays on a silicon wafer will be illustrated. Detailed discussion on those critical processing parameters will be given. [C2478]

"A Balancing Strategy and Implementation of Current Equalizer for High Power LED Backlighting"

This paper presents a current equalizer to balance the driving currents for high power LEDs (light emitting diode). The proposed strategy combined PWM strategy and digital dimming control to achieve the same illumination for each driven diodes. To obtain the same average current, the duty cycle of LEDs is modulated according to its current amplitude instead of traditional current amplitude adjusting. Complete mathematical analysis and design considerations are detailed. The experimental results are close to the theoretical predictions, and the measured tolerance errors are all below 4%. [C2479]

"A novel current driving method using organic TFT pixel circuit for active-matrix OLED"

A novel current driving pixel circuit for active- matrix organic light-emitting diodes (OLEDs) based on organic TFTs (OTFTs), is presented and verified by HSPICE simulation. The simulation results show that the proposed pixel circuit, which is a current-mirror structure consisting of five organic TFTs and one capacitor, has current

nonuniformity of less than 2.5% throughout the entire data range. Also, variation in OLED current due to threshold voltage degradation of organic TFTs is effectively compensated to reliable values. [C2480]

"Charge trapping levels in vacuum deposited poly (vinylidene fluoridechlorotrifluoroethylene) copolymer thin films"

Thermally stimulated discharge current (TSD) behaviour of vacuum deposited polyvinylidene fluoride-chlorotrifluoroethylene copolymer films (~ 10000 A) has been studied as a function of polarization field (1.0 x 103-2.0 x 104V/cm). The TSD spectra of these films show a single relaxation peak whose charge and peak current vary non-linearly with the polarization field. The origin of the relaxation peak has been attributed to the migration of the charge carriers, injected from the electrodes, at the macroscopic distances and their subsequent trapping at energy levels lying ~ 0.48 eV. [C2481]

"Improved efficiency of Organic Light Emitting Diodes by doping of hole transport layer"

The electrical doping process in OLED has been investigated by doping of 0.4 wt % of 2,3,5,6- tetrafluoro-7,7',8,8' -tetracyano-quinodimethane(F4-TCNQ) in hole transport layer (alphaplusmn-NPD). The OLED devices with a structure of ITO/pure:doped alpha-PD/Ir(ppy)3:CBP/BCP/Alq3/LiF/Al were fabricated using this combination of HTL with green emitting electrophosphorescent material Ir(ppy)3doped in CBP. The J-V-L characteristics and device efficiencies with and without doping of HTL has been measured. It was found that the doping increases the device current and device efficiency at lower applied voltages. [C2482]

"Investigation of photoluminescence degradation and OLED device of a new polysilane"

Polysilanes are sigma conjugated polymers with a Si back bone which shows emission in ultraviolet (UV). Earlier, we had fabricated polysilane devices based on poly[bis(p-butylphenyl)silane] (PBPS), poly(n-octylphenylsilane) (PS-8) and several other polysilanes [1]. Among these, PBPS and PS-8 devices had a low turn-on voltage. In this work, we have compared photoluminescence degradation and device characteristics of PBPS, PS-8 and a new polysilane, poly[(p-n-butylphenyl)(n-octyl)silane] (P-8). These three polysilanes allow us to systematically investigate the effect of the side groups attached to the Si chain. We find that the presence of alkyl chain drives the emission to deeper UV, whereas phenyl group yields a greater stability. [C2483]

"The effect of ITO surface energy on OLED electrical properties"

Two simple empirical models are proposed in order to relate the ITO surface chemical physical properties to the OLED electrical behaviour. Two different organic active layers have been deposited over the ITO substrate: evaporated small organic molecule or spun polymer. In the first case it has emerged that the device current depends on the ITO surface energy through an exponential law, while in the second it is the anode potential barrier that is influenced by the surface energy decreasing. These models allow to tune the device electrical characteristics changing the materials technological features. [C2484]

"Fabrication of WOLED by blue florescent host doped with red phosphorescent dyes"

A lot of efforts have been made to develop WOLED such as using single layer structure and multilayer structure in which different florescent and phosphorescent dyes are mixed which finally gives white light. As phosphorescent emitter system can harvest both singlet and triplet excitons, so WOLEDs based on these emitters have highest reported efficiencies but still the limited stability and life time of blue triplet emitter such as Firpic pose a drawback on efficiency and life time of WOLEDs. Therefore the high efficiency and color stability of WOLEDs depends on the use of blue florescent with green or red phosphorescent dyes. In the present work florescent Zn(hpb)2is taken as a host. It emits greenish blue color with broad PL spectrum which covers region from 448 nm to 500 nm. In this host a yellow florescent i.e. rubrene and red phosphorescent i.e. [bis(2-2'-benzothienyl) pyridinato-N,C3) (acctylacetonate) iridium(III) dopents were mixed to give white color. The structure of the device is ITO/alpha-NPD (30 nm) / Zn(hbp)2: 0.1% Ir(acac): 0.01% rubrene (25 nm)/BCP (6nm)/Alq3(28 nm)/LiF (lnm)/Al (100 nm)was fabricated and then characterized. Organic layers were deposited in high-vacuum (10-6Torr) by thermal evaporation of the required organic material onto a cleaned indium tin oxide (ITO) coated glass substrate. Finally a LiF buffer layer and Al cathode were vapor deposited onto organic films. The EL spectrum of the device shows four peaks at 443 nm, 511 nm, 606 nm, and 660 nm. This indicates that EL of this device almost covers the visible region i.e. from 400 nm to 700 nm. The doubly doped emissive layer device exhibits white emission having CIE co-ordinates (0.27, 0.28) and maximum brightness 2280 cd/m2. [C2485]

"The effect of spatially distributed electron and hole blocking layers on the characteristics of OLEDs"

The recombination probability and hence the maximum light intensity of OLEDs largely depends upon the controlled injection of charge carriers and their confinement. In single layer OLEDs, recombination of carriers is highly affected due to quenching effects at cathode. In multilayer OLEDs, effective use of blocking and emissive layers provides better recombination of charge carriers leading to improved electroluminescence, and high efficiency. In the present work, a study has been made on the effect of spatial distribution of electron and hole blocking layers in single layer and multiple quantum well structures on current, voltage, luminance, and efficiency of devices. [C2486]

"Enhancement of light out-coupling efficiency of organic light-emitting devices by anti-reflection coating technique"

We report significant enhancement of light out- coupling efficiency in organic light-emitting devices (OLEDs) by means of anti-reflection coating of magnesium fluoride (MgF2) on the backside of glass substrate. OLEDs were fabricated employing the green electrophosphorescent material fac tris (2- phenylpyridine) iridium [Ir(ppy)3] doped in 4, 4', 8-N, N 8-dicarbazole-biphenyl (CBP). Single- layer MgF2with the thickness of lambda/4 was then vacuum deposited on the backside of glass substrate of OLED. [C2487]

"Fabrication of organic light-emitting devices by oblique angle deposition technique"

OLEDs based on small organic molecules are generally fabricated by thermal evaporation techniques at normal angle of incidence. We report the fabrication of OLEDs using oblique angle deposition technique. Current density and luminance versus voltage characteristics were studied and it was found that OLEDs fabricated with oblique angle deposition technique showed improved light output intensity. This improvement in the performance of OLEDs fabricated by oblique angle deposition technique is discussed. [C2488]

"Optical data bus technologies for automotive applications"

This paper deals with state of the art and next-decade technologies for optical data buses in automotive applications. Nowadays, optical data buses in automotive applications are almost exclusively used in the infotainment domain, MOST (Media Oriented System Transport). Current data rates are in the order of 20 Mbit/s. Consequently, the use of LEDs and polymer optical fibers (POF) is sufficient. The next generation of these optical buses has to operate at about 150 Mbit/s. Therefore, the LED/POF solution has reached the uttermost limit of operation. For higher data rates, alternative solutions have to be found: The LED as transmitter has to be replaced by a vertical surface emitting laser (VCSEL), and plastic fiber (POF) will have to be substituted by polymer-cladded silica (PCS) fiber. Due to the inherent fact that, as a result, the fiber diameter is reduced, the detector area of the well-known Silicon photo diodes can also be reduced greatly. As a consequence, data rates can be extended into the Gbit/s-region. This situation then enables us to use the system for sensor applications as well, including safety-relevant operations like drive by wire, break by wire and engine management, and may at last lead in the coming decades to autonomous driving. [C2489]

"Optoelectronic Tweezers for Manipulation of Cells and Nanowires"

Optoelectronic tweezers (OET) is a new optical manipulation technique to trap individual particles with sizes ranging from tens of nanometers to hundreds of micrometers [1]. Using optically-controlled dielectrophoretic force, OET enables complex, dynamic manipulation functions using light intensities up to 100,000 times lower than that of conventional laser tweezers. This paper will review the principle of the OET, and highlight recent advances in manipulating semiconductor nanowires and biological cells in culture media. [C2490]

"New Approach for Passivation of Ga2 O3 -In2 O3 -ZnO Thin Film Transistors"

We successfully integrate the Ga2O3-In2O3-ZnO (GIZO) thin film transistors (TFTs) under conventional dry etching and passivation process using a novel capping layer. The passivated TFT shows a superior stability performance which has the threshold voltage shift of less than 0.6 V at 3 uA and 60degC in 100 hours. This is very promising results for applications in driving TFT for large area active matrix OLED display. [C2491]

"Matching Application-Specific Frontplanes With Generic Backplanes"

Beyond displays, large-area flexible electronics face a fragmented market. To explore new applications even only in the laboratory their fabrication must be simplified. One route is to interface application-specific frontplanes, commercially available or custom-fabricated, with generic active-matrix backplanes. This survey identifies applications that can be demonstrated by this approach, at least at the laboratory level. The feasibility of such demonstrations depends much on the technique that is available for frontplane-to-backplane alignment and attachment. If alignment tolerances are unimportant or generous lamination often is a straightforward

technique. Applications that need accurate alignment, or interfaces that contain thin layers, demand fabrication as fully-integrated structures. [C2492]

"Development of a Plural Colorimeter Module for Urinalysis Strip Readers"

An optic module system is developed adopting multiple colorimetry units for the measurement of multi-pad urinalysis dipsticks. Multiple photometry system instead of moving mechanisms has the advantages of system reliability and simplicity as well as economic aspects due to the recent development of economic color light emitting diodes and stable photo sensors. An integration amplifier with programmable integration time, a current source circuit with selectable and stable current settings were connected through analog multiplexers to forty light emitting diodes for illumination and twelve photo transistors for reading each strip pad. All the circuits are controlled by a microprocessor through a simple set of serial communication commands. The detectability is eighteen times better than the minimum color difference of the test grading which is 0.013 in urobilinogen in the color space defined in this paper. [C2493]

"Development of a postural supporting device using an adaptive and learning balloon actuator-sensor system"

In this paper, a postural supporting device using a balloon actuator-sensor system (BASS) is proposed for the person with disability who is unable to move their body because of injury or disease. The BASS is able to control the position and stiffness adaptively using an adaptive learning impedance controller. The pneumatic actuator has excellent compliance and flexibility, therefore that is good for the human-mechanical system. However, it also has nonlinearity, hence high precision control is difficult. Therefore, in this paper, the CMAC-PID control scheme is installed. The control performance of the BASS is evaluated by the control experiment. [C2494]

"Optimized design of an AOI illuminator"

This paper investigates an illuminator for automatic optical inspection (AOI) machine. The structure of the illuminator was determined first, the illuminator composed three light emitting diode (LED) array sources; the color and the radiation angle of each LED array source are different. Then, the irradiation model of the illuminator was established according to the structure. Finally, the dimensions of the illuminator were optimized based on the irradiation model. Several experimental results show that the illuminator can improve the stability of the AOI. [C2495]

"Development of Indwelling Wireless pH Telemetry of Intraoral Acidity"

A wireless intraoral pH telemetry system for salivary and plaque pH measurement was developed and examined. The actual size of intraoral pH telemeter unit is 8 mm x 16 mm x 2 mm including a rechargeable battery for more than 24 hours measurement. The unit was covered with polyurethane for waterproofing and was applied to the exterior teethridge of a volunteer. The intraoral acidity of the volunteer was successfully measured without interfering his daily life such as eating, drinking, speaking, and sleeping. The accumulated data in the telemeter unit was transferred to a light emitting diode on the surface of the unit and the emitted light was detected, decoded and transferred to the personal computer and analyzed. [C2496]

"Work in progress-Multidisciplinary laboratory for development, design and consumer testing of marketable residential LED luminaires"

Electrical engineers and architects collaborate in 'real life'. In the university, this rarely happens. This paper presents novel approaches to a laboratory that brings electrical engineering and architecture students together. Lawrence Technological University is participating in the 'Solar Decathlon 2007' international competition. Lighting is a critical part of this competition and 'lighting energy use' is one of the ten competitions. The designed house will have varying lighting requirements, and innovative energy conserving lighting approaches are required. The LTU laboratory facility will eventually have several stations known collectively as 'The Lighting Lab'. Electrical engineering students work on the technical aspects of light measurement and the design and manufacturing of luminaires, whereas architecture students work on designing esthetically pleasing lighting luminaires that meet the illumination requirements. Equipment in the lab includes various luminaries, lamps, an artificial sky fixture, a direct beam sunlight simulator, light meters and demonstration displays. Students become familiar with direct/indirect light sources and conventional and low-voltage lighting, and then develop how it can be used for task, decorative and general lighting. A focus for research is the study of LEDs [light emitting diodes]. LED luminaries require further development to provide required illumination at work surfaces in an esthetically pleasing way. [C2497]

"Utilising noise effects on infrared pattern reception for position estimation on a grid plane"

In this paper we present a way to locate the position of a moving target on a grid plane of about 15 square meters with an estimation error of less than half of the grid node distance. The estimation method is based on the success rate that the infrared patterns transmitted from two constant positions is received by the moving target. Several aspects of the reception such as the number of the expected, scrambled or out of order patterns that are recognised are considered. They are all playing an important role in determining the coordinates of the target. An ultra low cost system architecture based on commercial components is presented. A proper carrier filter of 1 MHz centre frequency is also studied in order to achieve fast coordinate estimation. The accuracy of the position estimation algorithm is also discussed with respect to the effect of the grid node distance. [C2498]

"Applicatioon of Biological Signal to the Expressions of Robotic Emotions"

Studies on robotic emotions were mostly focused on facial expressions. However, in human emotion recognitions, biological signals were effectively applied in use. In this paper, we clarified the utility of biological signals as a way to express robotic emotion. We designed facial expressions and set up biological signals (heartbeat, respiration) to apply to the facial LED interface for expressing emotions. The results from two sets of experiment demonstrate that biological signals are closely connected to an arousal level and intensity of emotion. It also can be a distinctive element for emotion expression which is deficient only in facial expression. [C2499]

"Emotional Network Robot (Netoy)"

This paper presents an emotional network robot, Netoy. Netoy has the following features and functionalities: emotional expression (LED & arm, cyber character, sleeping lamp); information service (weather, news, audio book, clock); entertainment service (music streaming, MP3 play, motion talk); and private secretary service (voice messenger, morning call). [C2500]

"State-of-the-Art Photonic Nanostructure Devices"

Semiconductor photonic nanostructures, i.e. photonic crystals (PCs) and high index contrast structures (HICs), have become worldwide topics in this decade. They strongly control light emission and propagation, and so allows novel phenomena and device applications. PCs are artificial mult i-dimensional periodic structures whose period is of the order optical wavelength. Through active studies in these 20 years, their fundamental theory and fabrication techniques have been established, and now they are widely used as tools in other topics of photonics physics and optoelectronics, e.g. nanolaser and cavity QED, efficient light extraction in LEDs, high-power single mode VCSELs, slow light and optical buffering, nonlinear photonic switching, negative refractive optics. HICs have simpler structures and optical characteristics. They are particularly attracting attention in the field of Si photonics. This presentation reviews some of our research activities on these topics. [C2501]

"Microcontroller-based quadratic buck converter used as led lamp driver"

This paper presents a new proposal for driving LED lamps through the use of a micro controlled quadratic buck DC/DC converter. The main focus is to improve the LED driver's characteristics using the microcontroller PIC16F873A, thus achieving greater durability and efficiency. Mathematical analyses and experimental results are presented in this paper. [C2502]

"Zeta DC/DC converter used as led lamp drive"

This paper presents a new proposal of LED lamp driver using the ZETA DC/DC converter. The main focus is to improve the LED drive characteristcs using the DC/DC converter ZETA, therefore, greater durability and efficiency can be achieved. Through the result experimental it is possible to verify the performance of the converter as well as the luminous efficiency of the LED Lamp. [C2503]

"Low stand by power, self oscillating power supply"

A design has been made of a low stand by power oscillator, which can be used off a rectified 230 V grid. Stand by powers lower than 0.2 W are obtained. The oscillating mode is obtained using the capacitance of the power MOSFET. The supply operates at a wide input voltage range. [C2504]

"The electrical characteristic of commercial GaN blue light emitting diode"

In this paper, we use the commercial sample of GaN blue light emitting diode (LED) with its electrical characteristics studied in details under wide range of temperatures from (100-440 degK). [C2505]

"Effect of P-type cladding layer and P++-GaN layer of InGaN/GaN MQWs blue LED"

In this work, we modified the p-type epitaxy structure to improve the p-type metal-semiconductor ohmic contact. Further, we investigated the electrical and optical properties by adjusting the p-type cladding layer structure in the InGaN/GaN MQW samples. [C2506]

"Optical and electrical properties of Al/ZnO-nanocomposite/Si n-p diodes"

The electrical properties of Al/ZnO-nanocomposite/pSi n-p heterojunction diodes and optical properties of ZnO nanostructures on (100)Si substrates in polystyrene-acrylic acid diblock copolymers, are reported. [C2507]

"Design and characterization of a gain-enhanced floating gate-body tied photodetector in Silicon on Sapphire CMOS"

In this work, we report on the design, fabrication and testing of a photoreceptor in silicon on sapphire CMOS with an unprecedented responsivity of 250,000 A/W operating with a bias of only a few hundred millivolts at room temperature. The device consists of a floating gate-body tied MOS transistor with a low-threshold channel doping, but with a modified body structure that amplifies the gain of the device by as much as a factor often. [C2508]

"Light emitting diodes on glass and silicon substrates fabricated using novel low temperature hydrogenation-assisted nano-crystallization of silicon thin films"

Nano-porous silicon films have drawn significant attention for the realization of light emitting diodes on silicon substrates. We report a novel low temperature fully radio-frequency plasma hydrogenation assisted process to realize light emitting diodes on glass substrates. Such devices can be of great importance for lighting applications, as an alternative approach for organic LED's or I-V compounds. The process outlined in this paper, can be used to realize large area light emitting diodes on inexpensive substrates. All the processing steps remain below 450degC fully compatible with normal glass substrates. [C2509]

"Gallium nitride nanowire devices-fabrication, characterization, and transport properties"

Gallium nitride nanowires offer a great deal of potential as they poses unique material properties like wide direct bandgaps, radiation hardness, mechanical and chemical stability. We have demonstrated nanoscale devices made from GaN nanowires utilizing only conventional batch microfabrication techniques. Nanowires were dielectrophoreticaly aligned to achieve large number of reliable devices. [C2510]

"Integrated CMOS photo-transistor array for visual light identification (ID)"

The integrated CMOS photo-transistor array has been developed for visible light 1D system. And the photo-transistor is selected by CCD image and C software in order to separate the signals from multiple light sources. [C2511]

"Relating electrical and computer engineering to the high school classroom"

In this work, examples from educational programs targeted at high school students and teachers were implemented. The aims of this paper were both to enhance their understanding of how electronics technology works by an intuitive, rather than a mathematical approach, and to raise consciousness of and interest in electronics technology while demonstrating the relevancy of high school course subjects by showing their application to "real-world" electronics. Some suggestions on how the results of current research can be used for the same purposes were also offered. [C2512]

"An experimental comparison of nonholonomic control methods: Automatic parking benchmark"

This paper presents several experimental results for typical nonholonomic control methods. Although numerous nonholonomic control methods have been proposed, few is known about the advantages and disadvantages of each method. So in this paper an automatic parking system is used as a benchmark to test several typical nonholonomic control approaches experimentally. The emphasis is put on the applicability and control performance. [C2513]

"Development of high precision X-Y stage using for production and inspection equipment of organic electro luminescence display"

There is an increasing requirement for controlling linear motion from several ten nanometers to a few hundred of millimeter strokes in the area of the organic electro luminescence display (OLED) production and inspection equipment. The requirements of the high precision X-Y stage are low trajectory following error and high positioning accuracy. To satisfy these requirements, it has to be designed with the minimum velocity ripple and maximum acceleration. In this work, plane type X-Y stage having air bearing guide system is proposed, where each axis using linear motor is mounted on the slotted guide beam, isolation system and control system are used for performance requirement. The developed high precision X-Y stage is verified by performance test. From the performance test, moving stroke is 730mm(X-axis) and 920mm(Y-axis), repeatability is plusmn100 nm (X-axis) and plusmn150 nm(Y-axis), straightness is plusmn2.6 mum (X-axis) and plusmn0.9 mum (Y-axis), flatness is +2.3 mum (X-axis) and plusmn0.4 mum (Y-axis), velocity ripple is 0.19% (X-axis) and 0.47% (Y-axis) at 50 mm/sec at each direction, and in position stability is plusmn69 nm (X-axis) and plusmn59 nm (Y-axis). [C2514]

"Assistance system for designing mirrored surface using projector"

We propose a system with camera and projector to show specular reflection of surrounding environment on the real object. At first, active shape measurement with pattern light projection is performed to obtain precise shape of the object rapidly. Then, rendered specular pattern using the shape information is projected on the real object. Our system also recognizes the status of work operated by the designer, and shape measurement and visualization are done only when the worker wants to evaluate the shape. The view point of the evaluator is measured using LED marker and spherical mirror, and the projected reflection pattern is adjusted for the viewpoint adequately in realtime. [C2515]

"An automatic inspection system for hologram with multiple patterns"

We propose an automatic inspection system for hologram with multiple patterns. The system hardware consists of illuminations, camera, and vision processor. Multiple illuminations using LED are arranged in different directions to acquire each image of patterns. The system software consists of pre-processing, pattern generation, and pattern matching. The acquired images of input hologram are compared with theirs reference patterns by developed matching algorithm. To compensate for the positioning error of input hologram, reference patterns of hologram for different position should be generated in on-line. We apply a frequency transformation based CGH (computer-generated hologram) method to generate reference images. For the fast pattern matching, we also apply the matching method in the frequency domain. Experimental results for hologram of Korean currency are then presented to verify the usefulness of proposed system. [C2516]

"Design of an organic TFT pixel electrode circuit with enhanced current programming method for active-matrix OLED displays"

This paper presents a novel driving scheme for AMOLED displays using a current mirror structure. For future low cost displays, the results are based on soluble-processed OTFTs. Since the characteristics of soluble-processed OTFTs are poor compared to pentacene-based OTFTs, the output current levels are controlled by adjusting the ratio of device dimensions. The simulation results show reliable uniformity between input data and OLED current. Also, successful compensation of OLED current due to threshold voltage variation is also shown. [C2517]

"Integrated solid-state optoelectronic sensor system for biochemical detection and quantification"

Solid-state optoelectronic sensor, based on a novel concept of integrating steady-state (SS) and time-resolved measurements (TRM) in a miniature multi-spectral filterless design, capable of detection and quantification of several important analytes, is presented. Light-emitting diodes (LED) and wavelength-selective photodiodes (PD) covering the entire range of wavelengths from UV to near-IR are used for excitation and detection, respectively. An artificial neural network (ANN) trained by signature chemical library data collected by the sensor, is used for data classification. This library is periodically updated to include additional signatures and subsequent ANN training. The experiments using experimental SS data combined with typical TRM data resulted in a classification accuracy of more than 96% for 38 categories. For analytes with similar SS characteristics but distinct TRM features, addition of lifetime data in ANN classification resulted in improved classification accuracy by about 10% over SS data alone. Major progresses in the field of photodiode technology have led to realization of a complete solid-state TRM system. [C2518]

"New bi-directional T-shaped triple gate n-type poly-si TFT by a low-temperature SLS-process for reducing kink effects"

In this paper, the authors have proposed and fabricated a new bi-directional T-shaped triple-gate structure for reduction of kink current in poly-Si TFTs fabricated by SLS crystallization method. The mobility of TFT parallel

channel direction with laser crystallization direction is 169.87cm2/Vs and the mobility of TFT perpendicular channel direction with laser crystallization direction is 64.28cm2/Vs respectively. The different channel structure is used in the proposed device instead of using asymmetric gate channel length, and then the proposed bi-directional T-shaped Triple-gate structure could be fabricated by normal LTPS process without any limitation of device design rules. [C2519]

"Extraction efficiency enhancement of an OLED using surface plasmon resonance"

In this paper, organic light-emitting devices with non-planar and periodic structures, fabricated by e-beam lithography, were demonstrated which exhibits improved extraction efficiency by coupling out the plasmonic mode. Their optical characteristics were presented and analyzed. [C2520]

"Organic light emitting devices from OLED to organic laser diode"

We mention some significant progresses on organic light emitting diode (OLED), organic laser diode (OLD) and organic field effect transistor (OFET). We discuss prospect of OLD based on recent developments of organic light emitting devices. [C2521]

"Wettability patterning technology for organic displays"

We developed a simple and versatile patterning method for advanced organic displays with high resolution and uniformity in large area. Our patterning method involves the optical formation of selective wetting regions, where a regular array of functional polymer patterns is obtained by a standard spin-casting process. It is demonstrated that polymeric semiconductors and light-emitting polymers can be patterned to produce periodic arrays with feature resolution down to sub-micrometers using the selective wettability. This wettability-based patterning technique of soluble functional polymers would be directly applicable for organic displays and plastic electronics. [C2522]

"Real-time voltage controlled color tunable OLEDs"

Using the rare-earth and phosphorescent materials, voltage-controlled color tunable OLEDs has been achieved. The mechanisms of color-tuning have been investigated. The color purity and efficiency of the tunable OLEDs will be discussed. [C2523]

"Organic light-emitting devices for solid state lighting"

We present recent progress in developing efficient organic light-emitting devices and novel low-cost device fabrication for solid-state lighting applications. [C2524]

"Advances of lighting technologies-From light bulbs to solid state light sources"

Major breakthroughs that took place chronically in the light source development are: the invention of incandescence light bulbs, the invention of lasers, particularly semiconductor lasers, and the high-brightness blue/white LED. Two of these represent the major advances in the lighting technologies. It is further shown that what we called "nano-science and technology" today, had played a critical role in commercialization of these great inventions. [C2525]

"High-performance passive-matrix OLED display by colour conversion method"

Highly power efficient white OLEDs for PM-OLED displays were developed. The operating voltage and the power-efficiency of the optimised device are 6.4 V and 5.9 lm/W at 1A/cm2. The prototype PM-OLED display with Advanced-CCM was made. [C2526]

"Advanced technologies for high quality LC display"

For achieving high quality LC displays, advanced-MVA mode was proposed to wide the viewing angle, 4-color filed sequential method was utilized to increase the optical efficiency, and the local controlled LED backlight was applied to much improve the contrast and lower the power consumption. [C2527]

"Analysis disadvantage of multimedia education"

In several years, multimedia teaching becomes more and more popular, because it is visualizing, attractive and flexible to mobilize studying enthusiasm of students effectively and improve teaching efficiency. But now ire find that there are more and more disadvantages about multimedia teaching, such as false cognition about the

multimedia-aided teaching, neglecting reflection of student, describing too particularly for students. Our purpose is to realize the advantages and disadvantages about multimedia teaching, and then know how to use it effectively. [C2528]

"A Multidisciplinary Educational Board System for Microcontrollers: Considerations in Design for Technically Accurate Custom-made Platforms"

This paper addresses the problem of assuring undergraduate engineering students' experiential learning within a microcontroller-based laboratory, by means of a proper and accurate educational board system. The authors focus on the challenges existing in custom-made educational platforms and present the design considerations towards the development of a technically accurate multidisciplinary educational board system for microcontrollers. [C2529]

"Study on an Indoor Tracking System Based on Primary and Assistant Infrared Markers"

An indoor tracking system based on primary and assistant infrared markers is presented in this paper. The system can track the user's head in a large area with high stability and accuracy. And the price of the system is very low. The novel assistant infrared markers with particular spatial characteristic and the primary infrared markers with particular spatio-temporal characteristic are proposed, which can avoid the synchronization between infrared markers and user system. Various numbers of users can be supported by the proposed system and experimental result shows the effectiveness and robustness of the system. [C2530]

"8F-5 A Visualization Tool for High Intensity Focused Ultrasonic Field Using LEDs and Piezo-Elements"

A tool for directly visualizing intense ultrasonic field is considered in this study, where a light emitting diode (LED) is connected to a piezoelectric ceramic element. As the piezoelectric element generates electric voltage in proportional to ultrasonic pressure applied to the element, the LED is turned on by the voltage. The sound pressure is directly observed as a light intensity of the LED by human naked eyes. In this report, first, we describe the principle of the sensor, then present a configuration of hydrophone based on the present method. Second, visualizations of a focused field excited by a concave transducer and a standing wave field in an ultrasonic cleaner are demonstrated using an array version of the proposed sensor. [C2531]

"Advanced liquid crystal displays"

This tutorial will describe the basic operating physics of transmissive and transflective TFT-LCDs. Methods for improving the viewing angle, response time, color gamut, color shift, contrast ratio, and optical efficiency will be discussed. [C2532]

"Title"

The following topics are dealt with: next generation photonics networks; liquid crystal displays; optical fiber sensors and industrial applications; biophotonics and bioimaging; fibers and propagation; millimeter wave, mid-infrared & nonlinear devices; fiber gratings & OCDMA; silicon photonics and high-speed devices; erbium-doped and Raman fiber amplifiers; FTTH industrial forum; photonic integration; OLED; VCSEL; planar waveguide devices; and high power fiber lasers. [C2533]

"A Virtual Keypad Based on Alternate Half-Field Stimulated Visual Evoked Potentials"

A virtual 8-key keypad has been designed and constructed to experimentally validate a new kind of noninvasive brain computer interface (BCI). The principle of its operation is based on a technique of alternate visual half-field stimulation, proposed recently by second of the authors. Microcontroller and DSP integrated circuits are used to generate the signals driving light-emitting diodes for visual stimulation and to detect brain response in the EEG signal. The EEG signal is measured from 3 electrodes placed on occipital part of the scalp using a battery-operated amplifier and A/C converter. A Bluetooth chip is used to transmit the stream of measured data to the processor. Tests of the keypad operation, involving 10 volunteers, show it is faster than conventional BCI devices based on steady-state visual evoked potentials, reported so far in the literature. [C2534]

"ID recognition for museum tourists using infrared LED's"

An efficient ID recognition method is described that uses blinking patterns of an infrared light emitting diode (IR-LED) and a camera with variable frame rates. The method provides real-time synchronization of simple communication and high applicability and efficiency with its compact design in many cases. We focused on

analyzing the blinking patterns of infrared light using an inexpensive web camera to acquire data with high rate of accuracy. The major advantage of the proposed system is that any camera equipped with infrared light pass filter may be used to recognize LED blinking. The recognized patterns may be used to identify the objects and the users in museum environments. [C2535]

"Study on the Key Image Processing Technology in the Inspection of Packing Quality for Small-Pack Cigarettes"

Image processing is a key factor in the inspection of packing quality by machine vision. Targeting the inspection of packing quality for small-pack cigarettes in tobacco enterprises, this paper proposes a series of key image processing techniques: a fast algorithm for small-pack edge collecting based on fast Hough transformation, an online differentiating algorithm based on GLCM parameters, and packing-flaw detection based on SVMs, etc. The key techniques are applicable to the inspection of external product-packing quality, and have engineering referential value for constructing product inspection systems based on machine vision. [C2536]

"Control of meal support manipulator based on mouth open/close motions"

This paper describes meal support-equipment based on mouth open/close motions. The developed controller was attached with the skin surface on the side of the mouth, and it could correctly recognize the mouth open state performed by operation without confusion for the state of masticating something food or speaking words. Next, suggested method was applied for operation of the meal support equipment. In the developed system, the opened width of mouth to use for operation could be individually decided for the purpose of eliminating the physical burden. The LED of all food trays automatically turned on and off in order at a constant period, and user could select the food on the tray by opening the mouth at a moment when the LED illuminated. As for manipulation of scooping food, it could be found that the spoon posture manipulated by human was able to be divided into five processes, and the posture of the spoon equipped on the meal support manipulator was planned emulating the obtained human's characteristics. [C2537]

"The Peripheral Display for Augmented Reality of Self-motion"

It is known that peripheral vision strongly contributes to the sense of self-motion, and that users of visual displays with a narrow field of view often find it hard to experience such sensations fully. In this research, we propose a peripheral display that augments the feeling of self-motion. This consists of simple displays that stimulate the user's peripheral area of vision. By changing the stimulus on the peripheral display, the system should be able to increase or reduce the user's sense of self-motion. In this report, we describe a prototype of the display system and the result of its evaluation. [C2538]

"Wireless Localization Network for Ubiquitous Robotic Space: Approaches and Experimental Test"

This paper outlines research motivations of ubiquitous robotic space (URS) and provides concepts of wireless localization networks, which are used for the navigation of indoor network robots and pedestrian. As components of URS localization system, this paper introduces a calibration algorithm, coarse and fine localization systems, and three key hardware equipments developed: StarLITE, Navi-guider, and UMVC. The StarLITE is a IR-LED sensor, Navi-guider is a tethering system used for robot guidance, and UMVC is a multi-view camera. Based on an experimental test, it will be shown that a UWB-based localization system can be reliably used for the navigation of mobile robots and pedestrian in the ubiquitous robotic space (URS). [C2539]

"Collaborative Task Casting for Multi-Task Communication Robots"

This paper proposes a new task selection method for multi-task communication robots. As robot technology improves, communication robots are being used in public places. These communication robots are meant to perform patrol, promotion, or guidance activities in place of humans. When a communication robot is implemented for multiple purposes, it is important that the robot be able to appropriately select its own tasks. In this paper, we propose a collaborative task casting method to support communication robots when they are selecting a task. We also describe the implementation of a task management system based on the proposing method. This system takes into account global task achievement and balances task occupation to ensure that adequate robot resources are directed towards each task. [C2540]

"System Design and Evaluation of the Robot Tactile Sensor Using the Microbending Fiber Optic Sensors"

This paper describes the system design and the structural design to evaluate the tactile sensor using the microbending fiber optic (MBFO) sensors. The small light emitted diode (LED) and charge coupled device (CCD)

are used as a single light source and a light detector for the bundle of optical fibers respectively. And the structure of this type tactile sensor which is composed of crossed fibers in the silicone rubber is very simple. And the tactile sensor element using MBFO sensor is fabricated and the performance of this sensor is evaluated. [C2541]

"A dynamic study of divergence extraocular muscle"

Vergence eye movements are the inward (convergence) or outward (divergence) turning of the eyes which allows humans to view images in depth. Divergence is dependent on initial stimulus conditions whereas convergence is not. This study will investigate if the forces of the extraocular muscles show a causal relationship to divergence dynamics. The neural command to the brain is a four degree stimulus; however responses were measured when the extraocular muscles experienced different forces. The results show the extraocular muscles specifically the lateral and medical recti muscles have an influence on the dynamics of divergence eye movements. [C2542]

"Mutual thermal effects of light-emitting diode with wafer-level packages"

Wafer-level packaged LEDs are useful for the high power applications such as back light unit (BLU) and general solid state lighting due to the compactness and integrated fabrication process with Si-MEMS technology. In this paper, thermal characteristics of wafer-level packaged LEDs with four multi-chips are investigated including mutual thermal effects due to the adjacent chips using both serial and parallel measurement methods. [C2543]

"Comprehensive investigation of light emission of OLEDs: from absolute optical properties to the purcell effect"

The dispersively absolute absorption coefficient and refractive index as well as the Purcell effect have been theoretically and experimentally studied for optimizing the light emission properties of organic light emitting devices. [C2544]

"Phosphor-free white-light light-emitting diodes based on InGaN/GaN quantum wells"

Two approaches for fabricating white-light light-emitting diodes are discussed, including the stacking of various InGaN/GaN quantum wells for mixing into white light and the use of II-VI nano-crystals for converting short-wavelength photons into long-wavelength light. [C2545]

"Challenges in luminescent materials for lighting and medical applications"

In this paper, we will outline how new requirements have revitalised research on luminescent materials. Using selected examples from applications in lighting and the medical field, we will show how materials science on luminescent materials results in new and improved phosphors. [C2546]

"A stethoscope-mounted cardiac synchronizer"

As an aid to the diagnosis of cardiac function, a compact circuit was designed to attach to the head of a physician's stethoscope and detect electrocardiogram R and T waves, indicating each by the brief flashing of an L D. With feedback on electrical activity in the heart in parallel with acoustical feedback, a physician will have greater ability to diagnose normal and diseased operation of the heart. The circuit was prototyped using a custom multilayered board and surface mount components. More advanced versions are now being considered in the forms of a full custom Integrated circuit and a PIC microcontroller. [C2547]

"Analysis of a small generator using flux tube method and MATLAB"

This paper analyzes the output characteristics of a small generator. The output circuit is connected to the series of a resistance and an LED. The output voltage of the generator is calculated by the flux tube method. The output current flowing through the LED is calculated by the MATLAB/Simulink. The validation of the results obtained from this method is carried out by comparing the experimental results. [C2548]

"Development for new power white LED module with multifanctional printed-wiring board"

In recent years, white LEDs and the applications are attracting attention as a replacement illumination lamp for the currently used fluorescent lamp, because white LEDs have several characteristics for low power consumption, simplification of circuitry, and longer life. While further research and development for miniaturization of lighting equipment and high discharge characteristics will be necessary in the immediate future. In this study,

new multifunctional board specialized for three color power LED chips (red,green, blue) was developed, and power white LED module was assembled using the board. Lastly, several electro-optic properties were measured for new power white LED module. Based on these results, it was evaluated the power white LED module has high discharge characteristic and high luminous efficiency. [C2549]

"Minor magnesium doping in P-type layer of InGaN/GaN MQW LED to enhance electrical and optical properties"

In this study, the LED samples were grown by metalorganic chemical vapor deposition (MOCVD) on 430 mum-thick c-plan sapphire substrates. The layer sequence consisted of a 25.0 nm GaN nucleation layer followed by a 2.0 mum-thick undoped GaN buffer layer, a 2.0 mum-thick Si-doped GaN conduction layer, a active region composed of five 2.5 nm-thick In0.23Ga0.77N QWs separated by 12.0 nm-thick GaN barriers, followed by 15 pairs of Mg-doped AlGaN/GaN superlattice structure consisting of 3.0 nm AlGaN layers, and 3.0 nm GaN layers, a 30.0 nm-thick Mg-doped GaN cap layer. Finally, a 10.0 nm Mg-doped GaN contact layer was grown on the top of LED. [C2550]

"Can we fabricate efficient white-light InGaN/GaN quantum-well light-emitting diode without using phosphors?"

We report some recent developments in all-semiconductor multi-color and white-light light-emitting diodes. The potential of the development of phosphor-free all-InGaN/GaN quantum-well white-light light-emitting diode will be evaluated. [C2551]

"Thermal Management of High-power White LED Package"

With the increasing luminous efficacy of light emitting diode (LED) and the successful fabrication of power high brightness LED chip (HB-LED), solid state lighting using white HB-LED becomes feasible. A novel package and thermal analysis based on ANSYS software for high-power white LED were presented in this thesis. Package structures were optimized based on the result of thermal analysis. Considering cost and dimensional limitation, the thermal structural optimization of LED was achieved. [C2552]

"Development of high efficiency green and deep green light emitters in piezoelectric group-iii nitrides"

Green and deep-green light emitting diodes are still the weakest link in energy efficient Solid-State Lighting. We analyze the limiting factors of the external quantum efficiency and summarize our approach of dislocation and polarization control. [C2553]

"Light emitting diodes with extremely high extraction-efficiency for electroluminescence refrigeration"

InGaAs light emitting diodes with extremely high light extraction efficiency are fabricated by monolithically integrating the light emitting region with a suspended GaAs hemispherical lens. This design is being developed for electroluminescence refrigeration applications. [C2554]

"High precision and high speed cutting of 4th generation OLED masks with LaserMicroJetΓ,B®"

A new micro-machining technology-the water jet guided laser, also called as LaserMicroJetΓ,B® technology-has been developed for the manufacturing of sophisticated and heat sensitive OLED masks. [C2555]

"Direct Copper Bonded Ceramic Substrates for Use with Power LEDS"

The past years saw a marked increase in power density for packaged LEDs and also an increase in requested lifetimes for the same modules. This leads to the need for substrate materials that show an improved thermal conductivity and reliability over standard FR4 or insulated metal substrates. Direct copper bonded (DCB) substrates offer a significantly lower thermal resistance and have already become the standard carrier for high power, high voltage inverters and solid state relays. [C2556]

"Performance characteristics of a high resolution oncologic transformable PET in brain/breast and whole-body modes"

A high resolution transformable PET camera for human research has been developed. It can be transformed from whole-body mode (83 cm detector ring diameter, 13 cm axial FOV) to brain/breast mode (54 cm diameter,

21 cm axial FOV). This flexibility allows more optimal imaging for more dedicated human research studies, compared to commercial systems that are designed primarily for whole-body cancer imaging. The camera has 12 rectangular detector modules with gaps between modules which are small and remain constant for every configuration. Each module has a large detection area of 13 times21 cm2and 3,168 BGO detector crystals of 2.68 times 2.68 times 18 mm3with built-in front-end electronics. The system has 38,016 BGO detectors and 924 PMT in total. The low-cost high-resolution PMT-quadrant-sharing (PQS) detector design was used for the detection system. A fast LED cross-reference calibration method is used to maintain the PMT gain balance. To improve the spatial sampling, the gantry rotates 30" with a fine step of 1"along with the high-speed electronics and detector modules. The whole system (detectors, electronics, mechanics, and software) was designed and fabricated inhouse. The performance characteristics are measured following the NEMA NU 2-2001 standard. 3D acquisitions were collected without interplane septa in the system. The sensitivity is 4.2% for whole-body mode and 9.2% for brain/breast mode with a Na-22 point source placed at FOV center. For brain/breast mode, the transaxial image resolutions at 0, 10 cm are 2.7 and 4.0 mm; while for whole-body mode, the resolutions are 3.3 and 3.9 mm. The slice thickness resolution is 2.6 to 3.3 mm in brain mode. DOI reduction technique is applied into the sinogram with the model- based Point Spread Function (PSF) obtained by Monte Carlo simulations to achieve high-definition (HD), high uniform PET images. The improved image resolutions are 2.9, 3.3 mm in whole-body mode at the location of 0, 10 cm o- ffset. A coincidence window of 13 ns collects 93% of the trues. The scatter fraction is 48% in brain mode. The maximum noise- equivalent count rate (NECR) is 34 Kcps at 4.6 KBq/cc for the brain mode and 20 Kcps at 5.6 KBq/cc for whole-body mode with the 70-cm NEMA NECR phantom. The convertible lead shield is being redesigned for higher NECR in whole-body mode. [C2557]

"Resonant energy transfer due to exciton-exciton interaction in the strong coupling regime in Hybrid InGaN Quantum Wells"

Resonant coupling of excitons in strongly confined hybrid perovskite conjugated to InGaN quantum wells is observed. Temperature and time-resolved-photoluminescence (PL) reveal 10 times enhancement of recombination lifetime in strong-coupling regime due to resonant energy transfer. [C2558]

"3D integration of heterogeneous MEMS structures by stamping transfer"

We propose an integration method of heterogeneous micro-electro-mechanical-system (MEMS) structures by liftoff and stamping transfer using a poly-(dimethylsiloxane) (PDMS) sheet. Silicon structures fabricated on multiple wafers were lifted off by PDMS sheets, and integrated onto a single wafer by the stamping transfer with high yield (>90%) and high accuracy (position error <500 nm). A two-dimensional (2D) integration and three-dimensional (3D) assembly of pyramid-like/inverted pyramid-like structures were demonstrated by our method. These demonstrations prove that our method enables us to integrate process-incompatible heterogeneous MEMS structures onto a single wafer. [C2559]

"A Sub-μA fast-settling current-programmed pixel circuit for AMOLED displays"

Current-programmed active matrix organic light emitting diode (AMOLED) displays have been valued for their immunity to spatial mismatch, differential aging, and temperature variation. However, the long settling time particularly at small current levels and large parasitic capacitance can be a constraint. This paper presents a new current-programmed pixel circuit that improves the settling time while preserving the stability of current programming. The pixel circuit was fabricated in amorphous silicon technology. The settling time of the new pixel circuit can be as low as 20 mus whereas the settling time of conventional current-programmed pixel is more than 2 ms. [C2560]

"Thermal Analysis of LEDs for Liquid Crystal Display's Backlighting"

This paper investigated the thermal design of the light emitting diode (LED) onto the board and its packaging. The LED was a 6-lead MultiLED with 3 chips designed for LCD backlighting and other lighting purposes. A 3D finite element model of this LED was built up and thermal analysis was carried out using the multi physics software package, PHYSICA. The modeling results were presented as temperature distributions in each LED, and the predicted junction temperature was used for the thermal resistance calculation. The results for the board structure indicated that (1) removing the foil attach decreased the thermal resistance, (2) Increasing the copper foil thickness reduced the thermal resistance. Package design indicated that the SMT designed LED with integrated slug gave lower thermal resistance. Pb-free solder material gave lower thermal resistance and junction temperature when compared with conductive adhesive. [C2561]

"New sandwich type detector module and its characteristics for dual x-ray baggage inspection system"

Using two phosphor screens based on Gd2O2S:Tb and linear array 16 channel photodiodes, new dual-energy detector was designed and fabricated for X-ray baggage inspection system. By simulation, we derived optimum detector structure and proved that the combination of Lanex regular for LED and Lanex fast-B for HED with 1.5 mm copper filter in the HED had the same performance as a commercial dual-energy detector. After fabrication of our own designed linear array photodiode and data acquisition, X-ray test was performed at the condition of 140 kVp /0.8 mA and Z-map was derived using two phantoms of aluminum and acryl. As a result, the phosphor screen coupled detectors showed better uniformity property and similar separation ability as the commercial one provided. [C2562]

"An all-fiber-optic confocal interference microscope using low-coherence near-infrared light source"

An all-fiber-optic confocal interference microscope using a broadband near-infrared light source is demonstrated. Detection of interference fringes increases sensitivity and usage of a broadband source reduces undesirable interference between optical components. [C2563]

"Emission Intensity Improvement of InGaN Ultraviolet Light-Emitting Diodes Grown on Wet-Etched Sapphire Substrates"

First Page of the Article [C2564]

"A Sensor Integrated Ultra-long Span LED Street Lamp System"

As the LED's lumen efficiency increases rapidly in recent years, many new LED illumination applications are emerging. Based on the analysis of LED's characteristics, our optimization scheme and design methods for LED street lamps were proposed. A unique street lamp with ultra-long span and high total uniformity was designed as an example. The simulation results demonstrated that the road light utilization efficiency was 85% and the total uniformity was 0.52 for a 100times30 square meters test area at the height of 20 meters, which was much better than the current standard for the main road, proposing a challenging to the current standard with high pressure sodium lamps. Various sensors integrated with the LED street lamps were also discussed as the mainstream design concept for the next-generational LED street lamps. [C2565]

"CLEO, Monday, May 7"

{no data available} [C2566]

"Intelligent spectral design and colorimetric parameter analysis for light-emitting diodes"

With the fast development of high-brightness and power light emitting diodes (LEDs), it is necessary to evaluate its colorimetric parameters, and to design LED with both high color rendering index (CRI) and high luminous efficacy of radiation (K) to meet general lighting. A software programme combined both functions was developed in this article. Functions and procedures for calculating colorimetric parameters were written in terms of Commission Internationale de l'Eclairage (CIE) definitions and recommendations. The calculation of the dominant wavelength is optimized to accelerate the search speed and increase the resolution as precise as 0.1 nm. Arbitrary combinations of Gaussian formulas were adopted to design LED spectrum. With continuously designed spectra, the relationship between CRI and K can be intuitionisticly viewed and judged, so an optimal range for both high CRI and K can be easily determined. [C2567]

"Continuous long-term observations of UV laser- and LED-induced fluorescence of processed drinking water"

We have used a deep-UV laser-induced fluorescence system to monitor in real time organic species present in tap water. We have also tested a 265nm UV-LED as an excitation source for our system. [C2568]

"Light emission from size reduced nanocrystal silicon quantum dots"

We performed HF treatment to silicon quantum dots with diameter of 8nmГ‚В±1nm fabricated by VHF plasma decomposition process. We observed PL wavelength shift from 750nm to 620nm for 8nm to 2.5nm diameter nc-Si dots. [C2569]

"Patterning and integration of polyfluorene polymers on micropixellated UV AlInGaN light emitting diodes"

The integration of polyfluorene polymer micro-pixels onto GaN-based micropixellated UV Light Emitting Diodes is

demonstrated. Polymer down-converted visible emission from these hybrid organic/inorganic electroluminescent micro-arrays is achieved. [C2570]

"Mid-infrared optical upconversion by integrating an InAsSb photodetector with a GaAs light emitting diode"

We report the fabrication and experimental results of a midinfrared optical up-converter that was fabricated using wafer fusion technology. Midinfrared optical upconversion from 4.0 to 0.84 Г‚Вїm was demonstrated at temperatures up to 200 K. [C2571]

"Multiple Wavelength Emission From Semipolar InGaN/GaN Quantum Wells Selectively Grown by MOCVD"

Multiple wavelength emission is experimentally observed from semipolar InGaN/GaN quantum wells selectively grown by MOCVD. Selective growth rates on different mask opening areas result in a multiple wavelength emission from the same wafer. [C2572]

"Carrier Concentration and Junction Temperature Dependencies of Illumination Efficiency of GaN Power Light-Emitting Diodes"

Pulsed drive currents have helped us separate the effects that junction temperature and carrier concentration have on current-induced efficiency degradation of GaN Power LEDs. Carrier concentration and junction temperature dependencies of illumination efficiency are presented. [C2573]

"Efficient point defect engineered si light-emitting diode at 1.218 μm"

We have demonstrated a Si LED with an internal quantum efficiency ˜ 10 % using a novel approach to enhance light emission based on point defect engineering, which uses state-of-the art technology. [C2574]

"Modeling and Simulation of Laser Lift-off Process for LED's Substrates"

As high power LEDs develop rapidly, sapphire substrate on which LED's chips are grown, cannot meet the needs of the increasing performance any longer. Therefore, transfer of the devices from the former sapphire substrates to more thermally and electrically conductive receptor substrates is recommended. Laser peeling has been a new technology of separating films of GaN from the substrate on which they are grown. Experience shows that the films can be debonded intactly when the laser parameters are well controlled. In this contribution, the mechanics of the laser-assisted debonding of GaN films on sapphire, silicon and copper substrates is considered so that the specific parameters can be optimized in order to achieve a feasible process scheme that may be used in the industry. During the simulation, the knowledge of interfacial crack generation between dissimilar materials is considered to be the essential principle of the process of "liftoff". Failure of the interfaces results in the debonding. Whatever, the films of chips should not be damaged in the duration of the "lift-off" process. A few important issues such as temperature distribution, stress distribution and energy release rate are raised in terms of examining whether the films are likely to be damaged. [C2575]

"Simulation and experimental studies of phosphor concentration and thickness for phosphor-based white light-emitting-diodes"

The dependence of luminous efficacy on phosphor concentration and thickness for high-power white light-emitting-diode (WLED) lamps is investigated by employing three-dimensional ray-tracing simulations. The simulations show that the brightness or luminous efficacy of WLED lamps highly depends on the combination of phosphor concentration and phosphor thickness (or phosphor-matrix composite volume). The package with lower concentration and higher phosphor thickness has higher luminous efficacy because the light trapping efficiency is lower with the low phosphor concentration. Our simulations demonstrating a 20% and 27% improvement in lumen output with 1.8 mm-phosphor package over 0.8 mm-phosphor package and 0.6 mm-phosphor package respectively are found to be fully supported by experimental observations. [C2576]

"Learning Vector Quantization Neural Networks for LED Wafer Defect Inspection"

Automatic visual inspection of defects plays an important role in industrial manufacturing with the benefits of low-cost and high accuracy. In light-emitting diode (LED) manufacturing, each die on the LED wafer must be inspected to determine whether it has defects or not. Therefore, detection of defective regions is a significant issue to discuss. In this paper, a new approach for inspection of LED wafer defects using the learning vector quantization (LVQ) neural network is presented. In the wafer image, each die image and the region of interest

(ROI) in them to handle can be acquired. Then, by analyzing the properties of every ROI, we can extract specific geometric features and texture features. Using these features, the LVQ neural network is presented to classify these dies as either acceptable or not. The experimental results confirm the usefulness of the approach for LED wafer defect inspection. [C2577]

"Thermosonic flip- chip bonding for stud bumps onto copper electrodes with titanium and silver layers"

Thermosonic flip-chip bonding of chips with gold stud bumps onto copper electrodes of an alumina substrate was studied. Copper electrodes were deposited with silver as the bonding layer and with titanium as the diffusion barrier layer. Deposition of these layers on copper electrodes serves to improve the bonding quality between the gold stud bumps and copper electrodes. With appropriate bonding parameters, 100% bondability was achieved. Bonding strength between the stud bumps and copper electrodes was much higher than that converted from the JEDEC standards. The effects of process parameters including bonding force and ultrasonic power on bonding strength were investigated by design of experiment (DOE). The experimental results showed that bonding strength increased with increasing bonding force and ultrasonic power. The appropriate bonding parameters ultrasonic power of 4.52 W in, bonding force of 1000 gf, bonding time of 0.5 s and bonding temperature of 200degC. Deposition of these two layers on the copper electrodes not only provides an effective wry and direct way of thermosonic flip-chip bonding of chips with gold stud bumps onto the substrate, but also ensures excellent bonding quality. Potential applications such as flip- chip bonding of chips with low pin counts or LED packaging are expected. [C2578]

"Ambient Lamp Display in the Active Home Ubiquitous Computing Environment for Relaxing and Mediation"

This paper describes the design and implementation of Tea Place. Tea Place is an ambient lamp display placed above a tea table in the ActiveHome ubiquitous computing environment. This ambient display system is intended to enhance a traditional tea table with multimodal interfaces for user relaxation and mediation. It detects user context (such as the color of tea in a cup) and displays abstract animation images using LED array reflected on the surface of tea, ambient sounds and wind blowing. It makes users to concentrate on drinking and increasing their intimacy on the table at home. [C2579]

"High efficiency silicon-based high power LED package integrated with micro- thermoelectric device"

A new thermal management application of silicon-based thermoelectric (TE) cooler integrated with high power light emitting diode (LED) is investigated in present study. The silicon-based TE cooler herein is fabricated by MEMS fabrication technology and flip-chip assembly process that is used for high power LED cooling. An electrical-thermal conversion method is used to estimate the junction temperature of LED. Moreover, the integrating sphere is also used to measure the light efficiency of LED. The thermal images photographed by infrared camera demonstrated the cooling function of the silicon-based TE devices. The results also show that high power LED integrated with silicon-based thermoelectric cooler package can effectively reduce the thermal resistance to zero. In addition, the light efficiency of the LED (1 W) will increase under low TE cooler input power (0.55 W), which is about 1.3 times of that without TE cooler packaging. [C2580]

"LED package design for high optical efficiency and low viewing angle"

Light extraction efficiency of an LED package can be improved by optimizing the cup angle and lens curvature. However, this conventional package is not appropriate for many applications that require low viewing angle and distance view if secondary collimator optics is not used. The use of secondary collimator lens can reduce power output more than 10%. In response to this limitation, we design a low viewing angle and high extraction package based on total internal reflection (HEP- TIR) lens. The HEP-TIR package produces the light output with low dispersion angle without the use of secondary optics and has smaller size than secondary optics while its extraction efficiency is as high as the best conventional package. The total light output of HEP-TIR within 100degree is 287% higher than that of the conventional package. [C2581]

"Self-assembled inorganic micro-display on plastic"

We present the design and a method of construction for micro-displays via integrating free-standing micro light emitting diodes (LED) onto unconventional substrates using fluidic self-assembly. The micro LEDs are fabricated on AlGaAs substrates and released into a powder-like collection of microcomponents. The display substrate is a plastic template patterned with metal interconnects and a photopatternable polymer (SU8) to have a 4times4

array of binding sites each containing areas covered by a low melting point alloy. To assemble the display, the plastic substrate is inserted in a heated acidic ethylene glycol solution and the micro LEDs are released on the surface. Self-assembly of LEDs onto the binding sites aided by shape recognition, capillary forces resultant from the molten alloy, gravity, and fluidic forces completes the display. The self-assembly method allows for integration of crystalline semiconductor devices on plastics and other substrates that are incompatible with conventional microfabrication processes. [C2582]

"Thermal management of high power LEDs: Impact of die attach materials"

Thermal management plays an important role in high power light emitting diodes (LEDs). The physical properties, such as light output, dominate wavelength and life span of LEDs are affected adversely by the junction temperature. As the result, heat flow path in LEDs becomes more and more important with increasing input power. The packaging materials including the die attach materials can decide heat flow rate from junction to board. However, die attach materials have far lower thermal conductivities compared to other packaging materials. The thermal conductivity of die attach materials thus can be reflected by the thermal resistance from junction to board. We developed an in situ measurement method after LEDs packaged incorporated with the measurement of junction temperature, light output and input power to exactly determine thermal resistance from junction to board. The results provide a reference in the selection and development of die attach materials for high power LEDs. [C2583]

"The study of thermal properties and thermal resistant behaviors of siloxane-modified LED transparent encapsulant"

In this study, we selected triglycidyl ether terminated Phenylmethylsiloxnae-co-dimethylsiloxne (GT-1000) which was compatible with the diglycidyl ether of bisphenol A epoxy (DER331) to partial replace the epoxy resin and was cured by liquid anhydride (MHHPA). We also synthesized 5, 5'-(1, 1, 3, 3-tetramethyl disiloxane-1, 3-dilyl)-bis-norborane-2, 3-dicarboxylic anhydride (AI) as a co-curing agent to cure DER331 with MHHPA. DER331 and AI and MHHPA were dissolved in equivalent ratio of 1/0.2/0.8 and cured. The Tg of the siloxane dianhydride co-cured composition is 150.7deg.C and the increase of yellow index (DeltaYI) was only 0.72 after 110deg.C 1000 hours storage test. In the mean time, we also incorporated the siloxane structure into the main chains of LED encapsulant through the tri-epoxy groups GT-1000. When GT-1000 was added 0.2eq, the Tg of the siloxane epoxy cured composition was 120.0deg.C and the coefficient of thermal expansion (CTE) was 87.07ppm/deg.C. The TMA result infers that the tri-functionality of GT-1000 can raise the crosslink density and enhance thermal mechanical property. The DeltaYI of 0.2eq GT-1000 was 1.51 after 110deg.C 2000 hours test. The high thermal storage results reveal that both of GT-1000 and AI are effective methods for thermal resistant needs. Moreover, the DeltaYI of 0.2eq of GT-1000 was 0.07 and DER331/MHHPA was 1.49 after IR-reflow at 260deg.C for 10 seconds. The results reconfirm the siloxane-modified epoxy encapsulants present excellent thermal resistant properties for high performance LED applications. [C2584]

"Radial Basis Function Neural Networks for LED Wafer Defect Inspection"

Wafer defect inspection is an important process before die packaging because a good yield ratio is key index to earn benefit in semiconductor manufacturing. Conventional wafer inspection was usually performed by human visual judgment. A large number of people visually examine wafers and hand-mark the defective regions. As a result, potential misjudgment may be introduced due to human fatigue. Besides, traditional method bring out a considerable personnel cost. In order to solve these shortcomings, our research intends to develop an automatic inspection system, which recognizes defective patterns automatically. The radial basis function (RBF) neural network was adopted for inspection processing. Actual data obtained from a wafer fabrication facility in Taiwan were used in experiments. The results show the proposed RBF neural network successfully identifies the defective dies on LED wafers images with good performance. [C2585]

"Promotion effect of iodization on carbonization for MEMS application"

This paper describes the promotion effects of iodine treatment on the carbonization of polymers under low pyrolysis temperature for MEMS and muTAS applications. Higher pyrolysis temperature contributes to further carbonization. There is, however, a restriction of process temperature in applying pyrolyzed polymers to MEMS chips. This work proposes a unique technique to synthesize pyrolyzed polymers to overcome the restriction. Through electrical and structural characterizations, it is confirmed that iodine treatment promotes further carbonization. Parylene C film after 12 hours of iodine treatment followed by pyrolysis at 650 degC was 2.0 Omega-cm, but 3.4 kOmega-cm without iodine treatment. Furthermore, we will present the opportunities of the proposed technique for electrochemical electrode applications. [C2586]

"Design of the opto-mechatronic system for the LED projector"

This paper propose a possible mechanism design of LED projector. The opto-mechatronic system was studied. The analytical scheme of optical path was described in detail. As compared with the other light sources, laser light usually has many advantages: higher brightness, higher directionality, pure monochromatism, and higher coherence. However, the LED device does not have these advantages. Therefore, this paper develop the mechanism to project LED light to target screen. Biconvex lens and hexahedral mirror are used to focus the LED light into one spot on the target screen. Brushless DC motor is used to rotate the mirror to provide the required projection. [C2587]

"Remotely-sensed estimation of the euphotic depth in the northern South China Sea"

Euphotic layer of the sea refers to the layer where the phytoplankton can photosynthesize. Therefore the retrieval of the euphotic depth is in favor of estimating ocean primary productivity. This paper introduces an algorithm for retrieval of euphotic depth from ocean color remote sensing data, and dig out the relationship between the euphotic depth of the northern South China Sea (SCS) and the diffuse attenuation coefficient Kd(490) from theoretical deduction and in situ measurement data, then the remotely-sensed estimation of Kd(490) was used for computation of the euphotic depth of this area. A series of monthly and seasonal euphotic depth maps in the northern SCS were obtained and the seasonal variation of euphotic depth and its impact factors were analyzed. [C2588]

"Multispectral absorption algorithm for retrieving TSS concentrations in water"

The environmental problems caused by the increase of pollutant. It is the result of industrial waste and environmental accidents. One of the main sources of water pollution is suspended solids. When these suspended particles settle to the bottom of a water body, they become sediments. Optical methods offer two possibilities: scattering and transmission. The design of optical sensor systems is based on the interaction between the photons of the electromagnetic radiation and suspended particles in water. Pollution usually results in higher total suspended solids (TSS) concentrations or turbidity. Water pollution is caused by any chemical, physical or biological change in the quality of water. Suspended solids are small particles of solid pollutants that float on the surface of, or are suspended in waters. Water pollution has become increasingly critical in this present-day, whether in the developed or the developing countries. Total suspended solids (TSS) in water can be detected by a number of optical sensing techniques, which involve light interaction with suspended particles in water. The measurements of the transmittance give a method for determining the concentration of the particles. The objectives of this study are to derive multispectral absorption algorithm and to develop an optical system, which is based on absorption measurements for measuring the concentration of total suspended solids,TSS in water. The multispectral absorption algorithm has been developed and a new multispectral optical sensor system designed for measuring total suspended solids TSS concentrations in polluted water. The development of the optical algorithm was based on the Beer-Lambert law. Firstly, the water samples used for calibration were filtered and dried to obtain the TSS values. In this study, three light emitting diodes were used as sensing emitters (sources) and a silicon phototransistor as radiations detector. The radiation values were determined from the output voltage reading- s of the sensor system. An electronic circuit was designed and the readings were measured by using a digital multimeter. The major advantages in using an LED as the light sources are its relatively low power consumption and ability to be modulated electronically at rapid rates. Standard polluted samples were prepared for sensors calibration. As the concentration of total suspended solids P was increased, the intensity of the transmitted light decreased. The level of the photocurrent was linearly proportional to the pollutants concentration. The proposed multispectral algorithm was calibrated using the measured parameters. Its accuracy was determined based on correlation coefficient,R and the value of the root-mean square errors,RMSE. The results showed a good correlation between the radiation values and the total suspended solids concentrations. This optical system provides various advantages over the current portable turbidity meter, which uses a single infrared source. The main advantage is its capability provide water pollution levels accurately (i.e. total suspended solids concentration). It only requires inexpensive components and can be assembled easily. The proposed algorithm produced a high correlation coefficient and low root mean square error value. This new methodology is very important for measuring and monitoring TSS in polluted water areas. [C2589]

"Silicon photomultiplier light response properties"

The presented results are obtained during the first steps taken in order to develop a setup and measurement procedures which allow to compare properties of diverse kinds of silicon photomultiplier. The response to low-intensity light was studied for silicon photomultipliers produced by MEPhI/PULSAR (Russia), CPTA (Russia), Hamamatsu (Japan), ITC-irst (Italy) and SensL (Ireland). [C2590]

"Preliminary results from a current mode CMOS front-end circuit for silicon photomultiplier detectors"

We propose a CMOS front-end circuit suitable for Silicon Photomultiplier detectors (SiPM) based on a current buffer, as input stage, which features small input impedance and large bandwidth, thanks to the application of current feedback techniques. The current mode approach enhances the dynamic range of the front-end and does not suffer from possible voltage limitations due to deep-submicron CMOS implementation. We report the first measurement results obtained by coupling the circuit prototype to a SiPM detector excited by a blue LED light source. The measurements confirm the effectiveness of the proposed front-end approach and demonstrate its capability of managing large current signals with good linearity. [C2591]

"Study of finding DOI for a Pr:LuAG scintillator with a number of lateral grooves around the axis"

A new method of finding the DOI for the PET/PEM device is proposed. The idea behind this is based on the conventional position finding method utilizing the light attenuation in a piece of scintillator. Stronger dependence of the signal pulse height along the scintillator length is more favorable without much degrading the energy resolution, and this can be realized by the present idea. To verify the expected performance, a number of scintillator samples of the recent advent, Pr:LuAG, were prepared: These were processed with 3 lateral grooves on their surfaces, whose depths were chosen preliminarily from 0.2, 0.4 and 0.6 mm. The tests were performed with LED or RI source such as Cs- 137, using a UV-sensitive PMT or a SiPM as the photo-sensor. A discrete attenuation behavior of the signal amplitudes was observed in each section separated by the groove(s), and this seemed to indicate the possibility of efficient detection of the DOI in any thickness of the scintillator used. The conventional dual-ends read out scheme is much simplified by reducing the number of scintillators. The single-end read out also will be promising if the material is heavy enough to dominate the total absorption over the scatter events. [C2592]

"Flexible organic leds with parylene thin films for biological implants"

This paper describes an ultra thin, flexible device with organic light emitting diodes (OLEDs) between Parylene thin films (20 mum or less in total thickness). The device was formed on a glass substrate and could be easily peeled off without breaking. The OLEDs in the flexible device emitted light with high brightness, and were useful as excitation light sources for fluorescent dyes. We have also demonstrated a flexible probe with an OLED for the application of biological implants toward in vivo fluorescent imaging and optical stimulation of cells. [C2593]

"Near-field scanning optical micro probe integrated with a nanometer-sized light emitting diode"

We have fabricated a MEMS microprobe integrated with a nanometer-sized light emitting diode (LED) on the tip for near-field scanning optical microscopy (NSOM). The probe body and the LED electrodes were made by wet-etching and focused ion beam(FIB) cutting of an SOI wafer. Semiconductor nanoparticles (CdSe/ZnS core-shell nanoparticles) were electrostatically trapped and excited within an electrode gap made on the probe tip. The LED-tip size is approximately 100 nm x 100 nm. The probe was tested with an NSOM setup. The probe tip was kept within roughly 5 nm from the surface to yield a successful topographic image of a sample. [C2594]

"White Organic Light-Emitting Devices with Selectively-Doped Emitting Layer"

We designed the white organic light-emitting devices based on the selective doping technique. With a proper device design, our WOLED reaches 6.34 cd/A and 3.641 m/W at 6 V with the luminance of 445 cd/m 2 [C2595]

"Red Phosphorescent Material Doped in the Hole- and Electron-Transport Layer of Organic Light-Emitting Device"

In this paper, we demonstrated a red phosphorescent organic light-emitting device with high efficiency and low driving-voltage (15.2 cd/A at 6 V with 1030 cd/m2) by using hole- and electron-transport materials as the host of the emitting layer [C2596]

"Increasing light extraction of a substrate emitting OLED using a 2D surface grating"

We present simulation and experimental results to achieve increased light extraction of a substrate emitting OLED. A 2D grating located at the glass-air interface experimentally gives a relative improvement of approx. 30 % [C2597]

"High Efficiency White-Light-Emitting Organic Devices Coupled With Lateral Color Conversion

Layer"

In this paper, we propose a high efficiency white OLED structure based on the color conversion technique named "side-coupling color-conversion method (SC3M)", in which the blue emission from organic layer is laterally transferred to the adjacent orange color-conversion material. Two times higher efficiency is possible compared with an original blue-OLED. The objective of this work is to demonstrate the possibility and high performance of the white-OLED with SC3M structure [C2598]

"Electromagnetic Modeling of OLEDs and its Applications to High-cd/A OLEDs"

In this paper, general discussions of the optical structures and rigorous electromagnetic modeling of OLEDs are given, and their applications in analyses and designs of various advanced OLED structures like microcavity OLEDs, tandem OLEDs, top-emitting OLEDs and techniques to enhance cd/A efficiencies have been discussed [C2599]

"Light Emission from Silicon-based Nano-materials"

This paper presents an overview of the research activities aimed at engineering novel, nanostructured-based materials solutions for CMOS-compatible electrically driven light sources. In particular, the state of the art of the optical and electrical properties of Si-nc nucleated within Si-rich nitride (SRN) matrices, and their large potential for energy sensitized, efficient 1.55mum electroluminescence under low injection fields are discussed [C2600]

"Using Tapped-Inductor Converters as LED Drivers"

The use of power LED is growing continuously, due to new advances and new devices with performances which are improving day by day. Nowadays, a topic of interest in this context is the search for electronic converters in order to take advantage of LED performances. This paper evaluates the use of tapped-converters as LED drivers. These topologies are derived from tapped-inductor DC-to-DC converters, in which the load is a power LED. A ballast design using a power LED involves multidisciplinary knowledge. Photometric, thermal, power electronics and control techniques must be considered during the work. This load implies several restrictions in both power topology design and control method strategies. This work focuses in saving potential pitfalls during ballast design. The work includes an extensive discussion about this topic, clarifies areas of application for each specific topology and includes a complete design example [C2601]

"LEDs in Real Lighting Applications: from Niche Markets to General Lighting"

Due to the enhancements in the field of solid state lighting, being in price per lumens or lumens per watt applications for LEDs in lighting products migrate from niche to general lighting. A number of shortcomings today are discussed as well as concepts for improvements [C2602]

"Flexible Displays for Digital TV Broadcasting"

Flexible displays using plastic film substrates are key devices for ubiquitous and universal services of digital broadcasting because of their mobile characteristics, low cost productivity, and flexibility of viewing style and so on. Polymer organic light-emitting devices (P-OLED) and ferroelectric liquid-crystal (FLC) films composed of ferroelectric liquid crystal and polymer network are promising display devices and materials for reproduction of TV images, where gray-scale and high-speed response characteristics are required. Both prototype flexible displays of P-OLED using phosphorescence materials and A4-sized FLC have been fabricated. Performances of these displays showed substantial potential for ubiquitous and universal digital broadcasting services [C2603]

"White organic light-emitting diodes (WOLEDs)"

Due to recent improvements in WOLED power efficiency, these components could replace incandescent light sources, offering new possibilities of shapes and applications. In this paper, the general OLED operation is explained and the main methods to obtain white light emission are reviewed [C2604]

"Illumination and Color Management in Solid State Lighting"

The use of multi-wavelength light emitting diodes to generate predominantly white light for illumination has increased dramatically over the past years. Due to the nonlinear and often unpredictable relation between current and light output (i.e. efficiency) of LED's, direct feedback control using the actual optical intensity of each LED set has to be used to adjust and maintain the desired color points. While control of three-color systems (RGB) for display backlights has been shown, here we describe the control of a four color system (RGB+amber) with a three channel sensor [C2605]

"Driver Electronics for LEDs"

Large-volume applications of high-brightness LEDs are well established for signaling and signage. They are expected to replace conventional lamps in automotive applications in the near future and incandescent, halogen and fluorescent lamps at least in some general illumination applications within a few years. Innovative driver circuits optimized with respect to functionality, efficiency, cost, size and reliability are an enabler for the successful introduction of new LED based lighting products. This paper consists of two parts. In the first part, the influence of the LED current waveform, which depends on the driver topology and control, on the luminous flux and hence, the luminous efficiency is investigated experimentally for different LEDs, i.e. a red, a green and a blue 1 W LED. In the second part, an LED driver with PCB integrated capacitive layers and a transformer made of ferrite polymer compound having an extreme high power density is presented. This driver uses highly integrated passive components. This new concept is named emPIC (embedded passives integrated circuit). All passive components will be integrated in the printed circuit board (PCB) using structured layers of different materials. Experimental results taken from the driver demonstrate that the LED current ripple stays within the margins defined in the first part of this paper [C2606]

"Advanced Electronic Driver for Power LEDs with Integrated Colour Management"

Compared to conventional lighting devices, light emitting diodes (LEDs) have the well-known advantages of ruggedness and extended lifetime. Furthermore, a combination of red, green and blue (RGB) LEDs can generate light with an adjustable colour. An inconvenient property of LED lighting is the dependence of light output on temperature and lifetime thus resulting in varying chromaticity and luminance. Colour-filtered sensors and an appropriate feedback loop to regulate the LED current will solve this problem, but aging of the colour filters might still introduce unwanted colour shifts. This paper presents a novel driving scheme for RGB LEDs that eliminates the need for colour-filtered sensors and reduces the number of light sensor channels by a factor of three. In order to prove the feasibility of the concept, a buck-derived switchmode current source with integrated colour management has been built up and tested. It can deliver up to 4 times 30 W and will keep the colour coordinates stable within an Deltau'v' of 0.004. Large backlighting units can easily be built by using several of these drivers [C2607]

"Control of LEDs"

There is a strong interest in using LEDs for general illumination due to the potential they offer for energy saving, environmental friendliness, new opportunities in lighting design, and control of the intensity, color, and spatial distribution of light. General illumination requires primarily white light that can be obtained by mixing e.g. the light of red, green, and blue LEDs. This enables also color adjustability, which is considered to be a most attractive feature of future LED lamps. There is common consent that when using color mixing some kind of feedback control must be applied in order to meet color accuracy requirements. In this paper color control concepts are briefly reviewed and control of a lamp with more than 4 primary LED colors is reduced to the known control of 3 primary LED colors. Measurements are provided for the temperature dependence of LED and color sensor characteristics. Color control implementation is outlined using a laboratory setup based on a rapid color control prototyping system which uses commercially available software and digital hardware amended by custom in-house developed hardware. The rapid control prototyping system is applied to control the color of an experimental RGB LED lamp [C2608]

"Wide Color Gamut Displays Using LED Backlight-Signal Processing Circuits -"

The authors have successfully developed a six-primary-color liquid crystal display using six-color LEDs. More specifically, a prototype of a six-primary-color liquid crystal display having a color gamut of 170% or wider then that of conventional techniques has been constructed. Furthermore, this monitor has our original color conversion circuit and a newly developed calibration system using an integrated color sensor, so that it can reproduce colors appropriately and keep its white point chromaticity stable [C2609]

"Visual Stimulation System to Detect Eye Movements"

This paper presents design of a luminous ocular stimulation system to measure ocular movements. The system shows 13 red color stimulus from 0 to plusmn60deg in horizontal, vertical and oblique directions. A main characteristic of the system is that it works with white environment light. When sense the ocular movements it uses photo resistances to record the reflex from the sclera and iris, which is illuminated by a LED ultra shine. To get the correspondent graphic of eyes movements it builds the software CARMO (Captura, Analisis y Registro de Movimientos Oculares) in a visual environment. CARMO obtains the digital signal of the variations from photo resistances. The response magnitude is obtained in an interval from 0 to 5 Vp with a sampling time of 1,6 mS.

CARMO storages the information and allows calculate the latencies time [C2610]

"17 SEM1 Semiconductor Materials"

{no data available} [C2611]

"High Brightness Ingan Leds Degradation at High Injection Current Bias"

In this work, we report on the results of a reliability evaluation, in terms of electrical characteristics, stability and optical output power maintenance carried out on high brightness GaN/InGaN blue LEDs. Constant and pulsed bias where investigated over devices with and without heat sink in order to identify the influence of self-heating on the devices reliability. Several degradation modes have been identified such as increase of reverse and generation/recombination current, increase of the series resistance and decrease in the optical emitted power [C2612]

"Characterization of Thin Films of Conjugated Polymer (BEHP-PPV) -co-(MEH-PPV) for OLEDs Aplication"

(BEHP-PPV)-co-(MEH-PPV) is a highly soluble copolymer, more stable to photo-oxidation process than other phenyl-substituted PPV derivatives, which is appropriate to use as the active layer in organic-based light emitting devices (OLEDs). In this paper we present optical properties such as the refractive index, the extinction coefficient, and the optical gap between HOMO and LUMO levels of these polymer films, determined by absorption and photoluminescence measurements. We also show the J-V characteristics of single-layer diode structures and their relation with the injecting electrodes. It was also studied etch properties of the film looking for compatibility with photolithographic processes [C2613]

"Noise-controlled Technique to Improve Vibration Touch in Humans"

A psychophysical method combining two-interval-forced-choice (2IFC) protocol with up-down-transformed rule (UDTR) is used to study a noise-controlled technique based on stochastic resonance phenomenon. The technique is investigated by the experiments that employed a semi-automation setup producing quantitative vibration outputs added external electrical noise different from vibration stimulus. The results indicate that a certain quantity of electrical noise can induce non-monotone change of the threshold of vibration touch of subjects, which suggest occurrence of stochastic resonance. Combination of 2IFC protocol and UDTR can greatly remove subjects' psychological influences and guarantee the experimental method to be objective [C2614]

"Conference Record of the 2006 IEEE Industry Applications Conference Forty-First IAS Annual Meeting"

The following topics are dealt with: soft switching and resonant converters; energy system; light and applications; power system protection; drive circuits, paralleling considerations and EMI; faults and diagnostics; AC machines and generators; induction machine drives; DC-DC converters; control applications and issues; and LEDs [C2615]

"An LED Drive Circuit with Constant-Output-Current Control and Constant-Luminance Control"

A single LED is very small, and their luminance is related to the amount of driving current. Sufficient luminance for an illuminator requires many LEDs to be connected together and a constant current supplied to each LED. Therefore, the LED drive circuit must have constant-output-current control and/or constant-luminance control. We propose an LED drive circuit that consists of a boost-type DC-DC converter with constant-output-current control and constant-luminance control. This circuit is a switching regulator-type circuit controlled by pulse width modulation (PWM). Both the power and the constant-current control can be provided by a single system, without any ballast resistor or auxiliary current control circuit [C2616]

"R-LIM: an Affordable Library Search System Based on RFID"

With a large volume of materials today's libraries carry, locating the exact position of materials is time-consuming. This is not true just for poorly managed libraries, but also for well maintained libraries. In the former case, the problem is rather serious. Even though a material is somewhere in the library, if we cannot locate the material, the fundamental roles of the library may be challenged. In the latter case, one still needs to go through a tedious shelf searching process to locate the material. In this study we propose an affordable RFID based library management system named R-LIM which eases the process of locating books in the library. In an earlier version of R-LIM, expensive RFID antennas had to be placed on every shelf to acquire location information. In

this new version, we replace the antennas with inexpensive tags to make the system more affordable. By associating book-tag IDs with shelf-tag IDs through periodic tag scanning, we can identify the exact location of the book we are searching for. This paper describes the localization algorithm of R-LIM, and explains how it can be integrated with other parts of the system [C2617]

"Controller with an Area Compensated Look-Up-Table for Improving the Luminance Uniformity on Lighting Passive Matrix Organic Light Emitting Diode Panels"

A driving system is presented for generating a uniform luminance picture on passive matrix organic light emitting diode (PMOLED) panels in this paper. Especially, the controller overcomes the problem of luminance non-uniformity on displaying pictures. Because the controller is a voltage type driver, the output impedance of the driver is much less than that of the current-type driver. Hence, the controller provides a better electron-optical response than those of traditional current drivers. According to the linear interpolation theorem, we designed an area compensated look up table (ACLUT) with compensation data to improve the luminance uniformity on lighting a PMOLED panel. By applying the proposed driver to light PMOLED panels, the luminance uniformity of the PMOLED panel is improved from 88% to 98% [C2618]

"Silicon-based photonic crystal nanocavity light emitters"

We study light emitters based on two-dimensional planar photonic crystal (PC) nanocavities fabricated in silicon rich silicon nitride that exhibits photoluminescence (PL) at 600-800 nm [C2619]

"Flexible Organic Light-emitting Diode Displays"

In this paper, we report on two types of flexible OLED display: one is a passive-matrix (PM) display and the other is an active-matrix (AM) display using organic thin-film transistors (OTFTs) on plastic substrates. The PMOLED display consists of high-efficiency RGB OLEDs, and the AMOLED has a combination of phosphorescent OLED and two OTFTs based on pentacene [C2620]

"Hybrid inorganic/organic micro-structured light-emitting diodes produced by self-aligned direct writing"

By blending light-emitting polymers (LEPs) with photo-curable polymers and using self-aligned direct writing, LEP microstructures were fabricated directly on top of micro-pixellated InGaN light-emitting diodes, demonstrating a hybrid LED technology [C2621]

"Silicon LEDs and Lasers"

This presentation will review the state of the art in silicon-based LEDs and lasers. Results obtained using various materials, including bulk silicon, silicon quantum dots, nanostructured silicon objects, silicon doped with various light-emitting centers such as erbium, and alloys with Ge will be discussed [C2622]

"P-OLED Microdisplays"

P-OLED/CMOS microdisplays combine the advanced technology of CMOS electronics with the simplicity of manufacture of P-OLED systems. Acceptable levels of light emission can be achieved using CMOS-compatible operating voltages and power consumption levels that are highly attractive for NTE systems in mobile consumer devices. Hundreds of individual displays can be produced on a single wafer using standard wafer processing techniques. Utilizing the physical and electronic capabilities of the CMOS active-matrix backplane technology allows significant improvements in the appearance of images on POLED/CMOS microdisplays [C2623]

"Reducing Charge Injection in Active-Matrix a-Si TFT Pixels"

A technique for reducing charge injection in active-matrix amorphous silicon thin film transistor pixels is presented. Using a gate pulse with two falling rates, more than 50% reduction in the induced error voltage was achieved [C2624]

"Flexible Displays"

In this paper, key technology options for flexible active-matrix (AM) displays are reviewed by addressing advantages and challenges for each technology. Before flexible or rollable displays appear in the market, it is expected that ultra-thin, very light, unbreakable, high quality, full-color flat panel displays will be available in the market in the near future by utilizing the technologies that have been originally developed for flexible or rollable

applications. The status of the state-of-art technology in both backplane and frontplane areas, and engineering prototype demonstrated up to date, will also be reviewed [C2625]

"An Enhanced and Simplified Optical Feedback Pixel Circuit for AMOLED Displays"

Active-matrix organic light emitting diode (AMOLED) displays have been considered a potential candidate for the next generation of flat panel displays due to the ability of AMOLED in providing wider viewing angle, larger color gamut, and lower fabrication cost. In this paper we present a new optical feedback pixel circuit that preserves the advantages of active matrix structure while demanding simple off-panels driver and four active components at each pixel but compensates for the luminance degradation of the AMOLED display [C2626]

"GaSb QW-based `buffer-free' vertical LED monolithically embedded within a GaAs cavity using interfacial misfit arrays"

We demonstrate a monolithic, hybrid GaSb/GaAs diode emitting at 1.6 Г‚Вїm. The LED is comprised of a GaSb active region embedded within GaAs/AlGaAs DBRs using two interfacial misfit arrays. Growth, fabrication and characterization is discussed. [C2627]

"The Column Driver Circuit Design for Passive Organic Electroluminescence Display"

This article proposes a column driver circuit design for a passive organic electro-luminescent display (PMOELD). A new method for grayscale driving has been developed for providing better visual effect. Besides, a novel programmable current-mode data driver circuit with calibration techniques is used to overcome process and environmental variations, especially there is column current mismatch due to the different distance to a bias reference. The proposed circuit has been designed and verified by using VIS 0.35mum, 2P4M and 13.5V high voltage process. The brightness current has been emphasized to simulate the performance of the variations elimination between different column circuits. By using the Monte Carlo simulation, the result of the current variation in different column is under 2% when the standard deviation of threshold voltage is 0.18V [C2628]

"A Fast Eye-Movement Tracking Using Cross-Division Algorithm"

First Page of the Article [C2629]

"Free head motion eye gaze tracking using a single camera and multiple light sources"

One of the main limitations of current remote eye gaze tracking (REGT) techniques is that the user's head must remain within a very limited area in front of the monitor screen. In this paper, we present a free head motion REGT technique. By projecting a known rectangular pattern of lights, the technique estimates the gaze position relative to this rectangle using an invariant property of projective geometry. We carry extensive analysis of similar methods using an eye model to compare their accuracy. Based on these results, we propose a new estimation procedure that compensates the angular difference between the eye visual axis and optical axis. We have developed a real time (30 fps) prototype using a single camera and 5 light sources to generate the light pattern. Experimental results shows that the accuracy of the system is about 1deg of visual angle [C2630]

"ESD Immunity Test and Several Improvements for Digital Electronic Dictionary"

Electronic devices are getting more and more sensitive to the electro-static discharge (ESD) because of their smaller size and higher frequency. An electronic dictionary device studied here has failed in the ESD immunity test according to the IEC61000-4-2 standard. Many factors which could impact on the ESD immunity performance of the device are investigated in the test and some suggestions are also given in this paper for improving its performance. The improving suggestions are listed and analyzed combining the device in detail in this paper: 1) improving the ESD immunity performance of the dictionary's PCB; 2) changing the outer package material for the dictionary, protecting the LED; and 3) building a complete ESD test system. The device has gained a significant improvement on the ESD immunity by using merely part of our suggestions. We hope that this could be a reference to the manufactures of similar devices as well [C2631]

"Uniform emission from matrix-addressable micro-pixellated InGaN light-emitting diodes"

In this work, we investigate and identify the main causes of this problem and develop a new fabrication process to improve the light emission uniformity and light output of the micro-LEDs [C2632]

"InGaN/GaN based LEDs with electroluminescence in violet, blue, and green tuned by epitaxial

growth temperature"

In this work, we present a full set of InGaN LEDs based on a single optimal InGaN/GaN quantum design with emission wavelengths spanning from green to blue to violet by tuning the active layer growth temperature to precisely control InN incorporation into the quantum structures [C2633]

"Key Technologies for Solid State Lighting"

This report review the packaging and application technology of high power white LEDs including the lower thermal resistance and high reliable packaging of a group of LEDs, unsymmetrical three-dimensional optical system research based on non-image optics and the actual optical system design (such as street lamp) with specific luminous intensity distribution [C2634]

"Deep Ultraviolet Light Emitting Diodes"

In this paper, light-emitting devices based on III-nitride semiconductors offer many advantages including miniaturization, reliability, reduced costs, low power consumption, and ultimately a choice of wavelength of operation between 365 and 200 nm is discussed [C2635]

"Silicon optical emitter in CMOS technology"

A silicon optical emitter, including a light emitting device (LED) and a LED driver circuit, was realized in a standard 0.35mum CMOS technology. The LED operates in reverse breakdown mode and can be turned on at 8.3V. An output optical power of 13.6 nW was measured at 10V and 100mA, and the calculated emitted intensity was more than 1 mW/cm2 . The optical spectrum of the silicon LED is between 500-820nm with a clear peak near 770nm [C2636]

"Large-area Electronics Based on Organic Transistors"

First Page of the Article [C2637]

"Negative Capacitance in Organic Light-Emitting Diodes: Implications for Display Applications"

First Page of the Article [C2638]

"Carrier-transport and Light-emission Processes in an Organic Light-emitting Device"

In this work, we report on carrier-transport, electroluminescence, and photoluminescence processes in an organic light-emitting device (OLED) based on a novel conjugated polymer poly{1,4-bis[3-(4'-butylphenyl)thienyl]-2,5-di(2'-ethylh exyloxy)-phenylene} (PBPTDEP). All of the results indicate that this polymer is a promising yellow-green emissive material for application in light-emitting devices (LEDs) [C2639]

"Physics and Applications of Deep UV LEDs"

Compact, solid-state ultraviolet (UV) light sources are finding applications in air, water and surface sterilization/decontamination, bio-agent detection and identification, UV curing, biomedical and analytical instrumentation. A better understanding of device physics and new phonon engineering have allowed us to increase the power and efficiency of deep UV LEDs with wavelength ranging from 247 nm to 365 nm. Prototype systems for water purification and sterilization have been demonstrated using these novel devices [C2640]

"Recent progress of heterogeneous integration for semiconductor materials and microsystems"

Heterogeneous integration utilizes a paste-and-cut approach to alleviate the limitations of monolithic integration by synthesizing and fabricating each material subsystem independently and then assemble them on a receptor substrate at the proper node of the integration sequence. The technique enables new and novel functionalities by integrating dissimilar semiconductors material systems to assemble a microsystem. We report recent developments of GeOI substrates, high-brightness LED, and opto-MEMS to illustrate versatility of this approach [C2641]

"Fabrication of High-Power Vertical GaN-Based Light-Emitting Diodes with Selective Nickel Electroplating and Patterned Laser Lift-Off Techniques"

A novel process for fabricating high-power Vertical-structure Metallic substrate GaN-based light-emitting diodes (VM-LEDs) employing selective nickel electroplating and patterned laser lift-off (LLO) techniques was proposed.

Advantages including the avoidance of metal-cutting process, easy in die size definition through laser spot control, and simplification of fabrication processes (i.e., fewer masks as well as less effort in wire bonding) were demonstrated. As compared to regular lateral-structure LEDs, the VM-LEDs experimentally show having an increase in light output power (Lop) (i.e., Г‚ВїLop/Lop) by 293.4% at 350 mA with a decrease in forward voltage from 3.73 V down to 3.32 V. [C2642]

"Elemental devices for monolithic optoelectronic integrated circuits on lattice-matched Si/III-V-N/Si structure"

First Page of the Article [C2643]

"Digital Sliding Mode Pulsed Current Averaging IC Drivers for High Brightness Light Emitting Diodes"

This paper proposes a digital controller with sliding mode pulsed current averaging scheme for high-brightness (HB) light emitting diodes (LED) IC drivers. The digital controller implements a control method to adjust the 'on time' of the active switch based on the comparison of output current and a reference current. The idea is to increase or decrease the duty cycle by discrete pulses in order to control the average current being delivered to the load. A variable frequency boost converter in discontinuous conduction mode (DCM) has been used to handle the required load current. No external analog-to-digital (A/D) converter is required for the application [C2644]

"Generation of Highly-Directional Beams from Point Sources using a Negative-Index Photonic-Crystal Slab"

We show both theoretically and experimentally that a photonic crystal slab with a small negative effective index of refraction can be used to generate a highly-directional beam from an isotropic source. [C2645]

"Demonstration of GaSb QW-based "Buffer-Free" LED on GaAs Substrate"

First Page of the Article [C2646]

"Semiconductor Light-Emitting Diodes with Separated Current-Injection and Light-Emitting Areas"

First Page of the Article [C2647]

"Use of Anisotropic Laser Etching and Transparent Conducting Layer to Alleviate Current Crowding Effect in Vertical-Structured GaN-Based Light-Emitting Diodes"

An anisotropic laser etching to the surface layer (n-GaN) of vertical-structured GaN-based light-emitting diodes (LEDs) associated with a transparent conducting layer (TCL) to release current crowding effect (CCE) for better light emission uniformity and higher optical efficiency is proposed and demonstrated. The theory behind the proposed scheme was verified by a two-dimensional device simulator (ISE-TCAD), which indicates that immune of CCE would be possible once an optimal combination of the concave-structured n-GaN layer and TCL has been achieved. In experiments, 40-mil LEDs with an anisotropic etching area of 800 Г‚Вїm in diameter, an etching depth of 1.75 Г‚Вїm at center, and a 300-nm-thick Indium-Zinc-Oxide (IZO) layer have been successfully prepared. Typical improvement in light output power by 26% at an injection current of 350 mA as compared to the one without anisotropic etching has been obtained. [C2648]

"Generalized Photon Recycling Theory for 2D and 3D LED Simulation in Sentaurus Device"

We generalize the photon recycling effect to include three distinctive phenomena: amplified spontaneous emission, absorption and instantaneous re-emission processes. These processes can be directly inferred from the physical phenomenon of a spontaneous emission spectrum overlapping a stimulated gain spectrum. We incorporate this generalized photon recycling model into a 2D/3D ray tracing algorithm and coupled it self-consistently to a general 2D/3D device simulator (Sentaurus DeviceTM. [C2649]

"Advanced Industrial Design Methods for LEDs"

Along with advances in LED manufacturing technology software tools for device modelling have become available to support LED design work. Yet there is still a variety of fundamental problems in LED technology which are beyond the capabilities of standardized design methods. In this paper we discuss the suitability of modelling approaches for various issues in industrial LED design and development, the applicability and

limitations of physical models and computation methods, the significance of the results, and the requirements for present and future tools [C2650]

"Modeling methods for high-index contrast linear and non-linear nanophotonics"

We present several modeling methods for the study of nanophotonic devices: a non-linear eigenmode expansion method and a non-linear complex Jacobi method to model Kerr devices, and an RCWA-based model to study extraction of light from OLEDs using periodic structures [C2651]

"Performance Simulation of Organic Light-Emitting Diodes"

In this paper, we validate the numerical model through a comparison with the experimental results of bilayer NPD-Alq3based OLEDs. This model can be further expanded for the design optimization of complicated organic laser and LED structures. We have compared the simulation results of organic light-emitting diodes (OLEDs) with the experimentally measured ones and found that they are in good agreement [C2652]

"Super-Luminescent LEDs-Modeling of Emission Spectra and LI-Characteristics"

A novel model is presented that accounts for amplified spontaneous emission (ASE) in super-luminescent light-emitting diodes (SLEDs) and semiconductor optical amplifiers. This model is implemented into an existing device simulator. Stimulated carrier recombination due to ASE is the mechanism that couples the electronic and the optical problems and self-consistency is guaranteed by accounting for this interaction. Based on this model, coupled electro-optical simulations (2D) are carried out to investigate the impact of quantum well carrier transport and material gain on the spectral emission properties of SLEDs. Simulated LI-curves and ASE spectra are compared to measurements. Various InP-based SLEDs with multiple quantum well active regions operating around 1300 nm are used as benchmark devices. The good agreement between simulation and measurement for different device designs demonstrates the model's validity. [C2653]

"Diffraction Efficiency of 2D Photonic Crystal Structures on Light Emitting Diodes"

We present a method to calculate the diffraction efficiency of a two dimensional photonic crystal (2D PC) surface structure for light emitting diodes. To give appropriate results not only the diffraction properties of the 2D PC is taken into account, but also the mode structure of the light emitting diode. The method is sufficiently general that any 2D PC with arbitrary hole depth and filling factor can be studied [C2654]

"Design and Analysis of Microoptical Elements for Display Applications"

A microlens array formed by thermal reflow is attached to an OLED (organic light emitting diode) device and the light extraction efficiency can be enhanced. The efficiency improvement is simulated by a ray-tracing algorithm and is greatly influenced by adjusting the area ratio and the height ratio [C2655]

"Simulation of InGaN/GaN multiple quantum well light-emitting diodes with Quantum Dot electrical and optical effects"

We report on the 2D simulations of electrical and optical characteristics for green color InGaN/GaN multiple quantum well light-emitting diodes by the APSYS software. The In-rich quantum dot-like structure in InGaN/GaN multiple quantum wells has been considered with quantum dot model. The simulation results are in good agreement with experiment and indicate that quantum dot spontaneous emission and non-equilibrium quantum transport play an important role in the InGaN/GaN multiple quantum well light-emitting diodes [C2656]

"Optical Performance of InGaN/AlGaN Double Heterostucture Light Emitting Diodes"

A simulation study of the output power characteristics of In0.13Ga0.87N/Al0.1Ga0.9N double heterostructure light emitting diodes (DH LEDs) at room temperature was performed using ISETCAD software. We have selected In 0.13Ga0.87N as the active layer with thickness of 40nm sandwiched between 30 nm n-type Al0.1Ga0.9N and 60nm p-type Al0.15Ga0.85N cladding layers. The output power with value of 0.2 mW was obtained at forward current of 60 mA and with peak emission wavelength at 426 nm. We investigated the effect of doping concentration on the output power and peak emission wavelength. No change in the output power was observed for light doping. We also investigated the effect of varying the thickness of the active layer on the output power [C2657]

"2006 International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices"

The following topics were dealt with: novel materials; microscopic simulation of semiconductor lasers in GaInNAs material system; GaInNAs/GaAs quantum wells; GaN-based devices; nanostructures; photodetectors and solar cells; laser diodes; optoelectronic integrated circuits; semiconductor optical amplifiers; photonic crystal devices; microoptical elements; fibre optics and networks; light emitting diodes; and photonic circuits [C2658]

"Optimization of microcavity OLED by varying the thickness of multi-layered mirror"

We optimized the emission efficiency from a microcavity OLEDs consisting of widely used organic materials, N,N'-di(naphthalene-1-yl)-N,N'-diphenylbenzidine (NPB) as a hole transport layer and tris (8-hydroxyquinoline) (Alq3) as emitting and electron transporting layer. LiF/Al was considered as a cathode, while metallic Ag anode was used. TiO2and Al2 O3layers were stacked on top of the cathode to alter the properties of the top mirror. The electroluminescence emission spectra, electric field distribution inside the device, carrier density, recombination rate and exciton density were calculated as a function of the position of the emission layer. The results show that for certain TiO2and Al2O3layer thicknesses, light output is enhanced as a result of the increase in both the reflectance and transmittance of the top mirror. Once the optimum structure has been determined, the microcavity OLED devices can be fabricated and characterized, and comparisons between experiments and theory can be made [C2659]

"3D Simulation of InGaN/GaN Micro-Ring Light-Emitting Diodes"

We employed the APSYS software to perform 3D electrical and ray-tracing simulations on micro-ring light-emitting diodes (LEDs) to verify previous experimental findings that they have higher extraction efficiency than micro-disk and broad area LEDs. 3D ray-tracing indicates the importance of inter-ring optical interactions. Furthermore we found that the higher light extraction efficiency is at the expense of reduced internal quantum efficiency as injection current is increased [C2660]

"Analysis of the extraction efficiency in GaN-on-sapphire light emitting diodes"

It was analyzed qualitatively the light extraction in GaN-on-sapphire LEDs based on a simple model. The light extraction efficiency in the LEDs is simulated numerically by using ray tracing method. In the present study, the extraction efficiency was simulated on three different types of LEDs, which a have a different patterned sapphire substrate. And, the role of the patterned sapphire substrate are analyzed and discussed. Based on the analysis, the improvements of extraction efficiency in the LED structures were discussed and these analyses are helpful in the design of high brightness GaN LEDs [C2661]

"LED-Glove Based Interactions in Multi-Modal Displays for Teleconferencing"

An LED-glove based interaction system is introduced in this paper to provide desktop-free interface for teleconferencing. Using proposed interaction technology, users may collaborate with other remote users in multi-modal display environments. Private displays (LCD or head mounted displays) are used to organize data or refer to classified information, and shared display (projection display) is used to present and share information with other users. Interaction is composed of two modes. In mouse replacement mode, the glove may be used as a traditional mouse. Postures were used for mouse's click and double-click of left/right buttons. In command mode, gestures were used for frequently used commands such as switching displays, moving information inter-display, fetching data from other displays, etc. Gestures were recognized with high success rate (above 94%) using hidden Markov model. In order to solve gesture-spotting problem, we used switches to turn on LEDs during gesture performance. Preliminary studies show that the proposed system is easy to use, and provides most useful interface for multi-modal display teleconferencing. [C2662]

"Development of Feeding Support System and Its Quantitative Estimation"

This study quantitatively evaluates a new feeding support system developed to assist the disabled in eating. The system was particularly designed to have smooth coordinative movements between the dishes and the robot arm, by elaborating the robot arm motion, which will allow the disabled to eat all the contents on a plate as fast as the non-disabled without spills with the assist of an LED display. This study confirmed that this proposed feeding robot can successfully assist the disabled as well as the non-disabled in eating with respect to time, quantity, and manner [C2663]

"Low Cost DC to 6 GHz Electronic Step Attenuator SMT MCMs with Gate Lag Elimination By Use of High Intensity LEDs"

Output step attenuators for microwave test instrumentation are continually being pushed to perform faster, more reliably, with lower loss and less distortion, and at lower cost. This paper describes a state of the art GaAs FET

switch IC based, high dynamic range step attenuator topology using SMT MCMs operating from DC to 6 GHz that has low loss, low distortion, fast switching speed with minimized transients, and low cost. These modules use light from high intensity LEDs reflected off of the package lid in a novel, low cost manner to provide compact, inexpensive elimination of the gate lag effect commonly associated with GaAs FET based switching, such that this attenuator provides an amplitude stable output within 20mus of when a change of attenuation state is initiated. This is the first reported usage of light from LEDs reflected off of the lid of an MCM SMT package to eliminate the gate lag effect in a GaAs FET switch based subsystem [C2664]

"Low Cost DC to 6 GHz Electronic Step Attenuator SMT MCMs with Gate Lag Elimination By Use of High Intensity LEDs"

Output step attenuators for microwave test instrumentation are continually being pushed to perform faster, more reliably, with lower loss and less distortion, and at lower cost. This paper describes a state of the art GaAs FET switch IC based, high dynamic range step attenuator topology using SMT MCMs operating from DC to 6 GHz that has low loss, low distortion, fast switching speed with minimized transients, and low cost. These modules use light from high intensity LEDs reflected off of the package lid in a novel, low cost manner to provide compact, inexpensive elimination of the gate lag effect commonly associated with GaAs FET based switching, such that this attenuator provides an amplitude stable output within 20 mus of when a change of attenuation state is initiated. This is the first reported usage of light from LEDs reflected off of the lid of an MCM SMT package to eliminate the gate lag effect in a GaAs FET switch based subsystem [C2665]

"Strategic Options for a Led-Like Approach in III-V Concentrator Photovoltaics"

Well-designed strategies are required in order to push III-V concentration to low cost scenarios that beat the prices of the already existing silicon-based concentration systems operating at 250-400 suns. Several laboratories and pilot production lines are starting to use in III-V solar cells similar approaches than those used for LEDs (Light Emitting Diodes). We firstly proposed the so-called "LED-like approach" in 1997. From then, we have analysed theoretically its main aspects thus guiding our manufacture developments with high concentrator III-V cells. This paper goes a step forward in the description of the "LED-like approach" advantages and in the influence of such approach on final cost [C2666]

"Photovoltage Decay in CDTE/CDS Solar Cells"

Photo-voltage decay (PVD) is a common technique used to characterize numerous semiconductor devices. However, the technique has not been widely applied to CdTe-based solar cells. We have applied PVD to CdTe solar cells made with various fabrication conditions using a red (620 nm) LED and digital oscilloscope. We find the decay to be described by the equation v(t)=V0+A1exp (-t/tau1)+A2exp (-t/tau2)+A3 exp (-t/tautau1) where v is the voltage, t is time, tau1, tau2and tau3are characteristic decay times, and A1, A2, A3 and V0are constants. The three time constants have values of approximately 5-10 mus, 50-100 mus, and 800-1500 mus respectively. In general, cells with lower conversion efficiency have shorter decay times. The exponential nature of the decay indicates that in CdTe/CdS solar cells, the PVD is dominated by capacitance effects. The time constants decrease with increasing temperature [C2667]

"Bulk Sensitization of Inorganic Semiconductors with Organic Guest Molecules: Zink Phthalocyanines Embedded in µc-Si and ZnSe Host Matrices"

Concepts of bulk sensitization of inorganic semiconductors by organic dye molecules either to increase the absorptivity of indirect semiconductors as µc-Si or to expand in a two photon process the absorption spectrum of wide gap semiconductors to photons of energy below the band gap are introduced. Hybrid composites have been prepared in vacuum by combining CVD and PVD thin film growth methods. Raman and optical spectroscopy have been used to prove the stability of the organic molecules ZnPc and F16ZnPc for the applied growth conditions of µc-Si and ZnSe, respectively. Photoelectron spectroscopy has been used to determine the frontier orbital line up of ZnPc and F16ZnPc versus the energy gaps of Si or ZnSe [C2668]

"The Semi-Conductor Optical Switch on a Base of Field Transistor"

In the present work the results of research of some opportunities of the field phototransistor as optical switch are resulted. The field phototransistor, used for this purpose, represents arsenide gallium structure of flat design with the bottom manager p-n-junction in quality gate. The mode of operations of the device with switching from one status in another requires a choice working load straight line so that it crossed the target characteristic of the field phototransistor constructed on measurements of the voltage-current characteristics at two various illuminations at least, in two points appropriate to steady statuses. [C2669]

"Electrically Injected Quantum Dot Photonic Crystal Microcavity Light-emitting Arrays with Air-bridge Nano-contacts"

In this paper the characteristics of an electrically injected PC microcavity device with quantum dot (QD) active region and air-bridge electrical contacts to the PC microcavity is presented. Air bridges are 300nm tall, 300-500nm wide, 3-13mum long and have surface contact width ~200-300nm. Arrays of microcavity light emitters are fabricated by interconnecting multiple PC microcavities by nano-bridges. Robust metallic air-bridges are drawn to pedestal-supported PC microcavities with air-cladding on top and air/oxide cladding on the bottom. The QD heterostructure grown by molecular beam epitaxy (MBE) method. The oxide cladding improves both carrier and optical mode confinement which is been created by selective wet oxidation of 0.6mum Al0.98Ga 0.02As layers below the active GaAs region with embedded QDs. Electroluminescence (EL) measurements on an isolated H2 microcavity show multiple resonances, corresponding to the cavity modes. Spectral characteristics of the array are similar to those of an isolated cavity with larger signal-noise ratio [C2670]

"Electrically Injected Photonic Crystal Light Emitters with Spatially Localized Gain"

Electrical injection for photonic crystal light emitters is desirable because diode lasers are intrinsically more efficient and practical. In this work, we demonstrate the first electrically injected photonic crystal light emitters with spatially localized gain [C2671]

"Symmetry Control of Wavelength-scale Light Emitters"

Characteristics of wavelength-scale photonic crystal cavity modes are controlled by utilizing the spatial symmetry. A robust photonic crystal single-cell structure supporting only one resonant lasing mode is proposed and demonstrated, based on the mirror symmetry selection rule. In addition, the directional vertical beaming is achieved through the loss engineering based on the symmetry perturbation, confirming over 70% photon collection within 30 degrees [C2672]

"Highly Effective System Energy-Supply for Mobile Objects of Communication"

Opportunities of creation are investigated effective energy system for mobile objects of communications. [C2673]

"High Dynamic Range Display Adopting High Dynamic Range Imaging Technique"

Technique of high dynamic range imaging (HDRI) was introduced into conventional high dynamic range display (HDRD). Sharpness of image was further enhanced by improving local contrast ratio in the HDRI-based high dynamic range display [C2674]

"Luminance Enhancement and Blur Effect of Microlens Array Film Attachment on Organic Light-Emitting Device"

We demonstrate a luminance enhancement of 42.5% on an organic light-emitting device attached by a microlens array film. The blurwidth was defined and the relations between the blurwidth and the luminance enhancement were discussed [C2675]

"Proton radiation effects in high power LEDs and IREDs for Optical Wireless Links for intra-Satellite communications (OWLS)"

This paper presents data on proton displacement damage on light-emitting diodes (LEDs) and infrared emitting diodes (IREDs) of different technologies between 650 and 950 nm. 160 devices of a variety of 28 different COTS emitters were irradiated. Most irradiations were carried out with 52 MeV protons. Two components were also studied with 30 and 60 MeV protons. Light output and I-V characteristic curves were measured for emitters during the test. Injection enhanced annealing is also reported. As a result of this screening, 8 types of emitters have been identified as being tolerant to proton irradiation up to fluences of 2-1012p/cm2. These issues are presented from the perspective of the work currently ongoing in the OWLS activities performed at INTA (Institute Nacional de Tecnica Aeroespacial of Spain). In this context, data about the first worldwide OWLS in-flight experience in the Spanish NANOSAT 01 are presented [C2676]

"Measurements of Radiation Effects on Optoelectronics Conducted by the Jet Propulsion Laboratory"

This paper reports radiation test results for variety of optoelectronic devices that includes LEDs, optocouplers, and photo transistors. The data was collected to evaluate these devices for possible use in NASA spacecrafts

[C2677]

"Performance and Noise Analysis of VCSEL ROF Using Spherical-ended Multimode Fiber Coupling"

A low cost radio-over-fiber (ROF) transmitter has been built based on extremely low cost 850 nm vertical-cavity surface-emitting laser (VCSEL) diode using spherical-ended multimode fiber (MMF) coupling technique. This technique has been shown to deliver excellent light launching characteristics for VCSEL lasers in short haul ROF applications. Transmission distance of more than 600 m has been demonstrated experimentally with consistent performance highly desired for transmitting WLAN RF signals in both 2.45 and 5.25 GHz in a directly modulated MMF VCSEL short haul ROF link. Various coupling methods and the bonding process of mating the VCSEL to MM fiber have been investigated to optimize the optical power coupling for cost reduction and low complexity. The results show that the transmitter coupled by spherical-ended MMF provides 30% more optical coupling efficiency and enhanced noise figure performance than the lens-less flat cleaved alternative [C2678]

"LightSense: enabling spatially aware handheld interaction devices"

The vision of spatially aware handheld interaction devices has been hard to realize. The difficulties in solving the general tracking problem for small devices have been addressed by several research groups and examples of issues are performance, hardware availability and platform independency. We present LightSense, an approach that employs commercially available components to achieve robust tracking of cell phone LEDs, without any modifications to the device. Cell phones can thus be promoted to interaction and display devices in ubiquitous installations of systems such as the ones we present here. This could enable a new generation of spatially aware handheld interaction devices that would unobtrusively empower and assist us in our everyday tasks. [C2679]

"Motion Tracking Music with Mobile-Media Technology in Two Case Studies"

Although mobile music-works are finding their way into civic space, they tend to isolate the public as a possible audience due to a focused use on headphones. The resulting isolation of the performer from the audience deprives both sides of one of the most important functions of public performance: social interaction. This paper addresses the concept of "found audience" in civic space and how mobile technology has made it possible to address it culturally. Two wearable systems for mobile music-making using motion tracking-one simple and one complex-are presented within the context of the paper as case studies [C2680]

"Building Energy Efficiency Technology Roadmaps: A Case of Bonneville Power Administration (BPA)"

This paper presents a technology roadmap developed for energy efficiency at Bonneville Power Administration (BPA). The paper presents 8 technology roadmaps for energy efficiency: heat pump water heaters, heat pumps w/o resistance, evaporative cooling, LED lighting, industrial process improvement, integrated building design (passive strategies), smart appliances, demand response. The paper also describes how the technologies and roadmaps were put together [C2681]

"A Single Driver Chip for Gray Scale Passive-Matrix OLED"

A single driver chip for the 132times64-pixel passive-matrix OLED panel is presented. The developed driver chip has a 64-step gray scale control using PWM method and two-step voltage pre-charge technology to pre-charge the OLED pixels. It consists of a digital controller, a SRAM as display data memory, a DC-DC voltage converter, reference current generators, a pre-charge voltage generator, 64 common drivers and 132 segment drivers. The chip is a typical current-drive circuit. Power consumption of the whole chip and all pixels with a constant driver current 100 muA is investigated by the Nanosim simulation. When all pixels displaying the highest gray scale, it is shown that the consumed power is about 340 mW at 15 V high voltage supply and 3.3 V low voltage supply [C2682]

"Application of PV Powered High Intensity LEDs for Supplementary Irradiation of Horticultural Plants"

The work presents a comprehensive study on problems of supplementary photosynthesis in horticultural plants realised by artificial light sources of optimised wavelength spectrum. A purely photovoltaic method of powering these sources is provided in order to avoid mains energy consumption. Three goals of the project are specified i.e. scientific, applique and usable ones. The first one deals with elaborating of algorithms for controlling, measuring and supplementing the photosynthesis process. The second-with laboratory engineering and

equipment, while the third goal deals with utilization of elaborated methods and means for improving the quality and harvesting of the irradiated plants. Apart from the natural sunlight portions the entire supplementary photosynthesis bases on sun energy PV conversion to the red and blue light energy, additionally emitted by groups of red and blue LEDs, each of 1 to 3 W power. Their light intensity and mutual light proportions are controlled and optimised by a computer programme and by the electronic PWM and MPPT technique. Such an irradiation process, if necessary, may be carried on also in night hours or in cloudy periods by means of PV energy stored in batteries [C2683]

"Static Parameters of Solar Cells Determined from Solar Simulators Using Quartz Tungsten Halogen Lamps and Super Bright Light Emitting Diodes"

Adopting a commercial illumination design software, we construct two solar simulators having light characteristic conforming to the solar simulator Class C of the Australian Standard AS 2915-1987 for solar cells testing. One simulator incorporates quartz tungsten halogen lamps and is used to measure static parameters of two types of monocrystalline silicon modules. The other simulator uses super bright light emitting diodes and is used in determining the IV characteristic of a monocrystalline silicon solar cell [C2684]

"The Effects of High Energy Protons on Shielded Space Solar Cells"

We discuss the applicability of the displacement damage dose method and the non-ionizing energy loss (NIEL) concept to the effect of protons on GaAs devices. Comparison of the relative damage coefficients (RDCs) for different GaAs devices with the energy dependence of the proton NIEL shows differences for proton energies >10 MeV. However, since actual RDCs are always bound between the total and Coulombic NIELs, calculations were performed for the total displacement damage dose using both NIEL curves to determine the range of dose expected for devices shielded with various thickness of fused silica coverglass. These calculations were performed for two different incident proton spectra. The overall effect of using the total or Coulombic NIEL for calculating the total displacement dose deposited is minimal until extreme thicknesses of shielding are used [C2685]

"Reliability Aspects of Lead-Free Soldering in Industrial Applications"

The forthcoming European legislation restriction of hazardous substances (RoHS), in effect at July 1st 2006, has prohibited the use of certain substances for electronic and or electrical equipment. One of these prohibited materials is lead, which has been used for the past decades in the solder used to connect the components to the printed circuit boards (PCBs). Therefore, lead-free solders have been developed to replace the SnPb solders. The military, medical and aerospace industries work exclusively with proven technologies and are consequently exempted from these directives. Consumer electronics already has experience with lead-free technology, although the products have a shorter lifespan, whereby the maintaining of the product is of lower importance. Industrial electronics has almost no experience with lead-free technology yet remains confronted with longevity problems. The main alternatives solder alloys are Sn, Ag and Cu (SAC) near eutectic composition. As these alloys have higher melting points and different physical characteristics in comparison to SnPb, research is needed to discover the eventual problems with the replacement of SnPb. In this work PCBs with Ni/Au finish have been soldered with SAC and SnPb alloys. Reflow and wave soldering have been performed on three type of industrial. The components soldered to the board were: ceramic resistor, ceramic capacitor, coil, diode, jumper, plastic spacer, hybride module, flexible PCB, QFP, LED, electrolytic capacitor, capacitor, oscillator, cable or connector. The component finishes encountered were: pure Sn, SnPb, SnPb40 and AgPd. Environmental and bump tests have been conducted and analyzed by means of metallurgical research. Visual and light microscopy as well as in-circuit tests have been preformed [C2686]

"Luminous PWBs-OLED-Displays on FR4"

Organic light emitting diodes (OLED) are the basic components of a new display generation. They are convincing compared to liquid crystal displays (LCD) by a higher contrast ratio and smaller power consumption. Additionally, these luminescent elements can be produced ultra-thin. "Conventional" OLEDs are usually processed on glass and provided with an external control. Our approach is now to implement this inside a printed wiring board (PWB). PWBs can be manufactured and equipped with high throughput. Apart from the cost advantages the high degree of integration affects also the minimization of the overall height of the display assembly. However the new concept requires various adjustments of the different manufacturing steps. For example a top-emitting OLED-structure is needed. Also the printed wiring board has to get properties, which make it suited for an OLED. The effects on the assembly of the electronic components can't be neglected, too. Technological aspects as well as first results of the practical conversion are described [C2687]

"Thermal Measurements and Qualification IC Packages Using the Transient Method: Principles and Applications"

{no data available} [C2688]

"Reliability Failures in Small Optocoupling and DC/DC Converter Devices"

In power electronics, often control and power part are at different electric potentials. Thus, electrically isolated coupling of them is performed by optocoupling devices. Also, isolating DC/DC converters are in use. While such systems are dedicated for high reliability application, weak points within these small components generate problems to the system reliability. The paper outlines most common weakness, as optocoupling internal LEDs, packaging problems and hybrid components in use at their electrical limits [C2689]

"III-V/Si Device Integration Via Metamorphic SiGe Substrates"

This paper presents growth, characterization and device results for III-V optoelectronic and solar cell heterostructure devices that have been monolithically integrated on Si via ultra low dislocation density SiGe interlayers. Prior work that has demonstrated high performance single junction solar cells (Andre et al., 2005) and visible wavelength LEDs (Kwon et al., 2005) on Si is extended here to include visible wavelength laser diodes and dual junction solar cells on Si in which AlGaInP materials are used as active layers on Si [C2690]

"An Empty Bottle Intelligent Inspector Based on Support Vector Machines and Fuzzy Theory"

This text studies empty bottle intelligent inspector based machine vision instead of manual inspection. The system structure is illustrated in detail in this paper. The text also presents the method to extract features from images. After extracting feature, the fuzzy support vector machines are used as classifier. A genetic algorithm based on optimization algorithm is simultaneously proposed to confirm the parameters of the fuzzy support vector machines, ensuring that the fuzzy SVMs have good classification ability. The experiments demonstrate that using this method to inspect empty bottles, the accuracy rate may reach above 96% [C2691]

"Design of a Page-Checking Instrument Based on Fuzzy Pattern Recognition"

In this paper, a page-checking instrument via MCU Atmega128 and fuzzy pattern recognition theory is developed for automatic bookbinding machines. This instrument detects dynamically wrong pages locating in many word pages, graphic pages and word-graphic pages, and at the same time, takes a message to automatic bookbinding machine that lets wrong pages pass as soon as receiving the message. This instrument can communicate with computers by RS232 protocol, too. A detecting algorithm developed via fuzzy pattern recognition theory is stored in page-checking instrument. And this instrument detects wrong pages by two detecting modes, one is self-adaptive detecting mode, the other is non self-adaptive detecting mode. Experiments show that precision of this wrong page-detecting instrument is 0.5%, and possess fine stability [C2692]

"Flexible Thin-film Transistors on Strained Si/SiGe Membranes"

Electronics built on flexible polymer substrates have great potential for a number of applications. The largest potential lies in active-matrix flat-panel display applications, because of the continually increasing demand for light weight and robustness from wireless technologies. For the back-plane circuitry of active-matrix organic light emitting diodes (AMOLEDs), high transconductance (gm) and high current drive capability are critical requirements to reduce the gate overdrive voltage and to provide higher brightness. These requirements pose great challenges to the currently widely investigated channel materials, such as amorphous Si, poly-Si, and organic semiconductors. Single-crystal Si, on the contrary, offers excellent performance in comparison with the materials mentioned above. Quite recently single-crystal Si has been transferred onto plastic substrate to create thin-film transistors (TFTs). We report here a novel membrane fabrication method that allows us to create strained-Si TFTs on plastic substrate [C2693]

"Characteristics of Superlattice LED with a Si0.8 Ge0.2 or Si Capped Layer at Room Temperature"

The comparison between the Si and Si0.8Ge0.2capping layers shows that the conduction band offset of Si0.8Ge0.2and Si can form a barrier for electrons, and that it can increase the quantity of carriers on conduction band. From the results of these experiments, the characteristics of carrier blockers formed by hetero structure can be applied in IV-IV optoelectronics devices to achieve higher optical power [C2694]

"High temperature growth of very high Ge content SiGe virtual substrates"

Very high Ge content SiGe virtual substrates (50% les [Ge] les 70%) can serve as templates for the growth of compressively strained Ge (c-Ge) / t-Si dual channels, with impressive hole mobility enhancements (up to 10) over bulk Si based in M. L. Lee and E. A. Fitzgerald (2003) and O. Weber et al. (2005). SiGe virtual substrates graded all the way up to pure Ge according to M. T. Currie et al. (1998) enable the monolithic integration of high performance III-V optical devices (such as p+/ n GaAs solar cells as presented in C. L. Andre et al. (2005), AlGaInP resonant cavity light emitting diodes, etc. as presented in O. Kwon et al. (2005)) on large area Si substrates etc. In this paper, we quantify the evolution of the structural properties of SiGe virtual substrates grown at 850degC in a commercial reduced pressure-chemical vapor deposition tool as a function of the final Ge concentration in the 50% to 100% range [C2695]

"Enhancement of Fowler-Nordheim Tunneling Based Light Emission from metal-SiOx-Si MOSLED"

PECVD grown nanocrystallite Si structure at SiOx/Si interface has been demonstrated to show its capability in enhancing the surface roughness and the Fowler-Nordheim tunneling based carrier injection for improved light emission from a metal-SiOx-Si MOSLED [C2696]

"Triggered Electroluminescence from a Strained Si1-XGeX/Si Single Quantum Well"

Triggered electroluminescence is demonstrated in an electrically biased strained Si1-xGex/Si single quantum well where otherwise spatially separated electron-hole pairs created through impact ionization are made to recombine upon removing the bias voltage, paving a way towards on-demand Si-based single photon emitters and optical memory application [C2697]

"A Characterization of Injection, Transport an Excitation Mechanisms in Si-nc based MOS-LEDs"

We study the effect on a LED of a controlled insertion of N in Si oxide containing Si nanocrystals. Nitrogen lowers the electronic potential barrier, thus increasing the carrier injection. Electroluminescence spectroscopy suggests that both electron and hole injection can be observed [C2698]

"Study on Transmission Optical Fiber Hydrogen Sensor"

Based on palladium's hydrogen sensibility and its reversibility of absorbing hydrogen, a transmission optical fiber hydrogen sensor is demonstrated. We deposited thin palladium film on the end of a multi-mode optical fiber, using LED as light source, and using a big-diameter-core optical fiber to collect transmission light. When modulated light emitted from the LED is injected to the thin palladium film, part of the light is reflected and absorbed, the other part of the light transmits through the thin palladium film. We can get hydrogen concentration by detecting the intensity of the transmission light. Result of the experiment indicates that this kind of optical fiber hydrogen sensor has a good linearity and high sensitivity [C2699]

"Design of Portable LED-based NIR Integrity Wheat Component Intelligent Measuring Apparatus"

Quickly and non-damage to measure the nutrition component of wheat is very important in the field of wheat's purchase and production. The hardware design, software design, model builds and concentration prediction of integrity wheat component intelligent measuring apparatus are introduced. The apparatus adopt the long light path transmission method, is made up of NIR LED light source, narrow bandwidth interference filter, Si photoelectric detector, A/D conversion, microprocessor system and calibration model. For predict the protein concentration of integrity wheat, the correlation coefficient is 0.93 and the coefficient of variation is 5.54%. The measuring apparatus providing a lower cost solution for integrity wheat component non-damage quickly measuring, and also provides quickly speed and smaller size for using on fieldwork. Compared with other instrument, the apparatus has many advantages, such as compact space, simple structure, low power waste, and anti-shake [C2700]

"Planning and Simulation of the Flowers and Plants' Environment Adjustment Based on Fuzzy-PI Control"

To realize the greenhouse flowers and plants' environment adjustment automation, a case in point was selected and its environment adjustment was analyzed simply. The flowers and plants' environment adjustment system was very difficult to establish the precise mathematical model, so the control method based on fuzzy-PI double model was used. A break point was used to join the fuzzy and the PI control method. The simulation using MATLAB confirmed system feasibility and found the break point. The simulation result indicates that the fuzzy-PI double model control method increases control precision and improves system dynamic performance and system

stable state performance [C2701]

"Electroluminescence from the Ge Quantum Dot Metal-Oxide-Semiconductor Tunneling Diodes"

In summary, the ~1.5 mum Ge QD MOS LED which is fully compatible with ULSI process is reported for the first time. The origin of the emission is due to the radiative recombination between the electrons and holes confined in the Ge QD. The electrons also recombined with holes at the Si/oxide interface and the band edge light emission from Si is also observed [C2702]

"LED back-light driving system for LCD panels"

In this paper, a light emitting diode (LED) back-light driving system for liquid crystal display (LCD) panels is proposed. Due to improvement in luminous efficiency, long life and wide color gamut, LED has gradually substituted for cold cathode fluorescent lamp (CCFL) as back light. In order to compete with other display devices and receive wide acceptance in the commercial arena, back-light driving efficiency, luminous efficiency and LED arrangement need to further improve. In this paper, an LED bypass circuit is proposed to prevent LED arrays from open-circuit, improving back-light reliability and availability significantly. In addition, bi-directional buck+boost converters are adopted to speed up state transition when using a current-type burst-mode dimming control for LED back-light drivers. Moreover, an effective driving circuit for achieving RGB light scan is introduced. Simulated and measured results are presented to verify the feasibility of the proposed driving system. [C2703]

"Computational Analysis of Mass Spectrometry Data Using Novel Combinatorial Methods"

First Page of the Article [C2704]

"Analysis of LED-allocation algorithm for high-speed parallel wireless optical communication system"

We analyze LED-allocation algorithms for high-speed parallel wireless optical communication system that we have developed. It enables up to gigabit-class communication using two-dimensional transmitter composed of LED array, and two-dimensional receiver composed of lens and image sensor. However, there are some interference problems when the allocation of packets to LEDs is not good. Considering these problems, we propose new LED-allocation algorithms to improve the affection of interference. In this paper, we analyze the link of parallel wireless optical communication system and show the effectiveness of our proposed algorithms by simulation. [C2705]

"Twenty Second Annual IEEE Semiconductor Thermal Measurement and Management Symposium"

The following topics are dealt with: semiconductor thermal measurement; thermal packaging; air cooling; thermal interface materials; thermal interface material testing; impingement, spray cooling, and refrigeration; thermoelectric implementation for high flux spreading; thermal materials development; power LED assembly packaging and testing; thermoreflectance; and thermo-mechanical challenges in stacked die packages [C2706]

"CCFL inverters: opportunity or threat"

The electronic ballast market is expected to grow at an average annual unit growth rate of 10.8% through 2010. Leading this growth is the market for cold cathode fluorescent lamp (CCFL) inverters, which are estimated to contribute a 15.4% average annual unit growth rate through 2010. However, that growth is threatened by the emergence of light emitting diodes (LEDs), and their use in backlighting. Having already displaced CCFLs in many low-wattage applications, LEDs now pose a threat to CCFLs in high-wattage segments, and are looking to capitalize on the high-growth segment of backlighting for liquid crystal display (LCD) applications. [C2707]

"A single-stage power converter for a large screen LCD back-lighting"

This paper presents a single-stage power converter for driving any number of power Light-Emitting-Diodes (LEDs) from a high AC input voltage. The power converter converts a high AC input voltage into a DC current source directly by using a proposed single-stage power converter. The DC output voltage can be higher or lower than the peak of the AC input voltage level. In addition, the AC input current is synchronized with the AC input voltage so that AC input power factor is close to unity. The LED current is controlled based on a current-regulated PWM method. Hence, both a Power Factor Correction (PFQ feature and LED current regulation are obtained by using a single-stage power converter. Furthermore, there are no DC bulk capacitors in the DC-link

and AC-rectified line voltage or current sensors. A current sensor at the MOSFET source-side is employed only to regulate the power LED current. With the proposed scheme based on a single power conversion stage, higher efficiency with a very simple, low-cost power LED driving system is implemented. Experimental results show that the total efficiency is over 90 [%] with PF ≥ 0.9 in a wide LED current control range. The experimental results for the maximum output power of 90 [W], Io=500 [mA] and Vo=180 [V] are provided. [C2708]

"Dynamic programming environment for active rules"

Currently, many applications that require monitoring (e.g., surveillance, track monitoring) use the event-condition-action (or ECA) rule paradigm. The local event detector (LED) that has been developed based on the ECA rule paradigm provides active capability to various applications including relational database systems. LED is capable of handling events that are local to the application, thus providing active capability. Existing LED framework (in Java) supports creation of events and rules at compile time. Modifications to existing rules or events are difficult once the execution of the application begins. Thus, modifying rules or events requires adding code for new rules and events, recompiling and executing. This is a limitation for many applications where the rules and events need to be modified dynamically at run time and without bringing the system down. This paper provides a novel approach for supporting the creation of rules and events dynamically at run time, which is critical for several classes of monitoring applications. The proposed approach avoids recompilation and restarts which are inappropriate in many environments that require fine-tuning of rules on the fly. The dynamic programming environment (DPE) presented in this paper provides a generic set of classes that are designed to handle the creation, management, and execution of rules. This set of generic classes is application-independent making the system a general-purpose tool. The user application provides necessary class and event information to the DPE in either XML or text format. The DPE uses this information to create, modify and manage the rules. The DPE supports the creation of new composite and temporal events. A friendly user interface is provided to perform all these tasks [C2709]

"Minimization for LED-backlit TFT-LCDs"

This paper presents an algorithm for minimizing power consumption of LED backlights in transmissive TFT-LCD monitors. The proposed algorithm reduces power consumption by scaling the luminous intensity of the red, green, and blue LED backlights independently according to the image histograms of each color channel. The algorithm consists of two phases. The first phase, chromaticity scaling, finds the optimal ratios of red, green, and blue backlights subject to a perceived color difference constraint. The second phase, luminance scaling, finds the optimal dimming factor subject to a perceived lightness difference constraint. The perceived color and lightness differences are measured by the CIELAB color difference equation 2DeltaE*ab, a standard metric for measuring color variation. Psychophysical experiments were performed with 35 observers to uncover the optimal luminance scaling function. An experimental LED backlight module was implemented and installed on a 19" side-lit TFT-LCD monitor to replace the original CCFL backlight. Within limited perceivable difference 2DeltaE*ab, up to 76% of power consumption can be reduced for the benchmark images [C2710]

"Low-Cost Diffuse Wireless Optical Communication System based on White LED"

This work presents the use of white LED (WLED) lamps as broadcast emitters in an optical wireless system. The proposed system allows the data transmission at medium data rate (500 kb/s). The level of illumination can be changed without any degradation of the transmission performances. If a pulse width modulation (PWM) driver is used to apply the electrical power to the WLED, the transmission capabilities can be implemented with minor changes, resulting in a low-cost improvement of the WLED lamps [C2711]

"Performance evaluation of narrowband OFDM on integrated system of power line communication and visible light wireless communication"

White LED is considered as a strong candidate for the future lighting technology. We have proposed an optical wireless communication system that employs white LEDs for indoor wireless networks. In this system, LED is not only used as a lighting device, but also used as a communication device. The system has large optical power to function as lighting device. A group including the author has proposed an easy wiring system for visible light wireless communication using existing power line. It can be said that it is the technology of very easy composition of making the signal of the power line into wireless. In this paper, along with the popularization of OFDM system at power line communication, we evaluate the performance of the integrated system on narrowband OFDM power line. [C2712]

"Effect of multiquantum barriers on performance of InGaN/GaN multiple-quantum-well light-emitting diodes"

In this paper we demonstrate that the improvement in the emission intensity afforded by the introduction of multiquantum barrier (MQB) structures in an InGaN/GaN multiple-quantum-well (MQW) light-emitting diode (LED) is attributable to increased excitation cross sections. Over the temperature range from 300 to 20 K, the excitation cross sections of the MQW emissions possessing MQB structures were between 9.6 Ч 10-12cm2and 5.3 Ч 10-15cm2, while those possessing GaN barriers were between 8.1 Ч 10-12cm2and 4.5 Ч 10-15cm2. We found, however, that the figure of merit for the LED light output was the capture fraction of the cross section; we observed that the dependence of the optical intensity on the temperature coincided with the evolution of the capture fraction. This analysis permitted us to assign the capture cross-section ratios at room temperature for the MQWs with MQBs and with GaN barriers as 0.46 and 0.35. Furthermore, the MQW system possessing well-designed MQB structures not only exhibited the thermally insensitive luminescence but also inhibited energetic carrier overflow. [C2713]

"Brightness Improvement and limited Forward Voltage of the AlGaInP MQW LED with Wet-Oxidation by Taguchi Method"

To increase the external quantum efficiency of LED while limiting its forward voltage (Vf), we prepared both (AlxGa1–x)0.5In0.5P LED and buried oxides through selective wet oxidation of the AlAs layers of AlAs/GaAs distributed Bragg reflectors (DBRs). The wet oxidation process forms a stable AlxO material that acts as an insulation layer that affects both the carrier and optical confinements. The stable AlxO material that formed confined the transport region of injection carriers effectively and strongly decreased the chance of the carrier being trapped within the surface layer. To determine the trade-off conditions for LED oxidation, we used the Taguchi method which is a robust technique that is often used to analyze the significant trends that occur under a set of oxidation condition. In this study we uses an L9orthogonal array to measure the effects that a series of factors have upon the maximum brightness performance of the LED in an effort to limit the values of Vf. Relative to the as-grown LED, the oxidized LED that was treated under the trade-off wet-oxidation conditions displayed a sharply enhance the brightness (62.4% increase) in conjunction with only a slightly increased value of Vf(only a 24.5% increase). [C2714]

"Broadband access over medium and low voltage power-lines and use of white light emitting diodes for indoor communications"

First Page of the Article [C2715]

"1Gb/s Ethernet physical layer device package development"

The 82566 family of LAN products are Intel LAN Access Division's (LAD) generation 90nm silicon gigabit LAN connection devices with an integrated PHY, designed in a 2 layer flip chip molded matrix array package (FCMMAP). The use of 2 layer FCMMAP technologies leveraged a number of cost reduction, thermal performance and design improvements offered over an alternative 4 layer stacks up. This paper describes the various design and electrical performance optimizations that were implemented to achieve an improved package design to meet the requirements for the high speed proprietary SerDeS and gigabit PHY interfaces [C2716]

"Thermal interface material with aligned CNT and its application in HB-LED packaging"

High density well aligned vertical CNT arrays were synthesized by thermal chemical vapor deposition (CVD) method on 1 inch by 1 inch Si substrates with sputtered Ti and Si layers. They were used as a new kind of thermal interface material (TIM) for the thermal management of microelectronic packages and high brightness light emitting diode (HB-LED) packages. The thermal resistance of the CNT-array-TIM and some other TIM were evaluated and compared according to ASTM D5470 standard. The thermal resistance of CNT-array-TIM was found to be 15 mm2-K/W which was only 20% of that of the commercial silver epoxy. The mechanism of the phonon heat transfer through the CNT-array-TIM was reviewed. The application performance of CNT-array-TIM in HB-LED packages was predicted by finite element analysis using ANSYS code. It was concluded that CNT arrays synthesized by the simple thermal CVD procedure is a promising low cost and effective TIM [C2717]

"From nanostructured thin films to photonic devices --development and commercialization"

The development and commercialization of flat panel display and light source based on nanostructured thin films such as field emission display (FED) from carbon nanotubes, light emit diode (LED) from GaN-based thin film, is reviewed. The related thin film fabrication systems, FED prototypes and high-brightness white LED lamps have been demonstrated. [C2718]

"Mapping human networks"

We have developed a method of measuring user interest and affiliation for conference attendees, using behavioral data to collected by 'smart badges' worn by the attendees. These measures allow validation, refinement, and extension of online user profiles, improving the dissemination of conference information [C2719]

"Ultra small projector with high efficiency illumination system"

An ultra small projector with LED light sources is developed to create a new category of projection display. This projector is battery-operated and has the SD port. Therefore this projector requires no power cable and signal cable. To realize the high efficient illumination system, we have developed a novel collimator with four aspheric surfaces. Using this technology, the total lumen of the projected image is improved. [C2720]

"Thermal effects of moisture inducing delamination in light-emitting diode packages"

This work reports on the moisture inducing delamination in light-emitting diode (LED) packages and its effects on thermal characteristics. The LED samples were subjected to moisture preconditioning followed by heat block testing. Transient thermal measurements were performed to investigate the thermal behavior of the delaminated LEDs. Increase of thermal resistance with the degree of delamination was observed from the transient measurement. The thermo-mechanical calculated from coupled-field FEA simulation agree well with the micro graphical evidence. The calculated hygro-mechanical stress increased with the preconditioning time. It was found that the thermo-mechanical stress plays more important role than the hygro-mechanical stress for the development of delamination in the LED packages. Moisture pre conditioning for 3 hrs and 6 hrs under 8 5timesC/8 5 RH conditions was found to make little contribution to the delamination between the chip and lead frame [C2721]

"Using the Morphology of the Photoplethysmogram Envelope to Automatically Detect Hypovolemia"

There currently is no clinically accepted noninvasive technique for detecting moderate blood loss. Clinicians instead normally rely on lagging indicators such as blood pressure and tachycardia. We propose to use changes in the morphology of the respiratory induced variation in the photoplethysmogram (PPG) to detect moderate hypovolemia in non-ventilated subjects. These changes were characterized by two statistically robust metrics that were developed to characterize the top and bottom envelope of the PPG. The first metric detects when the height of the top envelope becomes greater than the difference between the minimum of the top envelope and the maximum of the bottom envelope. The second metric robustly detects when the upper and lower envelopes synchronously rise or fall. The use of these metrics was then validated in nonintubated healthy volunteers with a lower-body negative pressure (LBNP) chamber which induces central hypovolemia by sequestering blood in the hips and lower extremities. Hypovolemia corresponding to sequestration of more than 1 liter of blood (LBNP > 60 mmHg) was consistently detected using these metrics before significant change in blood pressure, or tachycardia are observed [C2722]

"Visible light communication using OFDM"

In this paper wireless communication using white, high brightness LEDs (light emitting diodes) is considered. In particular, the use of OFDM (orthogonal frequency division multiplexing) for intensity modulation is investigated. The high peak-to-average ratio (PAR) in OFDM is usually considered a disadvantage in radio frequency transmission systems due to non-linearities of the power amplifier. It is demonstrated theoretically and by means of an experimental system that the high PAR in OFDM can be exploited constructively in visible light communication to intensity modulate LEDs. It is shown that the theoretical and the experimental results match very closely, and that it is possible to cover a distance of up to one meter using a single LED [C2723]

"A suggestion for high power LED package based on LTCC"

A high power package based on LTCC, multi layer ceramic-metal package, MLCMP, has been proposed. To comply with recent demands for high power LEDs, the proposed package utilized large scale via slug for heat sink slug whose cross section area is greater than ordinary LED die size. The via slug could be constructed in a single tiring process. The matching quality at the ceramic-metal interface was acceptable for reliable LED package and thermal conductivity of the sintered silver was assumed to be nearly equivalent to bulk silver. Thus, the proposed MLCMP is equivalent to existing heat sink slug type packages, where the chip is located on the metal heat sink slug and heat is efficiently transmitted to circuit board by the aid of the heat sink slug. Thermal resistance of MLCMP was evaluated numerically and experimentally. In the numerical simulation, MLCMP was compared with conventional heat slug type package and aluminum nitride based package. Thermal resistance of all the three packages is less than 10 K/W. As the cross section of the via slug increases, thermal resistance of MLCMP exceeds those of the two other packages. A transient thermal analyzer was used to measure actual thermal resistance of working MLCMP. The measured data were compared with analytic solutions. Thermal

resistance contributed to MLCMP has been revealed to be less than 1.0 K/W. Considering the affordability and design flexibility, we anticipate the proposed MLCMP is not only suitable for high power LED package but also a promising solution for illumination modules [C2724]

"Thermal resistance analysis of high power LEDs with multi-chip package"

Thermal transient measurements of high power GaN-based LEDs with multi-chip designs are presented and discussed. Once transient cooling curve was obtained, the structure function theory was applied to determine the thermal resistance of packages. The measured total thermal resistances from junction to ambient were 19.87 K/W, 10.78 K/W, 6.77 K/W for the one-chip, two-chip and four-chip package, respectively. The contribution of each component to the total thermal resistance of the package can be calculated from the cumulative structure function and differential structure function. The total thermal resistance of multi-chip package is found to decrease with the number of chips due to parallel heat dissipation. Very useful thermal design rule for high power multi-chip LED package is analogized from the experiments. It was found that the effect of the number of chips in a package on the thermal resistance depends on the ratio of partial thermal resistance of chip and that of slug. Thermal resistance for full color multi chip LEDs, where each chip is driven independently, was measured as well and the implication was discussed [C2725]

"A microjet array cooling system for thermal management of active radars and high-brightness LEDs"

Advancement in high heat thermal management technology and its successful integration into emerging GaN-based amplifiers is imperative to meet the long-term requirement of future X-band radar systems. It is also known that the efficiency and reliability of light emitting diode (LED) strongly rely on successful thermal management due to its inherit low junction temperature in the LED chip. In this paper, a new cooling solution for thermal management of GaN based power amplifiers for X-band radars (XBR) and high-brightness LEDs, by a closed microjet array cooling system, is proposed and investigated by experiments. For the active radar part, we developed a circuit consisting of Si resistor chips to generate heat. The resistor chip has a resistance of 10 Ohm. It has a chip dimension of 2.4 mm times 2.4 mm times 0.50 mm, with a top side 4 mum Al and bottom side 1 mum Al/Ti/Ni/Ag. The testing results are shown to achieve a thermal resistance of 0.192degC/W under a flow pressure of 32psi. For LED packaging, the tests show that it can achieve good cooling effect, for a 16.4W input power, the surface temperature of 2times2 LED array is just 44.2 degC after 10 minutes' operation, much lower than 112.2degC, which is measured without any active cooling techniques at the same input power. To compare its performance with conventional thermal management means, three cooling methods for LED array such as natural convection, heat sink and heat pipe, are also experimentally studied. The comparison results demonstrate that present microjet cooling system has the best cooling performance. To fully understand present cooling system for real world applications, the cost, reliability and volume comparison and analyses among different cooling means are also briefly conducted in the final section of this paper [C2726]

"Materials Challenges and Solutions for the Packaging of High Power LEDs"

Field=03 form only given. As a future lighting source, high power LED lighting is significant in that it provides decades of lifetime under normal operation, requiring a fraction of the power required for traditional lighting solutions. For LED lighting to be a viable lighting source, there are many technical challenges to be resolved. Among them the light extraction efficiency, the chip over heating, the thermal and radiation degradation of the optical output power are the key issues, which turn out are all related to the packaging materials. This work will outline those challenges in details and report the recent progress in resolving those key problems [C2727]

"High-precision, fast current source for large-area current-programmed a-Si flat panels"

Although current-programmed pixel circuits lead to a highly stable amorphous silicon (a-Si) active matrix backplane, they are prone to a long settling time due to the large parasitic capacitance coupled with the low mobility of a-Si thin film transistors (TFTs). This paper presents a fast-current source that can significantly improve the settling time of the a-Si active matrix. Also, to reduce the effect of mismatches a differential offset cancellation technique is introduced [C2728]

"Quantum well infrared photodetectors-recent advances at NRC"

Recent advances on quantum well infrared photodetectors (QWIP) at the National Research Council Canada are reviewed. These include the demonstration of QWIP-LED pixelless imaging, the development of THz, ultrafast, and two-photon QWIPs [C2729]

"Efficient Measurement of Eye Blinking under Various Illumination Conditions for Drowsiness Detection Systems"

In this paper, we propose an efficient way of measuring the level of eye blinking under various illumination conditions (such as day and night) for drowsiness detection systems which use a single camera. Determining the level of drowsiness by using eye blinking, it is an important way of detecting eye positions and measuring eyelid movements. For robust eye detection under various illumination conditions, we propose a simple illumination compensation algorithm and a novel way of measuring of eyelid movements. In order to estimate the performance of the proposed methods, we collected video data during real driving situations under various illumination conditions, such as during the day and during the night. Experimental results demonstrate an average eye detection rate of over 98% and an accurate measurement of eye blinking when using the proposed drowsiness detection system [C2730]

"Near-infrared Electroluminescence from Multilayered CdF2/CaF2 Quantum Heterostructure Grown on Trench-Patterned Si"

A CdF2/CaF2intersubband transition light-emitting structure is fabricated on a trench-patterned Si substrate. Electroluminescence from the device was observed in the near-infrared region [C2731]

"Ulrich Barnhoefer, Moon-Jung Kim, and Mattan Erez A Low Power, Passively Cooled 2000 cd/m2 Hybrid LED-LCD Display"

In this paper, we describe a hybrid LED-LCD screen that delivers the same image peak-brightness at 1/2 to 1/20th the power consumption per unit LCD screen area compared to conventional designs. Our architecture is based on an adaptive, spatially controlled LED backlight and a unique algorithm that decomposes the displayed image into LED and LCD components in order to minimize power consumption. In addition to the efficiency gained over current displays, our implementation is also suited for high dynamic range applications, achieving a peak brightness of 2000 cd/m2with a 20,000:1 contrast ratio. We introduce, for the first time, implementation details of a spatially adaptive LED-LCD display and describe a novel thermal and electrical design. Our display is comprised of a standard FR4 PCB populated with an array of individually controlled high brightness LEDs, their associated control electronics mounted, and a LCD panel. The use of standard PCB (no metal core) is made possible by carefully designing efficient driver electronics (76% efficiency), introducing thermal channels to a large integrated heat sink implemented as part of the PCB, and employing power-reducing decomposition algorithms. Our prototype is completely passively air cooled, silent, and light [C2732]

"Obstacle Detection and Pedestrian Recognition Using A 3D PMD Camera"

This paper presents a 3D-camera system and appropriate algorithms for the image processing to provide pedestrian recognition. According to international legislative proposals the automotive industry is forced to take action in the area of protecting vulnerable road users. The presented photonic mixer device (PMD) sensor system is able to fulfil specific requirements of a pedestrian protection assistant. It consists of a sensor with a resolution of 64 times 16 pixel, lightsources, and the image processing unit. The light emitting diodes (LEDs) of the lightsources emit a modulated signal in the infrared (IR) spectrum. The sensor calculates the object distance by means of the phase of the reflected signal. The range of the system is approximately 15 m for pedestrians and up to 30 m for objects with high reflectivity, e.g. cars with number plates. The horizontal field-of-view is 55deg. The presented image processing unit consists of two main steps. In the first step both a robust and efficient segmentation method is performed to create reliable detections of the objects and a useful description of their projection in the image plane. It uses the linking pyramid method regarding the partition of the distance image and a contour-based grouping algorithm, where the objects are described using the chain code representation. In the second step a classification of the resulting objects is carried out. Depending on the distance of the objects which have to be classified a shape- or motion-based verification is applied adaptively. Both approaches discussed in this paper deliver very good results at the corresponding distance and represent a solid foundation of further works [C2733]

"Analysis of Very Low Threshold Current Density GaInNAs Laser at Low Temperature"

GaInNAs lasers grown on GaAs substrates are very attractive for the application of uncooled operation with high performance at 1.3 mum region. However, fundamental material and device properties which are important for device design are still not fully understood. In this paper, we investigated temperature dependence of laser and light emitting diode (LED) characteristics for this purpose. We found that the threshold current density (Jth) of GaInNAs laser was considerably lower than that of GaInAs laser at low temperature, although it is much higher at room temperature [C2734]

"SiOx/Si Interfacial Si Nano-Pyramids Enhancd Electroluminescence from Si-Rich SiOx MOSLED"

Interfacial (100)-oriented Si nanopyramids are synthesized with surface density of 109cm-2prior to the growth of Si-rich SiOx, which greatly suppresses blue-green EL and improve near-infrared EL at 30 nW with lifetime of >10 hrs [C2735]

"Improving the Luminous Efficiency of Organic Light Emitting Diodes using a Modulated Doping Hole Injection Layer"

Modulated doping of 2,3,5,6-tetrafluoro-7,7,8,8-tetracyano-quinodimethane (F4-TCNQ) in a hole injection layer (HIL) of 4,4',4"-tris(N-3-methylphenyl-N-phenyl-amino)-triphenylamine (m-MTDATA) was investigated. The device fabricated with an indium-tin-oxide (ITO)/ m-MTDATA:chi% F4-TCNQ/N'-di(naphthalen-1-yl)-N,N'-diphenyl-benzidine (NPB)/tris-(8-hydroxyquinolinato) aluminum(III) (Alq3)/LiF/Al structure was optimized by adjusting the doping concentration and region in HIL to enhance device's efficiency and luminance. 4, 7-diphenyl-1, 10-phenanthroline (BPhen) is used as a hole blocking layer (HBL). Moreover, F4-TCNQ is inserted in the m-MTDATA to study the emission characteristics of OLEDs. The OLED having an efficiency up to 12 cd/A is achieved in the study [C2736]

""Firefly capturing method": Motion capturing by monocular camera with large spherical aberration of lens and Hough-transform-based image processing"

We demonstrate a new motion capturing method that uses the monocular camera with large spherical aberration of lens to measure 3D positions of point light sources attached on an object in real time without any sequential lighting. Point light sources are transformed into circle patterns by the large spherical aberration of lens mounted in the camera. The diameter and center position of circle pattern give the distance and direction to the light source, resulting in measuring its 3D position. Circle patterns are extracted by video image processing based on Hough transform even if they are overlapped each other. We tracked the circle patterns by predicting their next positions by Kalman filter that includes the acceleration of movement. By combining these processing techniques we succeeded in demonstrating the motion capturing of several LEDs in real time, which is shown in 3D graphics [C2737]

"Efficient Unidirectional Wavelength-Scale Photonic Crystal Light Emitters"

We have shown that the unidirectional photonic crystal emitter whose >80% energy is concentrated within a small divergence angle of plusmn30deg can be achieved by placing a Bragg mirror and tuning the defect structure [C2738]

"Screening of Piezoelectric Fields in InGaN Quantum Well Laser Structures"

By modelling time resolved emission spectra of 3 and 4 nm In0.07Ga0.93N quantum wells we show that injected carriers reduce the internal field to only 70% of its unscreened value at typical laser thresholds [C2739]

"Thermal management in color variable multi-chip led modules"

One of the main advantages of LED technology is the possibility to build efficient color variable lighting systems. In order to apply these systems in illumination applications in high power, color variable LED modules are developed. These modules contain different LED colors, e.g. red, green and blue dice, which can be combined to generate colored and white light. For optimal color mixing, the dice of the different colors are mounted close to each other, resulting in an increased thermal load of the LED dice in the module. One of the key issues in color variable LED applications is to maintain a defined color point over life and over all flux levels. The relevant optical properties of LEDs, like luminous flux and wavelength, depend on the junction temperature of the LED. One of the ways to maintain a stable color point is to compensate for these temperature dependencies. In order to be able to perform this compensation, one has to know the junction temperature of the different dice under all loads and the relation between the luminous flux and the wavelength and this junction temperature. In this paper we present a thermal design method of a multi-chip LED module that is able to handle an increasing thermal load up to 20 Watt. Further, we present a compact model to estimate the junction temperature of the different dice at an arbitrary load. This model is used in the color control system to calculate the junction temperatures under load and adjust the loads of the different dice accordingly to maintain a defined color point. The model is validated with transient tester measurements. Application of this model results in a considerable improvement in color stability [C2740]

"New Design and Application of High Efficiency LED Driving System for RGB-LED Backlight in

LCD Display"

Novel RGB-LED driving system for LED backlight in LCD display have been developed and demonstrated. The driving system consists of the non-isolation type high efficiency constant current DC-DC converter and the dynamic controller with microcontroller. The efficiency of driver is up to 94.4% and the maximum color deviation, Deltau'v', from the target is 0.002 [C2741]

"Beam Scanning Antenna with Photonically Tuned EBG Phase Shifters"

In this paper we describe a phase array antenna architecture which has been experimentally tested in the laboratory. A photoconductive phase shifter using microswitches has been proposed, fabricated and used in the antenna. We have demonstrated the antenna's scanning capability near plusmn30deg. The ability to achieve such a wide beam scan when operated by low power LEDs makes them attractive over the existing mechanical or electrical phased array antennas. The half-power beamwidth (HPBW) of the pattern is almost maintained in all steered states. However it is worth noting that the level of the side lobes needs to reduced [C2742]

"A Fabrication Method for Micro/Nanostructures"

A simple fabrication method is presented that can be used to form imbedded and inverted micro/nanostructures that cannot be readily built by other methods. The technique is applied to fabricating organic light-emitting diodes [C2743]

"Challenges and Opportunities for Biophotonic Devices in the Liquid State and the Solid State"

In this paper we discuss the unique challenges and opportunities present in using biomaterials in photonics applications. We describe biophotonic materials and devices fabricated and operated in the solid state (fluorescent nanometer thin films, light emitting diodes) and in the liquid state (electrofluidic fluorescent biosensor, microfluidic switches). [C2744]

"Optical Properties of Stranski-Krastanow and Strain-Free GaSb Quantum Dots on GaAs Substrates-Towards Sb-based Type-II Quantum Dot Emitters -"

We report the optical characteristics of type II GaSb quantum dot (QD) formation on GaAs by either Stranski-Krastanow (SK) or interfacial misfit (IMF) growth mode. The growth mode selection can be controlled by the gallium to antimony (III/V) ratio where a high III/V ratio produces IMF and a low III/V ratio establishes the SK growth mode. The IMF growth mode produces strain-free QDs emitting at 1.35 μm at room-temperature (RT), while the SK growth mode produces highly-strained QDs emitting at 1.18 μm at RT. We also demonstrate the fabrication of light-emitting diode (LED) structures containing five layers of GaSb/GaAs QDs using the IMF growth mode. Electroluminescence (EL) peak at 1.3 μm from the stacked QDs is observed at RT, which would be applicable to GaAs-based photonic devices for fiber-optic communication systems. [C2745]

"Fast Transition Current-Type Burst-Mode Dimming Control for the LED Back-Light Driving System of LCD TV"

In fact, the title does not propagate the content of this paper. It should be changed to "ripple free converter for driving LED backlight of LCD TVs." Due to improvement on luminous efficacy, long life and wide color gamut, LED has gradually substituted for cold cathode fluorescent lamp as backlight. The proposed driving system adopts sequential color scanning scheme to improve light utilization efficiency by removing color filter. To meet display performance requirement that chromaticity variation xutriuv needs to be limited below 0.002, this paper also proposes a family of output current ripple free topologies to reduce chromaticity variation caused by ripple current. In addition, magnetic amplifiers are introduced to achieve accurate current control among multi-LED strings, and a driving voltage reseter is introduced to eliminate current spikes, improving backlight uniformity, reliability and availability significantly. A forward-type output current ripple free topology with magnetic amplifiers has been built to sequentially drive color LED arrays, from which experimental measurements have verified the discussed performance and feasibility of the proposed system [C2746]

"Development and prototyping of a HB-LED array module for indoor solid state lighting"

Light emitting diodes (LEDs) have been widely used for a long period of time in various applications such as instrumentation signals, message displays, traffic signals, decoration and personal lighting. With the increase in power rating and the improvement in optical efficiency, LEDs have demonstrated high potential for general lighting applications. In recent years, people became interested in using high brightness LEDs (HB-LEDs) as light sources to replace conventional fluorescent light tubes and lamps. Industrial forecasting indicated that the

luminous efficiency of HB-LEDs will be greatly improved in the near future. In addition to increasing luminous efficiency, HB-LEDs have other advantages such as ultra long life, relatively low power consumption, and no UV radiation. These superior properties give HB-LEDs an extra edge over conventional lighting sources. In this study, the coating process for generating white light from blue LEDs was investigated. Furthermore, a prototype of HB-LED array module was fabricated to demonstrate the feasibility of such a lighting device. The outcome of the present study shows that HB-LED array modules should have good potential to replace conventional fluorescent light tubes for indoor solid state lighting (SSL) [C2747]

"Effects of thermosonic bonding parameters on flip chip LEDs"

The effects of thermosonic bonding parameters on GaN-based light emitting diodes (LEDs) with flip chip structure were investigated. Experiments with different thermosonic bonding parameters were conducted to optimize the flip chip process during production flow. These thermosonic bonding parameters on LEDs involved different bonding temperatures, different bonding force, and different ultrasonic power. This paper represents these parameters' effects on flip chip bonding strength by thermosonic gold ball bonding [C2748]

"Effect of bonding parameters on thermosonic flip chip bonding under pressure constraint pattern"

Thermosonic flip chip (TSFC) was performed and studied under the pressure constraint pattern, in which the flip chip is restricted by bonding force. Effects of bonding parameters on bonding strength were studied. Results show that bonding force and ultrasonic power have primary effects on bonding strength. The bonding strength is related to ultrasonic energy used in bonding interface, moderate energy is necessary for high bonding strength, and overabundance or inadequate of energy will cause low bonding strength [C2749]

"Light Emission by Dislocations in Silicon"

Different approaches for Si-based light emitters were studied. The D band emission of dislocations formed by wafer bonding is a promising candidate for spatially confirmed emitters at 1.3mum leslambdales1.5mum [C2750]

"Growth of GaN Quantum Well Film on Si Substrate and Its Application to a GaN-Si Hybrid Lightning Device"

We propose here a new light source with a light beam steering mechanism. The direction of the light beam emitted from an array of the light emitting diodes (LEDs) can be changed by a micro-actuator. The proposed device is monolithically composed of the GaN LEDs and Si MEMS structure. Basic researches on the growth of GaN crystals on Si substrate were carried out. Quantum well (QW) structures consisting of InGaN/GaN crystals were formed with a buffer layer between the GaN crystal and Si substrate. Column-like GaN crystals with the QWs were grown. Due to the column structure and the buffer layer, the crystals were relaxed enough to obtain strong photoluminescence. From Si substrate with GaN crystal, a micro-stage with comb actuators on which the InGaN/GaN QW film is patterned has also been fabricated [C2751]

"High-Power and Broad-Band Quantum Dot SLDs for Optical Coherence Tomography"

Quantum dot superluminescent diodes exhibiting 2.5 mW and 125 nm FWHM at 1.27 mum are demonstrated and techniques for realization of broad-band flat-topped emission are discussed. Record high CW power of 42 mW is also demonstrated for narrow-band devices [C2752]

"Polymer coatings on nano-structured semiconductor surfaces"

We present a method of encasing a layer of freestanding nanostructures with an insulating photo-crosslinked polystyrene (PS) thin film that is flexible and transparent to visible light. In this simple and inexpensive procedure, polystyrene dissolved in toluene is applied by spin-coating in ambient air and immobilized by ultraviolet light. Because the film is crosslinked it is insoluble and will not intermix with other applied films that might compromise the insulation of the layer. We used the film to prepare a heterojunction UV light emitting diode from vertically aligned ZnO nanorods grown on the conductive surface of SnO2-coated glass. In this application overall film thickness was about one micrometer and at the nanorod tips it was in the order of tens of nanometers. The tips of the nanorods could be exposed by oxygen plasma and contacted directly by other films. The PS film may be a single layer or a composite built of many layers. We report relationships between layer thickness and solution concentration and viscosity for 280 kg/mol and 1800 kg/mol PS that allow for a general recipe for use on freestanding nanostructures of varying dimensions and packing densities. [C2753]

"Vapor and Solution Deposited Organic Thin Film Transistors"

For practical device and system use, OTFTs must demonstrate the uniformity, reproducibility, reliability, and integration with other devices, needed for real applications. As a candidate application we have considered the integration of vapor-deposited OTFTs with organic light emitting diodes (OLEDs) and have fabricated small test displays that allow us to investigate device characteristics and passivation and isolation requirements for integrating these organic devices [C2754]

"3D Modelling of Enhanced Surface Emission using Surface Roughening"

A 3D FDTD modelling is used to study the effect of surface roughening on the vertical emission of a point source emitting at lambda0=0.94 mum embedded in GaAs with a mirror behind the dipole. Enhancement of emission is seen at lambda0=1.95 mum for a rough-surface device with a perfect metal mirror placed 150 nm below the source [C2755]

"Numerical Investigation of a 2D-Grating for Light Extraction of a Bottom Emitting OLED"

An important limiting factor for efficient white light emitting organic LEDs is the total internal reflection occurring at each interface. In a bottom emitting OLED light is trapped by reflection at the interface between the organic layers and glass substrate and at the interface between the glass substrate and air. We investigate the use of a grating at the glass substrate-air interface. In this paper we will discuss the developed 3D-simulation method and several important simulation results. Our simulation method shows that the grating extracts approximately 50% more power in comparison with a planar device. These results are comparable with the use of micro lenses [C2756]

"Adaptive Estimation of Device Parameters for Pixel Calibration in Large Area Display Systems"

Implementation of an adaptive pixel calibration technique for high performance amorphous silicon (a-Si:H) thin film transistor (TFT) based organic light emitting diode (OLED) displays has been presented. We use the projection algorithm to estimate the device parameters, and thereby the pixel transconductance, with the help of a sample pixel representation of the display array [C2757]

"Low-Cost Stable a-Si:H AMOLED Display for Portable Applications"

A large sector of display market comprises portable devices including cell phones, personal organizers, PDAs, portable electronic games, etc. Important design considerations for displays employed in these applications are power consumption and cost. Hydrogenated Amorphous silicon (a-Si:H) active matrix organic light emitting diode (AMOLED) displays are promising technology for these applications. However, the a-Si:H AMOLED backplane suffers from the temporal instability. Although, several stable driving schemes have been proposed, they suffer from high implementation cost due to extra driving circuitry and high power consumption due to additional operating cycles. This paper presents a new driving scheme that provides a stable AMOLED display despite the aging effects in the a-Si:H thin film transistors and OLED, without increasing the driving complexity [C2758]

"Printed Electronics for System Application"

Printed electronics are of highly interested in recently years for its flexible and low cost. Extensive results on the transistor, light-emitting diode, memory and diode were reported. However, rare works on the integration of those components into an electronic system and the architecture for the system are discussed. In this article, we discussed the design and performance of transistor, memory and diode based on the integrated process consideration and the system architecture for a printed RFID [C2759]

"Recent Developments in WDM-PON Technology"

Considerable research is being conducted to exploit the potential of novel WDM-PONs exhibiting individual, data and protocol agnostic virtual point-to-point (p2p) links for each ONU. The research focuses on the deployment of uniform building blocks throughout the entire access network and on upgrading the channel data rate efficiently towards 10 Gb/s. This contribution gives an overview of basic principles of WDM-PONs, discusses merits and drawbacks of related approaches and highlights important requirements for key components such as injection-locked Fabry-Perot lasers, (R)SOAs, SLEDs and athermal AWGs [C2760]

"Organic Photovoltaic Devices with Nanometer Scale Thickness by Molecular Beam Deposition"

Organic photovoltaic (PV) devices have been fabricated with nanoscale active device stack thicknesses (<100 nm) by organic molecular beam deposition for solar cell applications. The PV device is an Alq3based structures with NPB for hole transport and electron blocking. In reverse bias, a photocurrent as much as 10Ч greater than

the dark current is obtained. In forward bias, a fill factor of 18% is obtained [C2761]

"Fabrication of OTFT Array on Plastic Substrate by using Nanocontact Printing and Low Temperature Process"

The flexible organic thin film transistor (OTFT) array to use as a switching device for an organic light emitting diode (OLED) was designed and fabricated in the microcontact printing and low-temperature processes. The gate, source, and drain electrode patterns of OTFT were fabricated by nanocontact printing which is high-resolution lithography technology using polydimethylsiloxane(PDMS) stamp. The OTFT array with dielectric layer and organic active semiconductor layers formed at room temperature or at a temperature lower than 40°C. The nanocontact printing process using SAM and PDMS stamp made it possible to fabricate OTFT arrays with channel lengths down to even nano size, and reduced the procedure by 10 steps compared with photolithography. Since the process was done in low temperature, there was no pattern transformation and bending problem appeared. Also, it was possible to increase close packing of molecules by SAM, to improve electric field mobility, to decrease contact resistance, and to reduce threshold voltage by using a big dielectric and fabricate nanopatterns. [C2762]

"Band-Alignment of ZnSe/ZnSSe Based Layer Structures for Light Emitting Devices, Determination by Photocurrent Measurements"

ZnSe-GaAs heterostructures are heterovalent semiconductor heterostructures which are almost lattice-matched, and appear in most recently demonstrated blue and blue-green lasers. The large valence band offset present in this heterojunction also hinders holes injection from the III-V substrate into the II-VI active layer. Using photocurrent (PC) measurements we have investigated Schottky contacts formed on p-isotype ZnSe/GaAs, ZnSSe/ZnSe/GaAs, ZnSe/ZnSSe/GaAs heterostructures and MESA quantum well light emitting diodes (LED's) grown by MBE on p-GaAs (100) substrates. Some of the threshold energies obtained by photocurrent on different samples are explained in terms of absorption phenomena. These absorption processes have been used to give the values of the conduction and valence band offsets. Our experimental data gives DeltaEv (ZnSe/GaAs)ap(0.95 plusmn 0.05) eV and DeltaE v(ZnSe/ZnSSe)ap(0.137 plusmn 0.003) eV, DeltaEv(ZnSSe/GaAs)ap(1.12 plusmn 0.06) eV, and DeltaEv(ZnSSe/CdZnSe)ap(0.194 plusmn 0.006) eV. Numerical calculations by solving the Schrodinger equation in the effective mass approximation, give that the peak at 2.4 eV, 2.53 eV and 2.61 eV are assigned to transition hhirarren. The totality of these results is in agreement with published data. A models based on band alignment is proposed explain different experimental peaks observed in the PC spectra [C2763]

"Telecom-Wavelength Single-Photon Sources from Quantum Dots in Microcavities"

We have developed solid-state single-photon sources based on single InAs quantum dots emitting at 1300 nm. We report antibunching experiment and electroluminescence measurements, showing that our system can be used as an efficient single photon source under optical and electrical pumping [C2764]

"All-Optical Signal Regeneration and Optical Buffering Using Polarization Bistable VCSELs"

Recent progress in applications of polarization bistable VCSELs for all-optical signal processing such as signal regeneration and optical buffering are presented [C2765]

"Evolvable Hardware Applied to Nanotechnology"

This manuscript proposes the automatic design and synthesis of nanometer circuits and the optimization of molecular devices by the evolvable hardware technique. The potential of evolvable hardware is investigated by means of three different applications: synthesis of molecular electronic circuits, synthesis and optimization of quantum-dot cellular automata (QCA) and the optimization of OLED (organic light-emitting diodes) parameters. The molecular electronic circuit synthesis is developed using the molecular transistor simulated in SPICE. QCA is a new paradigm used in the development of digital logical circuits, not using the flow of current. This new paradigm allows the development of a new generation of computers, faster and with smaller energy dissipation. Finally, the optimization of OLED parameters is developed using the electrical behavior model of a multi-layer device. In this model, each sub-layer in the emissive layer has a ratio of ETM (electron transport material) and a ratio of HTM (hole transport material). The first results show that the technique is able to synthesize and optimize circuits that perform the logic specified by the user, avoiding noise and other problems that could lead to malfunction. Moreover, the EHW technique is able to optimize the parameters of an organic device, such as OLED [C2766]

"Automatic Alignment of Multiple Optical Components Using Genetic Algorithm"

We propose and demonstrate a method of automatic alignment for multiple optical components using a genetic algorithm. The connection between two optical components requires extremely precise alignment in the order of sub-micron-meters. It, therefore, typically takes an experienced technician around 30 to 60 minutes to manually align optical components. Although automatic fiber alignment systems are being developed, they are not practical for use when the degrees of freedom in the alignment of multiple optical components are large. To overcome this difficulty, we have devised a method of automatic alignment for multiple optical components using a genetic algorithm. In a conducted experiment, we successfully connected three optical components within a short span of time (3 minutes) through simultaneous alignment [C2767]

"10 Gb/s WDM-PON upstream transmission using injection-locked Fabry-Perot laser diodes"

We demonstrate, for the first time, a 10 Gb/s upstream transmission using Fabry-Perot laser diodes (FP-LD) remotely injection-locked by coherent feed light from the central office. Experimental results show that transmission over a 10-km single mode feeder fiber incurs power penalty of 1.1 dB and up to 16 cavity modes of the FP-LD can be injection-locked. [C2768]

"Synchronous Image Acquisition based on Network Synchronization"

In this paper, a software-based system for the real-time synchronization of images captured by a low-cost camera framework is presented. It is most well suited for cases where special hardware cannot be utilized (e.g. remote or wireless applications) and when cost efficiency is critical. The proposed method utilizes messages to establish a consensus on the time of image acquisition and NTP synchronization of computer clocks. It also provides with an error signal, in case of failure of the synchronization. The evaluation of the proposed algorithm using a precise LED array system (1ms accuracy) proves the effectiveness of this method. [C2769]

"Reading LCD/LED Displays with a Camera Cell Phone"

Being able to read LCD/LED displays would be a very important step towards greater independence for persons who are blind or have low vision. A fast graphical model based algorithm is proposed for reading 7-segment digits in LCD/LED displays. The algorithm is implemented for Symbian camera cell phones in Symbian C++. The software reads one display in about 2 seconds by a push of a button on the cell phone (Nokia 6681, 220 MHz ARM CPU). [C2770]

"Trophallaxis among swarm-robots: A biologically inspired strategy for swarm robotics"

This article presents a bio-inspired communication strategy for large-scale robot swarms. The strategy is based on robot-to-robot interactions without any central communication unit. Thus, the emerging swarm regulates itself in a purely self-organized way. The strategy is biologically inspired by the trophallactic behavior performed by social insects. The experiments shown in this article are performed with a simulation environment that was developed to model the properties of a specific type of swarm robot. We investigated the suggested communication strategy in several arena scenarios and studied the properties of some emergent collective decisions made by the robots [C2771]

"Multi-domain simulation and measurement of power LED-s and power LED assemblies"

Besides their electrical properties the optical parameters of LEDs also depend on junction temperature. For this reason thermal characterization and thermal management plays important role in case of power LEDs, necessitating tools both for physical measurements and simulation. The focus of this paper is a combined electrical, thermal and optical characterization of such devices. In terms of simulation a novel approach of board-level electro-thermal simulation is presented whereas in terms of measurement, a combined thermal and radiometric characterization method is discussed [C2772]

"Thermal resistance measurement of LEDswith multi-chip packages"

Thermal transient measurements of high power GaN-based LEDs with multi-chip designs are presented and discussed in the paper. Once transient cooling curve was obtained, the structure function theory was applied to determine the thermal resistance of packages. The total thermal resistance from junction to ambient considering optical power is 19.87 K/W, 10.78 K/W, 6.77 K/W for the one-chip, two-chip and four-chip packages, respectively. The contribution of each component to the total thermal resistance of the package can be determined from the cumulative structure function and differential structure function. The total thermal resistance of multi-chip packages is found to decrease with the number of chips due to parallel heat dissipation. Moreover, an important thermal design rule for high power multi-chip LEDs is analogized from the experiments. With the

number of chips increasing, the thermal resistance can be decreased, but the impact will be different with the ratio of partial thermal resistance [C2773]

"Thermal management of an led light engine for airborne applications"

Rockwell Collins has recently developed a light engine, which uses four light emitting diodes (LEDs) as the light source, for a cockpit display system. Under worst case operating conditions, the local heat flux from these LEDs can be more than 1000 W/cm2. This paper describes the thermal management approach for the light engine and presents the results of finite element modeling. This modeling was used to assess various design aspects of the light engine to understand their effects on the overall thermal resistance. Thermal testing of a set of light engines was eventually found to be quite comparable to the modeling results, although a discrepancy between testing and modeling results did help to identify a manufacturing defect that occurred in some early prototype devices, which significantly increased their thermal resistance [C2774]

"Impact of Vergence Adaptative Process of Progressive Len Acceptability"

Presbyopia, a degenerative condition, which decreases accommodation, sets in approximately at the age of forty. One approach to correct presbyopia is the use of bifocal or progressive lenses. Naturally, some people are more prone to adapt to wearing progressive lenses than others. The vergence system, which controls the inward and outward turning of the eyes, is a system which supports viewing in depth. Identifying the two components (transient and sustained components) of a pure vergence eye movement is possible with ICA (Independent Component Analysis). Preliminary results suggest a correlation with the magnitude of the transient component and whether or not a person can adapt to wearing progressive lenses or not. Furthermore, the transient component of vergence is hypothesized to be an index of how flexible the vergence system is in adapting to new environments. [C2775]

"Teaching near field coupling with PCB layout"

A novel EMC laboratory experiment to illustrate the effects of near field coupling is presented. Using two separate printed circuit boards (PCB), one being the emitter PCB with a digital oscillator circuit driving current in a loop, and the other being a receptor PCB having passive loop of identical size. An LED on board the receptor PCB gives visual feedback on the intensity of the coupling. The experiment helps to illustrates the effect of implementing several design rules. The effects are analysed using equivalent circuits to explain coupling. Lessons learnt from this experiment can be readily applicable to multi-layer PCB design [C2776]

"Vertical and Horizontal Parallel Mounting of Micro Components on a Substrate with High Surface Coverage"

We demonstrate a novel parallel micro assembly process based on both shape recognition and capillary-driven self-assembly in an air environment. Mechanically diced silicon parts with dimensions of 790 μ m Ч 790 μ m Ч 330 μ m are used for proof-of-concept demonstrations. Each part has only one hydrophobic 790 μ m Ч 790 μ m face and its other faces are hydrophilic. On a vibrating plate, tumbling parts are captured by cavities having an opening clearance that only admits a single part standing vertically with a 790 μ m Ч 330 μ m footprint. The trapped parts are then transferred to a substrate having an array of receptor sites covered with water droplets. Initially the parts are vertically attached, but capillary forces from water condensate turn them to face the substrate with their 790 μ m Ч 790 μ m hydrophilic faces. This process assembles micro parts to densely packed 1000 receptor sites in about 2 minutes with a defect rate ~ 1%. A single batch assembly process achieves 31% surface coverage, and a 2ndbatch doubles the ratio to 62%. [C2777]

"Using Stationary-Dynamic Camera Assemblies for Wide-area Video Surveillance and Selective Attention"

In this paper, we present a prototype video surveillance system that uses stationary-dynamic (or master-slave) camera assemblies to achieve wide-area surveillance and selective focus-of-attention. We address two critical issues in deploying such camera assemblies in real-world applications: off-line camera calibration and on-line selective focus-ofattention. Our contributions over existing techniques are twofold: (1) in terms of camera calibration, our technique calibrates all degrees-of-freedom (DOFs) of both stationary and dynamic cameras, using a closed-form solution that is both efficient and accurate, and (2) in terms of selective focus-of-attention, our technique correctly handles dynamic changes in the scene and varying object depths. This is a significant improvement over existing techniques that use an expensive and non-adaptable table-look-up process. [C2778]

"The Application of Image Recognition into the Automatic Recognition System for Truck Cab

Assembly Identifier"

The recognition of truck cab assembly identifier is an important working procedure in the completed car assembling. Many different truck models are assembled in the completed car assembling. It is necessary to recognize the type of truck cab assembly before assembly. An auto-inspection system for truck cab assembly identifier based on computer vision technology has been developed. The identifier image is got by CCD camera by using of LED lights. In order to suit production rhythm of assembly line, SSDA (sequential similarity detection algorithm), quick edge threshold arithmetic and direction statistic eigenvector algorithm have been adopted to obtain the characters of picked image. Thinking of less identifier types and less varieties, direct segmentation of character is realized by using vertical and horizontal projection. A standard template can be built, considering that the character congregation is small. Minimum distance recognition has been applied to identify characters. It has proved that the system based on VC++ and Matlab can recognize all kinds of truck cab assembly identifier efficiently in the condition of ensuring production rhythm [C2779]

"IPv6 Led Changes of the Broadband Access Architectures"

The next generation of IP and the broadband networks are very well matched to support and stimulate each other's growth. Of all IP infrastructures deployed today, broadband networks are the first to experience the constraints of both private and global IPv4 address space. These challenges make IPv6 an immediate necessity. At the same time, IPv6 offers features and functionalities that can improve current broadband services and stimulate the deployment of new ones. IPv6 leads to innovative, less constrained service architectures that have new, distinctive features. The changes and features driven by IPv6 are reviewed in this paper structured in two parts. The first part reviews the drivers for the IPv6 adoption in broadband networks. The second analyses the IPv6 impact on network and service architectures for access providers identifying the areas requiring further investigation [C2780]

"Future Trend of Flat Panel Displays and Comparison of its Driving Methods"

This paper reviews principles and driving methods for various type of flat panel displays (FPDs), such as liquid crystal displays (LCDs), organic light emitting displays (OLEDs) and plasma display panels (PDPs). For long time, Cathode ray tubes (CRTs) including CRT projection displays were the only device capable of exhibiting moving picture images applicable to TV receivers. To improve bulky and heavy structure of CRT, FPDs have been developed and are now available in the market. LCDs created various applications of displays, because of its size variation and high-resolution capability. It is essential to understand the operational principle of the display in order to meet the needs. The need of high image quality is increasing and the demand of portability is also increasing as visual information is provided in various media other than TV broadcasting. It is important to optimize the display specifications according to its application. There is a trend of adding new value to the display such as integrating input function and flexibility. The review also includes newly introduced surface conduction electron emitter displays (SEDs). Furthermore, this paper introduces aspects of future displays and trends in terms of specifications [C2781]

"Hardware and software design of an automated testing tool for traffic controllers"

Traffic engineers and technicians are faced with the challenge of testing traffic controllers to ensure that they comply with the state requirements prior to deployment. Currently the test is being done manually using manual "suitcase testers". These manual based tests can be tedious and time consuming and come with many limitations such as the inability to document the results and hard to replicate field cases. This paper introduces development of an automated test tool and a new script language (CIDScript) for testing traffic signal controller functionality. The automation test tool can be used to replace or supplement manual testing [C2782]

"A Current Driver IC using a S/H for QVGA FullColor Active-Matrix Organic LED Mobile Displays"

A current driver with 720 outputs for active-matrix organic LEDs uses a current-copier scheme to produce 64 gray levels with maximum 2% error from 10nA to 10uA on a 19.2 times 17.8mm2die [C2783]

"Display Drivers"

{no data available} [C2784]

"Measuring In-Thickness Mechanical Properties of Sub Micron Polymer Dielectric Films"

The ongoing miniaturization of microelectronics has led to low-K polymer dielectric films with a thickness of several tens of nanometers. These thin polymer films generally show time dependent material properties, that are different in lateral directions and in-thickness direction. Most techniques available for measuring the mechanical

properties of thin films are only capable of obtaining the in-plane modulus. To have an in-situ measurement of the in-thickness viscoelastic modulus, a parallel plate capacitor under hydrostatic pressure is used. An interdigitated electrode is used to capture the change in dielectric constant under pressure. As a first estimation, a BCB (benzocyclobutene) film was used. The in-thickness elastic modulus and change in permittivity for a 1.3 mum thick BCB (Cyclotenetrade 4022) film sandwiched between two alumina electrodes on a silicon wafer are reported to be 4.76plusmn0.42, 3.81plusmn0.26 and 3.16plusmn0.15 GPa for 20deg;, 50 deg; and 70deg; C respectively [C2785]

"Thermal Management of Bright LEDs for Automotive Applications"

High brightness white light emitting diodes (LEDs) have shown to be very promising for many illumination applications such as outdoor illumination, task and decorative lighting as well as aircraft and automobile illumination, including automotive headlights. The objective of this paper is to investigate the cooling solutions of such LEDs in automotive applications. In this research, a thermal design from device to board to system level has been carried out, and optimisation work has been done to find the optimum thermal performance. Both natural and forced convection have been explored and conclusions are drawn for each case in this specific application [C2786]

"A system for converting robot 'emotion' into facial expressions"

This paper presents a method that enable a domestic robot to show emotions with its facial expressions. The previous methods using built-in facial expressions were able to show only scanty face. To express faces showing various emotion, (e.g. mixed emotions and different strengths of emotions) more facial expressions are needed. We have therefore developed a system that converts emotions into robot's facial expressions automatically. They are created from emotion parameters, which represent its emotions. We show that the system can generate facial expressions reasonably [C2787]

"Processing Near Infrared Spectroscopy Signals Using Canonical Correlation Analysis"

Functional near infrared spectroscopy signals (fNIRS) are measured by a number of LED-detector pairs. Estimation of event related responses from these signals needs multivariate analysis methods. This study concentrates on a particular multivariate method, namely the canonical correlation analysis and investigates its use for eliminating trend and noise effects from fNIRS signals and estimating event related haemodynamic response. Proposed methods are applied to real cognitive data for validation [C2788]

"New full-colour LED based screen"

A new electronic design for LED based screens is presented focusing on three main objectives: to increase the accuracy on the stimulation applied to each LED diode and the screen resolution, and to reduce power consumption. This was achieved implementing a new parallel and distributed architecture that allows a continuous and non-scanning control of each LED. A three level architecture separates the process of video generation, image loading and image displaying. The video generator is a PC multimedia system. Image load is distributed by DSP processors in scalable sections of screen, and the image display is performed by distributed CPLD based processors responding to the behavior of what is written on the CPLDs is what is being displayed. This is because this final level of the architecture is seen by the DSPs as a distributed write-only memory [C2789]

"Thermal performance of cooling system for red, green and blue LED light source for rear projection TV"

Due to the various advantages on illumination, high-power light emitting diode (LED) system has been focused recently. Because the light source that consists of red, green and blue LEDs can provide full high definition color gamut with advantage of longer lifetime, LED light source starts to be applied in digital display system. However, much heat is dissipated from LED and operating temperature severely influences the characteristics of LEDs including dominant luminosity wavelength, luminosity and lifetime. Therefore careful thermal management is crucial to ensure accurate image quality of display device as well as guaranteed lifetime. The present study is conducted to investigate the performance of thermal management system for LED light source in rear projection TV. The result shows that the reducing thermal resistance between LEDs and substrate is the most effective way to dissipate heat and the applicable limit of thermal resistance is existed for various heat-dissipating conditions of LEDs. And it is also suggested that the efficacy of heat transport system from LED to ambient applied in red, green and blue LED light system to ensure the product quality [C2790]

"Enhanced light emission from dye doped polymer layers using surface plasmons"

We have experimentally verified that the emission of visible light from dye doped polymers can be enhanced with the use of surface plasmon coupling. We have observed an eleven-fold enhancement of light emission. [C2791]

"Optical design and simulation for dual-wavelength LEDs in solid state lighting"

Comprehensive optical model for dual wavelength LEDs is developed using optical ray tracing programs. Optical property for InGaN and AlGaN and tunnel junctions is included, and Device structure is optimized based on light extraction efficiency. [C2792]

"Highly efficient multilayer organic pure-blue-light emitting diodes with substituted carbazoles compounds in the emitting layer"

Bright-blue organic-light-emitting-diodes based on carbazolic-compounds as emitting layers or dopant in DPVBi matrix are described. Pure-blue light with CIE coordinates xy = (0.158;0.169) and external quantum efficiency as high as etaext= 3.3% were obtained. [C2793]

"Gallium nitride-organic semiconductor heterojunctions for optoelectronic devices"

We report on study of GaN/InGaN-organic semiconductor heterostructures where electronic transport in planar junction structures shows electron or/and hole injection across the interfaces resulting e.g. light emission from the nitride quantum wells. [C2794]

"Color tunability (including white) in OLEDs by shifting the position of an ultrathin yellow layer in a blue matrix"

We present a multilayer organic-light-emitting-diode design which allows total control of the emitted color (including white emission) through the accurate modification of a yellow ultrathin emitter position and thickness in a blue matrix. [C2795]

"High brightness AlGaInP-based LEDs with the stripe patterned omni-directional reflector"

An n-side-up AlGaInP-based LED with a stripe-patterned omni-directional reflector (ODR) was fabricated by adopting the adhesive-layer bonding scheme. The mechanism of the enhancement of light extraction is discussed in this report. [C2796]

"Growth of p-type ZnO and its application to ZnO LEDs"

A UV ZnO light-emitting diode was realized by using a ZnO p-n homojunction. The ZnO LED showed clear rectification with a threshold voltage of 3.2 V and a UV light emission at 380 nm. [C2797]

"Surface plasmon mediated emission from resonant-cavity LEDs"

We describe a new method to extract light trapped inside a resonant-cavity LED using surface plasmon modes. The light extraction is obtained by depositing a thin layer of Gold with a subsequent overcoating with a polymer material. [C2798]

"Fabricating GaN-based LEDs with V-shape sapphire facet mirror by double transferred scheme"

GaN-based LEDs with V-shape sapphire facet reflectors were fabricated using a double transferred scheme. It is demonstrated the {1-102} R-plane V-shape facet reflector with high slope of 57deg has the superior efficiency for light extraction. [C2799]

"Phosphor-free all-semiconductor white-light light-emitting devices"

Phosphor-free all-semiconductor white-light devices are fabricated by coating CdSe/ZnS nano-crystals on blue/green two-wavelength LEDs for converting blue photons into red light. The LEDs are implemented by stacking two different types of InGan/GaN quantum wells. [C2800]

"Broadband quantum cascade lasers and superluminescent diodes"

We report broadband quantum cascade lasers emitting over a range of 6 to 8 mum at 77 K and having Jth=4.6 kA/cm2at 300 K. Superluminescent diodes utilizing the same design will also be described. [C2801]

"Vehicle Plate Recognition for Wireless Traffic Control and Law Enforcement System"

We present here novel image processing algorithms used to identify the license plate number of vehicles. The approach taken here was developed specifically for a wireless traffic control and law enforcement system. The particular requirements involved led to a different approach than traditionally taken in vehicle plate recognition. [C2802]

"Reduction of Turn-On Voltage in a Single Layer Structured Organic Light-Emitting Diode using Nanocomposites SiO2:PHF"

Polymer light-emitting diode with ITO/PHF/Al structure has been fabricated, where PHF is poly (4,4'-diphenylene diphenylvinylene). The original device has turn-on voltage at 18.0 V. A reduction of turn-on voltage of this device is achieved by using the nanocomposites layer consisting of PHF and SiO2nanoparticles as an emitting layer in a single structured ITO/nanocomposite/Al polymer light emitting diode. The SiO2: PHF was prepared by mixing 1.0 ml of PHF with 0.05 ml of SiO2colloidal solution. It was found that the spin-coated nanocomposites has reduced the OLED turn-on voltage to 9.0 V. [C2803]

"An optoelectronic platform for retinal prosthesis"

This paper describes the implementation of a prototype platform designed for the experimentation in the development of a non-invasive retinal prosthesis. The platform presented here is highly programmable and reconfigurable as required for experimentation. It provides retinomorphic encoding and optoelectronic stimulation. The purpose of the project is to develop, in the near future, an optoelectronic retinal prosthetic device. [C2804]

"A Full-Color QVGA Microdisplay using Light-Emitting-Polymer on CMOS"

We present an emissive Light-Emitting-Polymer (LEP) on CMOS microdisplay technology, highlighting the benefits of this technology compared to competing microdisplay technologies. We go on to discuss the drive schemes that are commonly exploited to drive such displays and speculate on the drive schemes that may be used in the future. We also present a case for voltage-source drive of LEP diode devices which challenges the conventional wisdom that current-source drive should be exclusively used. [C2805]

"The Effect of Annealing on the Performances of the White Organic Light Emitting Diode (OLED)"

A white organic light emitting diode, OLED is one of the approaches to obtained full colour flat screen display. OLED devices with the structure of ITO/PHF:rubrene/Al have been fabricated where poly(9,9-di-n-hexylfluorenyl-2,7-dyl), PHF used as blue light emitting host and 5,6,11,12-tetraphenyl-napthacene, rubrene as an orange dye dopant. Indium tin oxide, ITO used as anode and aluminium, Al as cathode. The white OLED obtained by varying the concentration of rubrene. The problem occurred by using a dopant is, the turn-on voltage is increased with the dopant concentration. This paper reports the effect of annealing process to the devices at 50degC to 150degC. It was found that the annealing process has reduced the turn-on voltages and increased the brightness. Meanwhile, the colour of light emission was deviated from white to yellowish white. [C2806]

"Organic Light Emitting Diode (OLED) Using Different Hole Transport and Injecting Layers"

This paper reports the various structures and performances improvements using different hole transporting layer in OLED based on DPVBi as emitter. Here the indium tin oxide (ITO) used as an anode, copper pthalocyanine (CuPc) as the hole injecting layer, PEDOT:PSS and poly-9- vinylcarbozole (PVK) as hole transporting layer, 4,4'-bis(2,2'diphenilvinyl)-1,1' -biphenyl (DPVBi) as the blue emitting layer and aluminum (Al) as the cathode. The CuPc and DPVBi were prepared by thermal evaporation while the PEDOT:PSS and PVK films were prepared using spin coating technique. The effect of inserting additional layer of CuPc, PVK and PEDOT:PSS between anode and the emitting layers was analyzed through the current-voltage (IV) curves and the electroluminescence spectra. The additional layer structure was found to increase the maximum luminance compared to that one of single layer device. The used of PVK as hole transporting layer has improved the diode properties of the device and able to prevent the device from short circuits. The optimized DPVBi layer thickness was observed at 56 nm and the insertion of 10 nm CuPc hole injecting layer show the device reduce it turn on voltage from 7.0 V to 6.5 V. [C2807]

"Degradation of Single Layer MEH-PPV Organic Light Emitting Diode (OLED)"

The degradation process of a single layer electroluminescence (EL) polymer MEH-PPV organic light emitting diode (OLED) with the MEH-PPV thickness of 57plusmn3 nm is discussed. Typical structure of OLED fabrication is Al/MEH-PPV/ITO (indium tin oxide). Electroluminescence (EL) spectrum indicates that the emission of MEH-

PPV device is the yellow orange color. The device degrades by days as demonstrated by the increased in the turn on voltage obtained from I/V curves. The scanning electron microscope (SEM) images show some bubbles emerge on the surface of the device after an electric field was applied to it. [C2808]

"Stress-strain hysteresis cycle measured by a differential self-mixing interferometer"

An instrument for non-contact measurement of differential displacements is realized based on two self-mixing laser diode interferometers. Stress-strain hysteresis cycles in micro- and gross-slip regimes of two metal samples kept into contact are measured. [C2809]

"ZnO nanowire-based Schottky-barrier-type UV light-emitting diodes"

Electrically driven UV light-emitting device based on ZnO nanowires was prepared by forming Schottky barrier between the nanowires and Au electrode. The emission is noticeable at RT and the wavelength maximum is around 385 nm. [C2810]

"Innovations in light-emitting diodes"

This tutorial talk gives an overview of recent advances as well as future challenges in light-emitting diode technology for solid-state lighting applications. The discussion will include advanced nano-materials, packaging, and solid-state lighting systems. [C2811]

"A New Active Pixel Design using µc-Si TFT Technology to Improve Brightness Uniformity of Organic Displays"

In this paper, we propose and fabricate a new active pixel circuit design integrated on active-matrix organic light-emitting diode (AMOLED) display. Moreover, we have developed a thin film transistor (TFT) based on microcrystalline silicon (µc-Si) active layer for a more efficient process and a better uniformity of driving transistor characteristics. The experimental results show that the emission current uniformity is improved in contrast to the conventional 2-TFT pixel circuit. Thus the proposed averaging driver successfully improves the inter-pixel uniformity. [C2812]

"Design, fabrication, and operating characteristics of broadband quantum dot superluminescent diodes"

We discuss methods to broaden the emission spectra of quantum dot superluminescent diodes. Such devices exhibit 85 nm wide; almost flat emission spectrum while operated CW at room temperature with output powers of 2.5 mW. [C2813]

"Two-dimensional porous silicon photonic crystal light emitters"

We present design and fabrication of two-dimensional photonic crystal cavities made in nanoporous silicon luminescent at 700-800 nm. Enhancement in photoluminescence extraction efficiency at the resonant wavelength is expected due to Purcell effect. [C2814]

"Visible electroluminescence from size-controlled silicon quantum dots"

We studied visible EL from size-controlled silicon quantum dots with diameter of 8 nmplusmn1 nm fabricated by VHF plasma decomposition process. We observed EL from nc-Si quantum dots with applied voltage above 12 V. [C2815]

"An Inexpensive Imbedded Motor Controller Using a Tachometer Feedback"

This paper describes a DC motor drive using a pulse width modulated (PWM) signal and tachometer feedback. The PWM and analog-to-digital capabilities of a microcontroller are used to realize a very inexpensive and efficient controller. The design of the entire system, as well as PCB layout are explored. Manufacturing considerations for the entire system are also presented. [C2816]

"Modulation-speed enhancement of a GaN based green light-emitting-diode (LED) by use of n-type barrier doping for plastic optical fiber (POF) communication"

We demonstrate a high-speed green GaN light-emitting-diode for plastic optical fiber communication. By use of n-type doping in barrier layers, superior performance of modulation-speed and output-power to undoped control

has been observed. [C2817]

"Bump Thermal Management Analysis of LED with Flipchip Package"

LED solid state lighting (SSL) has a good prospects, but there are some bottlenecks, the one is that efficiency of light emitting is not enough for general lighting, the other is too much heat generated by higher power which affect the efficiency and life of LED. Flipchip's applying is good for improvement of efficiency of light emitting of LED and especially for thermal management. The effect of the layout and the number of bumps of LED flipchip to thermal management of LED light was analyzed by using FEM simulation. The results show that better effect of thermal management can get after optimizing layout of bumps, and also show that the more bump number used the better thermal management can get, but there is a best optimal number as there are some other limiting factors such as structure and cost [C2818]

"Pedestrian and vehicular traffic friendly uninterrupted solar powered traffic signal light system"

During power failures and power cuts road users suffer immense difficulties due to non-availability of traffic signal lights all over the world. Use of solar cells with lead acid accumulators to provide required power and the use of light emitting diode (LED) displays to function as signal lamps to reduce the stored power consumption will be a feasible solution for the same. Since the LED display consists of a number of LEDs, visibility from side ways is better than the conventional signal lamp having a single light source. Failure of the lamp in the conventional signals halts the entire operation of the signal lamp but in the case of failures of few LEDs in a matrix will not cease the entire operation. In most of the LED display traffic light systems, set of LEDs will not illuminate even when only one of the LEDs burnt out since the set is connected in series. In this design, parallel sets of LEDs are connected in series, and therefore, only the defective LEDs will not be illuminated but all the others will be illuminated. Some major advantages of this system are uninterrupted operation around the clock throughout the year, very low maintenance cost for replacing LEDs and the lead acid batteries, and during the installation of new signal posts it is possible to erect the same as a wireless installation. Solar panel with an accumulator can provide power while infrared sensors and diodes could be used to transfer signals between each signal post, hence it is not necessary to dig across the road for control and power cables. For the safety and the convenience of the pedestrians and vehicular traffic, bi-color seven segment digital displays are available to indicate the waiting time and remaining moving time. Considering the signal light requirement for a country, the above solution will have a considerable impact on the national power grid [C2819]

"Electroluminescence refrigeration in semiconductors"

An InGaAs light emitting diode monolithically integrated with a suspended lens is proposed as a prototype semiconductor electroluminescence refrigeration device. Simulations predict that a temperature drop up to 6degC is achievable in this device. [C2820]

"Fabricated the inclined-undercut structure in high efficiency InGaN-based light emitting diodes"

The high efficiency InGaN-based light emitting diodes with an inclined-undercut mesa structures are fabricated through photoelectrochemical selective oxidation process at p-n interface and following crystallographic wet etching in molten KOH solution. [C2821]

"Thermal Analysis of High Power LED Array Packaging with Microchannel Cooler"

The efficiency and reliability of solid-state lighting devices strongly depend on successful thermal management. High-brightness light emitting diodes (LEDs), as a strong candidate for the next generation general illumination applications, were developed by improving luminous efficiency and integrating multi-chips within limited areas. One of key problems is cooling in developing high power LED for illumination. This paper explores the thermal analysis of high power LED array packaging with a microchannel cooler, which is a relatively new cooling technology. The packaging structure of a high power LED array integrated with a microchannel cooler is discussed. Detailed thermal performance is analyzed using the FEA (finite element analysis) technology. The effects are discussed on the cooling of a multi-chip LED module with different internal fin geometries of module, flow velocity and its total power. Simulation results, in the form of average die temperature, show that the microchannel cooler reduces the average die temperature, and improves the heat dissipation capability of LED array. However, the results also demonstrates that, without proper design the junction temperature of the module is non-uniform across the LED array, and the downstream or central chips were hotter than the upstream or edge chips. This may accelerate thermal runaway problems and reduce the reliability of the LED arrays device. The cooling scheme is optimized by using staggered fins in our microchannel cooler to increase the heat transfer coefficient of the multi-chip LED packaging module. The result shows that the packaging structure of the microchannel cooler with staggered fins achieves good thermal performance for high power LED arrays [C2822]

"Illumination System Modeling Techniques in Wire Bonding Pattern Recognition System"

A method has been proposed to model the illumination characteristics of a typical wire bonder vision system. The proposed model can be used to calibrate the illumination of the vision system to ensure the same level of illumination brightness across different machines, given the same lighting level setting. The approach to extract the machine illumination model is semi-empirical and the model provides a closed-form solution [C2823]

"The Design and Fabrication of Microlens and LED Integrated Packaging"

Conventional LED packaging structures do not take into account the output light properties very well. Based on microelectromechanical system (MEMS) technology, a method of microlens and LED integrated packaging is presented, which can enormously enhance output optical extraction efficiency, and improve the output optical performance. It is easy to realize mass production by the method [C2824]

"A Closed Micro Jet Cooling System for High Power LEDs"

In this paper, a micro jet based cooling system for the thermal management of high power LEDs is briefly introduced. Our experiments have demonstrated that the optimization on micro jet device is strongly needed for improving the system performance. To realize the above attempt, numerical optimization on micro jet device is conducted in details in this paper. The comparison between simulation and experiment results is presented and the results demonstrate that the present simulation model can work well. By using the above model, the effects of micro jet diameter, top cavity height, micro pump flow rate and jet device material on system performance are numerically studied. The simulation results show that top cavity height does not have very significant effect on improving cooling performance, however, increasing top cavity markedly result in the increase of flow resistance. The micro jet diameter has strong effect on cooling performance of the present micro jet device, as to present design, an optimized diameter exists for achieving best cooling performance. Increasing pump flow rate makes a sharp increase of the flow resistance. The material of device shell with high thermal conductivity can ameliorate the cooling performance, but the function is limited. According to our preliminary tests and numerical optimization, an optimized micro jet cooling system is fabricated and applied in thermal management of a 220W LED lamp. The temperature test demonstrates the cooling system works well [C2825]

"Cu/M/Cu Sub-mount Applied in High Brightness LED Array Package"

In this paper, we demonstrate a packaging method for component of light emitting diode (LED) by silicon bulk micromachining technologies and using a silicon substrate with Cu/M/Cu foil to dissipate heat and match thermal expansion coefficient (CTE). The objective is to develop an LED package that can overcome high brightness LED life, high operating current and the ability to drive the devices at higher power and higher brightness. In our experiment, the optical and thermal characterization of the novel package structure was measured. Research results have shown that the sub-mount with Cu/M/Cu foil can enhance heat removal for safe junction temperature operation and minimize thermal stress caused by mismatch of CTE. Moreover, this kind of packaging can be used for packaging MEMS and conventional optoelectric semiconductor devices [C2826]

"ESD Models and Measurement for Semiconductor Device"

Along with the development of technology, semiconductor devices, such as IC and LED, have got wide applications in electronic industry. Semiconductor devices are ESD sensitive. ESD would sometimes cause breakdown and destroy the devices. ESD can also cause indiscoverable soft breakdown that is a hidden trouble and would affect the quality, usage life, reliability of the products and even the profit of company. Many manufacturers have paid dearly for that. Thereby ESD is also comparable to a `cryptomorphic killer' in electronic industry. This paper introduces the mechanism, types, discharge models of ESD, experimental methods for ESD recommended by international standards and basic principles of ESD test instruments. It focuses on the ESD test methods and test systems for IC, LED and other semiconductor devices [C2827]

"1.3 μm quantum dot multi-section super-luminescent diode with extremely broad bandwidth (150 nm)"

A novel ridge-waveguide quantum dot (QD) super-luminescent diode is reported. The multi-section configuration enables the realization of ultra-wide 3-dB bandwidth (>150 nm) and an output power greater than 1 mW. [C2828]

"Plasmonic dispersion engineering for light-emission efficiency enhancement"

We propose using metallo-dielectric stacks in light-emitting devices to introduce tunable resonances in the surface-plasmon density of modes, and hence in the emission efficiency, through the anticrossing of modes from neighboring interfaces. [C2829]

"Resonant-cavity LED transceiver arrays for optical wireless communication"

155 Mb/s operation of an optical wireless link is achieved by using the spectral characteristics and angular emission spectra of a 7-element tracking array of 980 nm RC-LEDs. Preliminary results show extension to 200 Mb/s/channel. [C2830]

"Light extraction analysis of GaN-based LEDs"

Light extraction efficiency of GaN-based LEDs as functions of chip dimensions, absorption coefficients and package for both conventional one and Thin-GaN are analyzed based on Monte-Carlo ray tracing. [C2831]

"Differential optical imaging using inhaled gases"

We show how inhalation of oxygen and carbon dioxide elicits contrast from changes in oxyhemoglobin and deoxyhemoglobin. This method holds good promise for cancer detection. [C2832]

"Polarization field engineering with Type-II InGaN-GaNAs quantum well for improved nitride gain media at 420-550 nm"

Novel type-II InGaN-GaNAs quantum well is presented and analyzed as improved gain media for efficient light emitting diodes and laser diodes emitting at 420-nm up to 550-nm, with a large electronhole wavefunction overlap (Gammae_hh>65-70%). [C2833]

"Enhanced light extraction from circular Bragg grating coupled microcavities"

A 7-fold enhancement of light extraction from a vertical-cavity light-emitting diode structure over a 130 nm bandwidth at room temperature was achieved using circular Bragg gratings. The enhancement factor corresponded to a 41% external efficiency. [C2834]

"LED emission through sub-wavelength apertures"

A gold film with a hexagonal array of sub-wavelength apertures has been fabricated onto the emitting surface of a semiconductor light emitting diode. Interaction of the light with surface plasmons produces highly directional emission. [C2835]

"Efficient light-emitting diodes fabricated with a spin-on photonic crystal surface grating"

An etched-post photonic crystal surface grating was incorporated into 11,000 visible light-emitting diodes with a highly parallel fabrication method involving spin-on polystyrene nanoparticles. Devices showed up to a 51% improvement in wall plug efficiency. [C2836]

"Spectral Characteristics of CdSe Quantum Dots"

The absorption and emission spectra of the CdSe quantum dots about 3-nm diameter are measured. The peak value of the absorption cross-section is determined by Beer-Lambert law according to the concentration of the quantum dots in the toluene sample and the particle diameter. [C2837]

"Light Induced Recovery of Polymer Field Effect Transistors"

We have used differential terahertz spectroscopy to monitor performance degradation in state-of-the-art polymer field effect transistors (pFETs) based on poly[(9,9-dioctylfluorene-2,7-diyl)-co-(bithiophene)] (F8T2). After extended periods of operation holes are trapped in the polymer, increasing the device's threshold voltage. We monitor the trapped charge density using THz spectroscopy, and investigate the device's recovery as trapped holes are thermally removed. Illuminating the devices for a period with above-bandgap photons leads to a change in the terahertz transmission through the device, which is short lived after switching the light off. [C2838]

"Energy Saving Using Light Emitting Diodes in Lighting Applications"

The aim of the paper is to review some of the new developments in energy saving in lighting application using light emitting diodes (LEDs). Various developed technologies and evolution of light sources are presented. Many

aspects of turning electrical energy into visible light spectrum and their applications in different fields are discussed [C2839]

"The source of light with high power LED diodes"

This paper presents information about design of light sources. The special light source was designed and constructed for the research activity on the lichen structure in the Antarctica. This research is made by the Institute of Experimental Biology, Masaryk University, Faculty of Science. Required properties were continuous spectral characteristic with respect to photosynthetically active wavelength area, possibility of luminous flux regulation and practically zero thermal effect to illuminated object. Owing to new high-performance LED this type of light source was selected. Design of light source consisting of high efficient white LED's, as well as experimental results, are presented. [C2840]

"External Field Effects on Photoluminescence Properties of Blue InGaN Quantum-Well Diodes"

Photoluminescence (PL) properties of blue InGaN quantum-well light-emitting diodes have been investigated at 20 K as a function of excitation power and reverse bias voltage (external field). PL intensity reduction of the main blue emission band is observed by increasing the reverse field. The photoexcitation power dependence suggests that the hole escape process plays an important role for the determination of PL intensity under the reverse bias conditions. [C2841]

"White Light Generation with CdSe/ZnS Core-Shell Nanocrystals and InGaN/GaN Light Emitting Diodes"

We present hybrid white light sources that integrate CdSe/ZnS core-shell nanocrystals on blue InGaN/GaN light emitting diodes (LED). We report on the demonstrations of white light generation using yellow nanocrystals (lambdaPL=580 nm) hybridized on a blue LED (lambdaEL=440 nm) with tristimulus coordinates of x=0.37 and y=0.25, correlated color temperature of Tc=2692 K, and color rendering index of Ra=14.6; cyan and red nanocrystals (lambdaPL=500 nm and 620 nm) on a blue LED (lambdaEL=440 nm) with x=0.37, y=0.28, Tc=3246 K, and Ra=19.6; and green, yellow, and red nanocrystals (lambdaPL=540 nm, 580 nm, and 620 nm) on a blue LED (lambdaEL=452 nm) with x=0.30, y=0.28, Tc=7521 K, and Ra=40.9. [C2842]

"The nanophotonic crystals of anodic alumina deposited on InGaN/GaN quantum well structures"

Two-dimensional photonic crystals were fabricated by a two-step anodization of the deposited Al layer on p-GaN surface of InGaN/GaN multi-quantum-well light-emitting-diode structures. Alumina hole arrays with nanometer-scale dimensions enhance the photoluminescence intensity up to three times. The GaN photonic crystals formed by dry etching process also provide the enhancement of light extraction. [C2843]

"PQR laser can outdo LED"

The PQR laser with ultra-low threshold current and sharp discrete multi-mode properties outdo conventional LEDs. We have fabricated 16times16 mesa type red PQR laser arrays at lambda = 610 nm and confirmed the superiority in luminous efficiency of PQR arrays to the conventional LEDs. We also present blue PQR laser arrays from GaN structures, which are very promising for display applications as well as low power high efficiency solid state lighting. [C2844]

"A Multifunctional Microcontroller Device Which Can be Connected to RS232 Hub"

We present a microcontroller device with two slots for chip card reading which can control two electrical locks. It also makes possible two way communication and enables command giving by infra LED's. The same twin lead is used for device supply and for exchanging data with the central computer. The device is intended as a peripheral device for registration and process control purposes in multiprocessor systems with a simple RS232 hub. [C2845]

"Top Emitting OLEDs with multi-layered Mirror Consisting of Metallic and Dielectric Layers"

We report on an investigation into the design and optimization of multi-layered mirror structures for top-emitting organic light emitting diodes (OLED). Our results show that the six-layer top mirror structure with optimally designed dielectric-enhanced metallic capping mirror proposed here exhibits more than three-fold improvement in the device luminance over the conventional LiF/Al top mirror The optical and electrical simulations were performed on a set of microcavity OLEDs consisting of widely used organic materials, N,N'-di(naphthalene-1-yl)-N,N'-diphenylbenzidine (NPB) as a hole transport layer and tris (8-hydroxyquinoline) (Alq3) as emitting and

electron transporting layer. Ag was used as the anode/bottom mirror for maximum reflection. In order to optimize both the injection characteristics of the cathode and the cavity effect the structure of the multilayer top mirror was optimized, the structure used was a combination of a thin LiF/Al cathode capped by metallic and dielectric layers. The electroluminescence emission spectra, electric field distribution inside the device, carrier density, recombination rate and exciton density were calculated for devices with different top mirror configurations. [C2846]

"Thin organic layers prepared by MAPLE for gas sensor application"

The Matrix Assisted Pulse Laser Evaporation (MAPLE) is a new progressive technology which has been found as a convenient method for thin organic (polymeric) film preparation. The goal of the work is to use prepared films for gas sensor application. The deposition was carried out by KrF excimer laser (wavelength 248 nm) in a chamber at working pressure of 3 Pa. Deposited materials (polypyrrole -PPY, Cu (II) para-tetramethylphenylporphyrine -CuTTMP, Indium acetyl-acetonate -InAcAc and Nickel phtalocyanine -NiPc) are embedded in frozen matrix (water, dimethylsulphoxide or chloroform) at the temperature of liquid nitrogen. The deposition can be described as photothermal process where the matrix molecules are preferentially evaporated due to their higher absorption coefficient on the laser wavelength. The molecules of deposited materials obtain sufficient kinetic energy through collective collisions with the vaporized matrix molecules, to be transferred into the gas phase. Small molecules of matrix are pumped away from the deposition chamber, while PPY, InAcAc, NiPc and CuTTMP molecules are incident on the sensor substrate, which is placed 35 mm far from the target. Thus thin organic layer is grown. Raman spectroscopy confirmed good similarity of chemical composition between source and deposited CuTTMP when using chloroform matrix. Prepared layers can be used as an element of safety gas detection systems as well as low-cost analytical tool for different gas concentration during industrial chemical production. Sensor responses to hydrogen, nitrogen dioxide and alcohol vapours in air were also measured. The obtained results of dc sensitivity (S -i.e. ratio of resistance in "pure" air and that in analysed gas mixture): S ~ 11 to 10,000 ppm of hydrogen, S ~1.5 to 1 ppm of nitrogen dioxide, S ~ 4 to 40 ppm of methanol, S ~ 5 to 20 ppm of ethanol and S ~ 6 to 2 ppm of propanol. [C2847]

"System-In-Package Approach for Ultra-High-Power Semiconductor Devices"

First Page of the Article [C2848]

"Electrical and Structural Studies of Laser-debonded GaN Light Emitting Diodes"

We report experimental investigation of laser-assisted debonding of GaN-based light emitting diodes grown by metalorganic chemical vapor deposition (MOCVD) on sapphire substrates. Transmission electron microscopy is employed to characterize the laser affected zone of the debonded LEDs. The findings from TEM studies are in good agreement with our thermal analysis predictions. The as-debonded surface is then roughened by photo-electro chemical (PEC) wet etching to form nano-scaled hexagonal pyramid structures and this morphology is found to be useful for light extraction on LEDs. [C2849]

"ZnO nanorods by hydrothermal method for ZnO/GaN LEDs"

Zinc oxide (ZnO) has been attractive for optoelectronics application due to its wide band gap (Eg=3.37 eV) and large exciton binding energy (~60 meV) characteristics. However, p-type doping of ZnO is still controversial and problematic. Therefore, there is considerable interest in fabrication of n-ZnO/p-GaN heterojunction LEDs. In this work, we fabricated the LEDs consisting of n-ZnO nanorod arrays on p-GaN substrate. ZnO nanorod arrays were fabricated by a hydrothermal method. Hydrothermal methods have the advantage that they are simple, inexpensive and environmentally friendly. However, nanorods fabricated by hydrothermal methods typically have large numbers of defects due to the low growth temperature (90degC). The defect related photoluminescence (PL) is significantly affected by annealing, and under suitable conditions it can be entirely eliminated. As-grown nanorods exhibit UV emission and large yellow defect emission which is likely due to the presence of OH groups. The PL spectra can be significantly improved by annealing the nanorods at 200degC under Ar flow. Therefore we investigated the influence of argon annealing of ZnO nanorods on the performance of ZnO/GaN LEDs, as well as the influence of annealing environments. Devices with ZnO rod length ~ 250 nm were fabricated and the results obtained are discussed. [C2850]

"Low-Temperature Growth of A1N thin films on ZnO templates prepared on Ak2 O3 substrates"

We have investigated the low-temperature growth of AlN layers on ZnO/MgO/c-sapphire with varying growth temperature and Al flux. Single-crystalline AlN layers can be grown at 400degC, which is quite low compared to the conventional growth temperature of 1000degC. The interdiffusion of Al and N into ZnO layers and Zn and O into AlN layers are evaluated by SIMS. It was found that the diffusions of Al atoms were affected by the crystal

quality of AlN layers and growth temperature. Very low diffusion length of Al below 100 nm into ZnO was observed at the interface between AlN and ZnO. [C2851]

"Increase in the luminescence efficiency of R·G·B LED via the controlling texture of AZO thin films"

Transparent conducting AZO thin films were prepared by RF magnetron sputtering system with glass substrate (corning 1737) and annealed during 2 hr at 400degC in vacuum ambient and 600degC in oxygen ambient, respectively. The smooth AZO films were etched in diluted HCL (0.5%) to check the surface properties with the ambient post-annealing process. Using the methods of SEM and Spectro-radiometer, we analyzed the optical properties of the textured AZO thin films. We confirmed that the vacuum ambient post-annealing process is effective method for increasing the efficiency of long wavelength LED. The oxygen ambient post-annealing process is suitable method for increasing the efficiency of short wavelength LED. We presumed that the ambient post-annealing process can control textured surface of AZO thin films for increasing the efficiency of LED. [C2852]

"Fabrication of high mobility p-type ZnO thin film by ampoule-tube method"

The ZnO thin films, which has used spotlight of next generation short wavelength LEDs and LDs deposited based on RF magnetron sputtering is described in this study. The undoped ZnO thin films were deposited by RF magnetron sputtering system on GaAs0.6P0.4/GaP wafers. The thickness of ZnO thin films was about 2.1 mum which was measured by SE.M analysis after the sputtering process. 4N Phosphorus (P) was diffused into the undoped ZnO thin films in ampoule-tube which was performed at 630degC during 3 hr. We found the diffusion condition of the conductive ZnO films which had p-type properties with the highest mobility of above 532 cm2/Vs compared with other studies. PL spectra measured at 10 K for the purpose of analyzing optical properties of p-type ZnO thin film showed strong PL intensity in the UV emission band around 365~415 nm. [C2853]

"Recent progress on organic thin film transistors and flexble display applications"

Organic transistors are promising in the future development of active devices for flexible, low-cost and large-area photoelectric devices . However, conventional filed effect transistors using organic materials have low-speed, low-power, and relatively high operational voltage, and these poor device performances. Vertical type transistors show high-speed and high-current characteristics and are suitable for driver elements of flexible displays. [C2854]

"Organic perylene single crystal based field-effect transistor"

We report on the fabrication and characteristics of organic field-effect transistors (OFETs) using a single crystal of perylene. Perylene single crystals were relatively fast grown in furnace with flowing nitrogen gas. The OFETs were prepared by placing a perylene single crystal flake onto SiO2/Si or polymer insulator/Si substrates. The field-effect mobility of the perylene based OFETs temperature. was measured to be 1.6 times 10-4cm2/Vs at room [C2855]

"Sensitivity improvement of polypyrrole-based urea sensor using copper ion doping effect"

The functionalization of an integrated urea sensor by a copper-poly pyrrole matrix doping urease molecules and its application to the amperometric detection of urea is described. Copper cluster was doped into polypyrrole matrix to increase electrical conductivity. Urease was electroadsorbed onto this conductive matrix. The comparison of different organic and inorganic host matrices in terms of storage and operational stabilities clearly demonstrated the advantages of the composite matrix. Pt thin film electrode fabricated on silicon substrate by the radio frequency sputtering and titanium layer is also deposited as an underlayer to increase adhesive strength. The copper-doped polypyrrole and polypyrrole films are coated on platinum thin film electrode by cyclic voltammetry, respectively. Under the optimized condition, the limiting current obtained from the copper-doped polypyrrole urea sensor is proportional to the urea concentrations with the slope of 4.5 microampere per decade, which is two times higher sensitivity value than that of the polypyrrole urea sensor. In addition, the electrode surface was analyzed by scanning electro microscopy. [C2856]

"Defect analysis of N-doped p-type ZnO film fabricated by magnetron sputtering via photoluminescence spectra"

ZnO is a promising material to make high efficient ultraviolet (UV) or blue light emitting diodes (LEDs) due to its large binding energy and energy bandgap. In present study, we prepared an N-doped p-type ZnO thin film on (100) silicon substrate by RF magnetron sputtering in the mixture ambient of N2and O2. accompanying with in-situ annealing at low pressure of 10Torr in O2at 800degC. Photoluminescence (PL) analysis of the film showed

UV emission related to exciton and donor-acceptor pair transition (DAP) and visible emission related to various kinds of defects. Via PL spectra analysis the reason of p-type conversion of ZnO thin film can be explained, which is in favor of getting high quality p-type ZnO films. [C2857]

"Enhancement of PL intensity by photonic crystal fabricated on GaAs substrate using nanoporous alumina mask"

We fabricated photonic crystal structure on GaAs substrate using nanoporous alumina mask. Uniform arrays of nano-sized pores produced in anodic alumina were transferred into GaAs substrate by inductively coupled plasma reactive ion etching (ICP-RIE). The photonic crystal structure, the nanohole array with uniform diameter of 60 nm and interpore distance of 105 nm, was formed on GaAs substrate as replica of the alumina mask. Its photoluminescence (PL) showed enhanced intensity compared with that from GaAs substrate without its structure. The ICP-RIE technique using nanoporous alumina mask can be used as a prospective method in the fabrication of nano-devices for nanotechnology. [C2858]

"Temperature dependent electrical properties of OLEDs using Zn complex"

We synthesized new electroluminescence materials [(1,10-phenanthroline)(8-hydroxyquinoline)] Zn(phen)q. Temperature dependent of electrical properties of OLEDs using Zn(phen)q are studied to understand an electrical conduction mechanism. The current density-voltage characteristics are measured in the temperature range of 60 ~ 240 K, and analyzed them using a hopping model with exponential trap distribution. At temperature above 150 K, the hopping conduction with exponential trap distribution is dominant. And we have obtained a characteristic trap depth of Et= 0.12 eV. [C2859]

"Bio electroluminescent device composed of cytochrome c/chlorophyll a hetero-structure"

In this work, light emitting device was fabricated by the application of photo-excited characteristics in chlorophyll a. Electroluminescence (EL) properties was investigated for the thickness of 15 layers and 25 layers chlorophyll a. Especially, single-layered bio EL device composing of the 15 layers of chlorophyll a LB ldquodm turned on at 5 V. We also fabricated bi-layered bio EL device composed of ITO/viologen/chlorophyll a/Al. This novel blue light-emitting device using viologen as hole transporting layer exhibited the narrow blue emission peak around 455 nm. Especially, this device showed the high external quantum efficiency of 1.0x10-3 % in range of 17 V and the low turn-on voltage of 5 V. Finally, it was shown that the bio display was possible through the further study. [C2860]

"High efficiency LEDs by photonic crystal-assisted extraction"

We discuss the use of photonic crystals in the propagating regime along various schemes which should allow for high extraction efficiency LEDs. [C2861]

"Photoluminescence and electroluminescence properties of organotin complexes"

8-Hydoxyquinoline (q) and 2-(2-hydroxyphenyl) benzoxazole (HPB) were employed as organic ligands and the corresponding organomatallic diphenyltin (IV) complexes (SnDP(HPB)2, SnDPQ2) were synthesized. And their electroluminescence (EL) properties were investigated. The structures of organotin (IV) complexes were determined by FT-NMR, FT-IR, UV-Vis and elemental analysis. The photoluminescence (PL) of organotin complexes was measured from the benzene solution. The PL emission exhibited light centered at about 440 and 515 nm. The devices with structure of ITO/NPB/organotin(IV) complexes /Alq3/LiF/Al were constructed to investigate their EL properties. The EL device using SnDPQ2as the emitting layer showed green luminescence with a maximum emission peak at 535 nm. Complexes SnDP(HPB)2and SnDPQ2form a new family of organometallic emitting materials which could be of interest for practical applications. [C2862]

"Boron ion implantation on Al-doped ZnO films for OLEDs transparent conducting electrodes"

B+-implanted Al-doped ZnO (AZO) films were fabricated by ion implantation with various ion energies and doses for transparent conducting oxide (TCO) electrodes of organic light-emitting diodes (OLEDs). The resistance of the B-implanted AZO films was decreased with increasing ion dose. The work function of the implanted films was increased compared to the un-implanted AZO films. All implanted films exhibited high optical transmittance (average transmittance above 87%) in the visible range up to 800nm wavelength, we could control work function, resistance and transmittance individually by changing ion dose and ion energy during implantation. [C2863]

"Unique White LED Packaging Systems"

Many engineers are developing White LED in the world. LED Packaging is used normal transparent epoxy resin. But White LED is occurring a few UV light from Blue LED element itself. Normal transparent epoxy resin discolors by this UV light from Blue LED element. And it is difficult to preserve for long time White color after packaging. General packaging method is used casting molding method. This method can't product high density, light weight packaging. At the first time, we developed special transparent epoxy resin to preserve White LED by improving epoxy chemical structure. We get very good result after humidity evaluation (60degC /85%/300 hrs/20 mA).Normal transparent epoxy resin discolors after this evaluation condition. On secondly, we developed high-density packaging technology using VPEStrade (Vacuum Printing Encapsulation Systems). These good advantages are very fine pitch and low height, high-density packaging technology, good mass production, and low cost systems. We successes very high density and high reliability White LED packaging using high level of transparent epoxy resin and VPEStrade technology. Our White LED can use as lighting application instead of fluorescent lamp and general lighting and traffic signal. And this light is very good [C2864]

"Reduction of Skin Stretch Induced Motion Artifacts in Electrocardiogram Monitoring Using Adaptive Filtering"

The effectiveness of electrocardiogram (ECG) monitors can be significantly impaired by motion artifacts which can cause misdiagnoses, lead to inappropriate treatment decisions, and trigger false alarms. Skin stretch associated with patient motion is a significant source of motion artifacts in current ECG monitoring. In this study, motion artifacts are adaptively filtered by using skin strain as the reference variable. Skin strain is measured non-invasively using a light emitting diode (LED) and an optical sensor incorporated in an ECG electrode. The results demonstrate that this device and method can significantly reduce skin strain induced ECG artifacts [C2865]

"Remote optical stereoscopic multispectral imaging during cardiac surgery"

Within the near infrared (NIR), coronary arteries show higher contrasts against the myocardium than coronary veins. Also, NIR can penetrate deeper into tissue than visible light (VIS). This opens perspectives to enhance coronary vasculature by combining VIS and NIR images. This may be useful in instances like intramyocardial course of coronary arteries, increased epicardial fat, epicardial adhesions after previous surgery, or pericarditis. Two cameras, with dual-band LED-arrays, alternately capture VIS color frames (400-780 nm) and NIR grey-scale frames (910-920 nm). Arterial NIR contrasts are distinguished from shadows and surface reflections, selectively enhanced, and back-projected in stereoscopic VIS color video. Proof of principle has been delivered on porcine and human hearts using off-line processing. We present these results and some of our work in progress. [C2866]

"Performance evaluation of the indium zinc oxide (IZO) thin films for organic electroluminescent diode applications"

In this report, the transparent conducting indium zinc oxide (IZO) films (60-220 nm) have been grown on hardness poly-carbonate (HPC) substrate without a post deposition annealing treatment. The direct current (dc) magnetron sputtering system was employed for the film deposition. The IZO alloy target (99.99% and 95% in purity and density, respectively) is composed of 90 wt.% of In2O3and 10 wt.% of ZnO. The electrical, optical, and structural properties of these prepared films by different dc powers, such as 50 W, 80 W and 100 W, without/with the ion-assisted deposition (IAD) technique. An optimum IZO deposition condition is developed for flexible organic light-emitting device (OLED) applications. The IZO films grown at low temperature (~ 50degC) by the dc magnetron sputtering (100-W power) with the IAD technique were used to study the electroluminescence (EL) performance of OLEDs. Under a current density of 200 (mA/cm2), the developed OLED/IZO/HPC substrate shows an excellent efficiency (5 V turn-on voltage) and a luminance of 1800 (cd/m2) in average, which is better than that measured with commercial indium-tin oxide (ITO) anodes and well above the electro-optical application standard. [C2867]

"Competitive technology approaches for Electronic Hybridisation Detection in a microsystem with microfluidics for diagnosis genetic tests"

This paper is presenting competitive technology alternatives for the electronic hybridization detection in a microsystem with microfluidics for diagnosis genetic tests that are carried out by two competitive research projects. The technologies developed are a photosensor, a capacitive sensor and an optical real-time affinity biosensor. The performance of those biosensors will be evaluated but also their manufacturability and cost will define the appropriateness of each one for industrialization and their integration on a microsystem for diagnosis genetic testing [C2868]

"The Transient Component of Disparity Vergence maybe an Indication of Progressive Lens Acceptability"

Presbyopia, a degenerative condition, which decreases accommodation, sets in approximately at the age of forty. One approach to correct presbyopia is the use of bifocal or progressive lenses. Naturally, some people are more prone to adapt to wearing progressive lenses than others. The vergence system, which controls the inward and outward turning of the eyes, is a system which supports viewing objects in depth. Identifying the two components (transient and sustained components) of a pure vergence eye movement is possible with ICA (independent component analysis). Preliminary results suggest a correlation with the magnitude of the transient component and whether or not a person can adapt to wearing progressive lenses or not. Furthermore, the transient component of vergence is hypothesized to be an index of how flexible the vergence system is in adapting to new environments [C2869]

"Evaluation of Chip LED Sensor Module for Fat Thickness Measurement using Tissue Phantoms"

We tested the feasibility of noninvasive fat thickness measurements by using a diffuse optical method with variable source-detector pairs. A light source module composed of 770 nm low-power chip LEDs and a photodetector were used in this study. The tissue phantoms are composed of a fat and a muscle layer made with gels with appropriate absorption/scattering coefficients. The fat thickness was varied from several to 30 mm. Based on this preliminary study, it is concluded that the noninvasive fat thickness measurement is possible with proper curve fitting procedure [C2870]

"Non-metallic VEP stimulator without interference in CT scanning for neurosurgical operation"

Non-metallic flash-type stimulators for monitoring visual evoked potential, named as the Fiber-Eyes, are proposed. Conventional VEP stimulators are comprised of LEDs and the print circuits, i.e. metallic materials, inside the stimulator. Proposed Fiber-Eyes are made from plastic optical fibers, silicone rubber, and external light source. Thus the Fiber-Eyes can be used together with CT scanning without interference in the image due to not use of the metallic parts during neurosurgical operations. They do not also radiate heat because the flash light for stimulus is supplied through the fibers, and thus it can avoid desiccation of the bulbar conjunctiva of patient in the operation. [C2871]

"Simulation of InGaN Multiple Quantum Wells (MQWs) Light Emitting Diodes (LEDs)"

InGaN LEDs on sapphire substrates were simulated using ISE TCAD software. In order to obtain a high output power, 15 pairs of GaN (50 nm)/Al0.27Ga0.73N (52 nm) DBR were introduced between the i-GaN and n-GaN layers. The weak output power resulting from our simulation may be related to the inhomogeneous holes distribution in the quantum wells. Also the piezoelectric field due to strains which determines the emission mechanism of InGaN based LEDs is affected by these parameters. The turn on voltage for our structure was 0.7 V and has a small change with the introduction of DBR. [C2872]

"Fabrication of White Polymer Light Emitting Diodes with ITO/PVK:PBD:DPVBi:DCJTB/Al Structure"

White polymer light emitting diodes (PLEDs) with the configuration of ITO/PVK:PBD:DPVBi:DCJTB/Al were fabricated where indium tin oxide (ITO) was used as anode, poly(9-vinylcarbazole) (PVK) as polymeric host, 2-(4-biphenylyl)-5-phenyl- 1,3,4-oxadiazole (PBD) as electron- transporting molecule, 4,4'-bis(2,2-diphenylvinyl)-1,1,-biphenyl (DPVBi) as blue dopant, 4-(dicyanomethylene)-2-t-butyl- 6(1,1,7,7-tetramethyljulolidyl-9-enyl)-4H-pyran (DCJTB) as red dopant, and aluminium (Al) as cathode. The emitting layer was prepared using spin-coating technique. The white light emission was obtained through the combination of orange emission from DCJTB and the blue emission from DPVBi. The device using the 0.06 wt% DCJTB exhibited the CIE coordinates (0.38, 0.33) closest to the standard CIE coordinates for white light emission (0.33, 0.33) and its current turn-on voltage was approximately 13 V. [C2873]

"Welfare Support-equipment for Operations of Personal Computer with Head Tilting and Mouth Open-Close Motions"

This paper describes the support-equipment of operating a personal computer for users who have an obstacle on the regions of upper limb. The user wore a head set device with an angle sensor on the top of head and a distance sensor in front of the mouth. Angle sensor could measure the roll and pitch angles of the head, and distance sensor could judge whether mouth was opened or not. In mouse operations, a mouse cursor on a CRT monitor could be moved according to the direction and magnitude of the tilted head angle. The click operation

mode could be started by opening the mouth for two seconds, and then click functions such as double click or drag were selected by the directions of head tilting. Human operator could confirm the input state by the indicator located near the CRT monitor. In test operation, it could be found that the speed-up ratio of a mouse cursor with respect to the head tilted angle influenced on the operationality and that the mouth operation was available to lighten the physical burden of the operator. [C2874]

"Measurement of Driver's Consciousness by Image Processing 2 -Detection of Concentration on Cellular Phone Call from Facial Expression Change coping with Individual Differences-"

Thinking and/or conversation can distract drivers from their car driving. First, this paper shows the effect of concentration on mental work on driver's reaction time. Then, the relation between the concentration on the cellular phone call and the facial expression change is shown. Base on these results, a method of detecting the concentration from the change in the face expression is presented. [C2875]

"A NIR CMOS preamplifier with DC photocurrent rejection for pulsed light source"

A micro-power transimpedance amplifier is presented to acquire modulated optical signal for heart-rate measurement. The circuit is composed of a transimpedance amplifier (TIA), a sample-and-hold (S/H) circuit, an error amplifier and a current-sink transistor, configured in a feedback loop to reject DC photocurrent generated from photodiode, which varies from person to person. To reduce power consumption, the LED is pulsed and thus the input to the TIA is a modulated current pulse. The proposed circuit is designed to accurately reject the average of the original continuous time signal, rather than that of the pulsed signal. This is achieved by inserting an S/H stage between the TIA and error amplifier. Simulation results show that the circuit works properly from a 2-V power supply and has a rejection range from 40 muA to 95 muA. [C2876]

"Performance Evaluation of Indium Zinc Oxide Thin Films for Flexible Organic Light-emitting Device Applications"

In this report, high-quality indium zinc oxide (IZO) films (60-220 nm) were first grown on hardness poly-carbonate (HPC) substrate by ion-assisted deposition (IAD) dc magnetron sputtering without a post deposition annealing treatment. The electrical, optical, and structural properties of these films were investigated as a function of substrate temperature, oxygen pressure, and film thickness. IAD dc magnetron sputtering provides very uniform IZO films with high transparency (ges 80% in 550 nm spectrum) and low electrical resistivity (3times10-4Omega-cm). The Hall mobility and carrier density for a 120-nm-thick film at 100 W are 12 cm2/V-s and 2.5times1021cm-3, respectively. Atomic force microscopy measurements of the IZO films indicated that their root mean-square values (RMS~ 0.44-0.69 nm) are superior to that (~ 4 nm) of commercially available indium tin oxide (ITO) films deposited by sputtering. Next, IZO films grown at low temperature by IAD dc magnetron sputtering were used to study the electroluminescence (EL) performance of organic light-emitting devices (OLEDs). Under a current density of 100 (mA/cm2), the developed OLEDs show an excellent efficiency (12 V turn-on voltage) and a luminance of 1200 (cd/m2) in average, which is better than that measured with commercial ITO anodes and well above the electro-optical application standard. [C2877]

"Scalability Analysis of Electronic Code Division Multiple Access based Virtual Private Networks over Passive Optical Networks"

A theoretical scalability analysis for electronic code division multiple access based virtual private networks over a passive optical network is carried out to identify the performance limits of the scheme. [C2878]

"Noninvasive measurement of total hemoglobin and hemoglobin derivatives using multiwavelength pulse spectrophotometry -In vitro study with a mock circulatory system"

Total hemoglobin (tHb), carboxyhemoglobin (COHb), and methemoglobin (MetHb) are usually measured with a CO-oximeter. Noninvasive and continuous measurement of these blood components is expected to decrease the pain of a patient. Therefore, we developed an instrument to measure oxygen saturation (SpO2), tHb, COHb, and MetHb non invasively. Multiwavelength LED (600, 625, 660, 760, 800, 940, and 1300 nm) and a combined detector (Si, InGaAs) were built into the instrument (Seven wavelengths transparent pulse spectrophotometer). We used the Waseda mock circulatory system, which can simulate blood circulation in tissues and generate a pulse wave mechanically, to estimate the instrument's performance. Furthermore we proposed new calculation formula including DC components of optical density (this method). Under conditions without any change of other components, the mean error plusmn standard deviation between this method and the CO-oximetry were SaO2=0.0plusmn1.4%, tHb=0.0plusmn0.0 g/dl, COHb=0.0plusmn2.0%, and MetHb=0.0plusmn0.3%. When the concentration of other components was changed, this method showed mean errors and standard deviations of

SaO2=0.2plusmn1.6%, tHb=0.0plusmn0.4 g/dl, COHb=0.5plusmn4.1%, and MetHb=0.0plusmn0.3% [C2879]

"Study of System Dynamics of High-Power LEDs"

Optical properties of LEDs are sensitive to junction temperature. The understanding of system dynamic behavior is quite important in the controller design of LED. From the principle of solid-state lighting, the luminance of LED is induced from two physical mechanisms: energy effect and optoelectronic effect. The system dynamics model of a high- power LED fixture for energy effect is derived and identified in the present study using step response method. Both theoretical and experimental analyses have shown that the thermal system dynamics model of the LED fixture is 4th- order with 3 zeros and can be further reduced to a first-order biproper system. It is shown that the instantaneous jump of junction temperature dominates the thermal behavior of LED at the beginning of the step input. The optoelectronic effect is induced mainly from the current input and the junction temperature. Combining the two physical effects, an electric- heat-optical system dynamics model of LED luminaire was finally derived which is the basic system dynamics model for LED luminance control. [C2880]

"Charaterizing LEDs for Mixture of Colored LED light sources"

Because of advantages such as long lifetime, low power consumption, and no mercury containing, LEDs are widely used in a variety of general-purpose illumination applications. There are two different approaches for generating white light with LEDs. The first one is the combination of phosphors excited by blue or UV LED emission, the other one is mixture of multi-color LEDs Without the power loss in the down conversion process of the white LED using phosphors, a higher efficiency and flexible option can be done with the mixture of multi-color LEDs. Questions arise on how the spectra of the mixture of colored LED designed are for good color rendering performance, more output lumens and better luminous efficiency. A lot of papers discuss the different spectrum combinations of multicolored LEDs which yield light with maximum efficacy, luminous flux and CRI, at the desired corrected color temperature, but most of them use the spectral power distribution of a model LED to calculate the luminous efficacy, luminous flux and CRI, and get the best combination as request. But as most people know, the spectral power distribution of a real LED will vary with ambient temperature, forward current and effect of aging, so simulation of the luminous efficacy, luminous flux and CRI will get some problems in practical. On the other hand, the finding of a better luminous efficacy of the mixture of colored LED can provide the best suggestion when the LED manufacturers try to select commercial LED chips to manufacture colored LED light sources. We setup a system with integrating sphere, spectrometer and four independent PC controlled powermeters, which can get the data of luminous flux, CRI and luminous efficiency of light sources automatically with different input power. Using the database from the system and simulations, we can analyze the optical and color characteristics of the mixture of colored LED light source, even the RGB LED (red, green and blue chips in one package). Then the se- lection of the combination of the LED chips for the mixture of colored LED light source, for generating more luminous flux, better color rendering index and luminous efficiency should be good. [C2881]

"Performance Evaluation of Organic Electroluminescent Devices with Nitrogen Doped Electron Transporter"

In this report, current-voltage (I/V) curves, output luminance of the OLEDs (organic light emitting diodes) with nitrogen (N2) doped ETL (electron transport layer) have been studied in detail. Experimental results show that the turn on voltage and driving voltage of OLEDs with ETL evaporated in the optimum N2gas ambient pressure of 1times10-4torr are reduced from 3.5 V to 1 V and 7.7 V to 5.7 V, respectively. The significant improving mechanism has been illustrated comprehensively with a schematic energy diagram model. [C2882]

"The measurement technique of human's bio-signals"

A disaster like a big earthquake usually brings many destroyed buildings and many sufferers are generated in the disaster area. In this situation, sometimes a rescue person encounters a second disaster. This is the big problem to rescue sufferers. In order to avoid a second disaster, many kind of rescue robots are being developed. These robots can find sufferers and rescue them. However, they cannot measure the sufferer's condition at the disaster area. If the sufferer's condition becomes clear before rescue, the rescue efficiency will improve. Therefore, we are developing a rescue robot that can measure some vital signs of sufferer and send measured data to the medical doctor who is in safety place. In this paper, we will describe about a developed method that can measure the pulse and the arterial blood oxygen saturation degree (SPO2) by easy way. We think that these methods will be powerful and useful to rescue sufferers [C2883]

"Measurement of Human Gastric Motility by Near-Infrared Light for the Assessment of Chronic Mental Stress"

In this study, we focused on the relationship between mental stress and gastric motility and have tried to develop a measurement system of human gastric motility for the quantification of mental stress. A mental stress measurement system should be used easily in daily life. However, general measurement system as electrogastrography, endoscopy, CT, ultrasonic echogram isn't suitable for the home use. Then, we have developed non-invasive and compact measurement system of gastric motility using near-infrared (NIR) light. This system consists of NIR LEDs and an avalanche photodiode (APD). APD receives the NIR light transmitting outside the body from NIR LEDs and reflecting on the gastric wall. In the experiment, an ultrasonic echogram was used simultaneously to confirm our new method. The result showed that the waveform got by our method coincides with the cycle of contractile activity of stomach, and it was proved that our measurement system using NIR light could measure gastric motility. In addition, we performed chronic mental stress measurement intended for students to examine relationship between chronic mental stress and gastric motility. Experimental period was from two weeks before graduation examination to two weeks after graduation examination. The result showed that chronic mental stress may invoke gastric dysrhythmia, and chronic mental stress could be evaluated by long term monitoring of gastric motility using our NIR measurement system [C2884]

"A Low Cost Human Computer Interface based on Eye Tracking"

This paper describes the implementation of a human computer interface based on eye tracking. Current commercially available systems exist, but have limited use due mainly to their large cost. The system described in this paper was designed to be a low cost and unobtrusive. The technique was video-oculography assisted by corneal reflections. An off-the shelf CCD webcam was used to capture images. The images were analyzed in software to extract key features of the eye. The users gaze point was then calculated based on the relative position of these features. The system is capable of calculating eye-gaze in real-time to provide a responsive interaction. A throughput of eight gaze points per second was achieved. The accuracy of the fixations based on the calculated eye-gazes were within 1 cm of the on-screen gaze location. By developing a low-cost system, this technology is made accessible to a wider range of applications [C2885]

"Pulse Oximeter Improvement with an ADC-DAC Feedback Loop and a Radial Reflectance Sensor"

Pulse oximeter circuitry must meet several design constraints, including the ability to separate a small pulsatile signal component from a large signal baseline. This paper describes pulse oximeter design changes that produced order-of-magnitude improvements in signal quality. The primary changes were (a) the replacement of an analog sample-and-hold-based differentiator circuit with an ADC-DAC feedback loop and (b) the replacement of a side-by-side reflectance sensor design with a radial sensor arrangement that maximizes the pulsatile-to-baseline signal ratio [C2886]

"Localization of FFA Using SSVEP-based Binocular Rivalry"

In binocular rivalry, a subject views two incongruent stimuli through each eye but consciously perceives only one stimulus at a time, with a switch in perceptual dominance every a few seconds. To locate the fusiform face area (FFA) which is a face-selective region, thirteen subjects are recorded with a 64-channel electroencephalograph while experiencing binocular rivalry. A face image flickering at one frequency is presented to one eye and a non-face image flickering at the same frequency is presented to the other eye. Steady state evoked potential (SSVEP) at the frequency is used as tags for the two stimuli. This paper uses an algorithm called standardized shrinking LORETA-FOCUSS (SSLOFO) to reconstruct face-selective sources from the EEG data. The sources are selected by comparing signal strength at the stimulus frequency during face dominance and face suppression. The results demonstrate that the face-selective region identified in this paper is consistent with FFA, as has been confirmed to be activated about twice as strongly in fMRI experiments when people view faces as when they view other kinds of objects. The present study also suggests that the method has the potential advantage of investigating neural correlates [C2887]

"Influence of Sinusoidally Modulated Visual Stimuli at Extremely Low Frequency Range on the Human EEG Activity"

The purpose of this study was to investigate whether sinusoidally modulated visual stimuli at extremely low frequencies (ELF) of 50, 16.66, 13, 10, 8.33 and 4Hz could influence the changes in EEG activity in 33 human subjects. An improved design of visual stimulator system has addressed an issue of electrical interference from electrical signals driven by LED arrays onto simultaneously recorded EEG. A comparison between 1 and 3-Way ANOVA was performed in order to evaluate whether visual stimuli at ELFs could influence the EEG in humans to compliment the currently active medical research in seasonal affective disorder (SAD) and photic driving. The results revealed that under evaluation of 1 and 3-Way repeated-measures ANOVA tests, the Theta, Alpha2 and Gamma EEG bands exhibited a common significant difference between ELF visual stimuli [C2888]

"Design and simulation of humidity micro-sensors structure based on Polymers"

The aim of this paper is to report the design of the simple polymers structure humidity sensors and its mechanical and piezoresistive simulation in CoventorWare. Acquired simulation data gets a primary image about sizes bend and surface strain on microcantilever which forms sensing part of sensor [C2889]

"An optical micro-instrumentation system for measurement of fluorescent proteins in whole-cell biosensors"

One well-developed paradigm for biosensing uses living microorganisms as sensors for environmental stimuli. In this paradigm, engineered cells contain plasmid or chromosomal sequences that link stress-inducible promoters to the production of fluorescent reporter proteins. We are developing such a sensor system with an aim for portability. This work describes the development and performance of a compact optical system designed for low-power detection of fluorescent reporter proteins in microliter-scale cell suspensions. Light-emitting diodes (LEDs) and silicon photodetectors (PDs) were configured to measure red fluorescence, green fluorescence, and cell biomass pseudo-simultaneously in 100 mul samples. The optical detectors were calibrated using E. coli cells that expressed red and green fluorescent proteins (dsRed2 and gfp-asv, Clontech) either constitutively or through chemical induction. We show that sufficient sensitivity for certain whole-cell biosensor applications is achievable in low-volume samples, despite the simplicity and low-cost nature of the detector system. The prototype optical detector occupies approximately 1.8 cmtimes2.2 cmtimes3.0 cm [C2890]

"Design and Application of an Electromagnetic Induction System Using Multi-sensor Array"

By placing an aluminum ring over the core and supply AC currents, causes the ring to jump by an induced current in the ring and produces a magnetic field. In this paper, electromagnetic induction equipment with analog device was implemented and the position of the ring display with 40th LED diodes for educational purpose. To control height of ring, the magnetic force acting on the ring has to derive from the current and flux on ring. Several control algorithms are compared in order to prove the proposed method [C2891]

"Photonic crystals for lighting applications"

Solid state lighting is developing rapidly, offering great promise in applications from displays to genereal lighting. Both in organic and inorganic LEDs are pursued, for ever increasing brightness and efficiency. A crucial aspect of the efficient operation of these devices is the extraction of the light from the emissive layer. After a brief overview of more conventional approaches, we discuss the influence of photonic crystal structures on the emission, and their potential for improving efficiency and beam shaping. We conclude with some developments for the more distant future, such as full three-dimensional photonic crystals and non-periodic structures. [C2892]

"Enhanced Charge Carriers Injection by Using High-doped Silicon in Organic-inorganic Light-emitting Diodes"

Summary form only given. In this paper, the emission of organic material inserted between two amorphous silicon dioxides (a-SiO2) by using high-doped p-type silicon as anode or n-type silicon as cathode has been studied under AC and DC applied voltages. Enhanced charge carrier injection and luminance were observed, which shows high-doped silicon as electrodes can increase the quantity of injected charge carriers. Further, its ability to improve luminance has been studied by changing silicon with different conductance, as well as by varying the thickness of organic and/or inorganic active layers [C2893]

"Recent Advances in Organic Electronic"

The development of integrated organic electronic devices is a gateway for a variety of applications, and is of great relevance for the general purpose of achieving highly integrated optoelectronic systems. For example, the combination of organic light emitting diodes (OLEDs) and organic thin film transistors (OFETs) is needed for the development of all-organic active matrix display technology. This article is concerned with the recent advances of organic devices made of organic materials, as electrically and optically active components, in devices ranging from simple single-component OLEDs, through double- and multi-layer OLEDs to organic displays and OFET's [C2894]

"LEDs as both Optical Sources and Detectors in Bi-directional Plastic Optical Fibre Links"

In this paper the characterization of the bandwidth of a bidirectional link, using a light emitting diode as both a transmitter and a detector, is reported. The initial characterizations of the LED as both source and photodiode

are described. The bandwidth characterizations of the LED are also discussed [C2895]

"Electroluminescence as an instrument to observe defect generation in InGaP/GaAs HBTs"

The usage of electroluminescence for investigating the reliability of GaAs based HBTs has been reported previously (Henderson, 1995, Harris et al., 1998). Electroluminescence is the emission of photons generated by recombination of electrons and holes near a p/n junction at a heterointerface. This technique is commonly used in optoelectronics for determining reliability and robustness of light emitting diodes (LEDs) and semiconductor lasers. Dislocations and defects were observed as dark lines, so called DLDs, in HBTs (Henderson, 1995) and LED/LDs as a result of electroluminescence imaging of degraded devices. The authors use this technique to observe the generation of defects in InGaP/GaAs heterojunction bipolar transistors (HBTs) with an MTTF of more than 2 times 107h during reliability investigations. All reliability tests were carried out on multi-finger microwave power HBTs fabricated at the Ferdinand-Braun-Institut [C2896]

"Work in Progress: A Cognitive Apprenticeship Approach to Instruction in Engineering: Lessons Learned from the Design of Field Research in the Classroom"

This work in progress describes a study that attempts to answer the following research question: how does using a cognitive apprenticeship approach to instruction in engineering affect the ability and motivation of students to engage in self-directed learning? The design of a pilot study conducted January-May 2006 was discussed, followed by some initial observations based on preliminary analysis of the data. Finally, we discussed the plans for a larger scale study based on the lessons learned from conducting the pilot study [C2897]

"Virtual Instrument for the Measurement of Haemo-dynamic Parameters Using Photoplethysmograph"

This paper presents the design and development of a virtual instrument for the measurement of haemodynamic parameters namely, pulse rate and oxygen saturation in arterial blood based on the popular photoplethysmographic (PPG) principle. A clip-on sensor, housing red and infrared (IR) light emitting diodes and suitable photo detectors is developed. The sensor is interfaced to a PC utilizing the audio channel of the sound card, thus dispensing with expensive analog to digital converter hardware. Since the frequency response of the audio channel is not suitable for the PPG waveforms of red and IR, FM modulation and demodulation are employed. An empirical relationship is developed for the computation of the oxygen saturation in arterial blood using the red and IR PPG data and the well-known and well-established extinction coefficients of haemoglobin with and without oxygen. Data acquisition and processing are accomplished under LabVIEW virtual environment [C2898]

"Design of a Low-Cost Instrument for Pulse Oximetry"

Monitoring the arterial oxygen saturation is very important to detect hypoxemia, as it is the major final cause of anaesthetic deaths, and even when the episode is not fatal it can result in irreversible brain damage. This work presents the design of a low-cost instrument for continuously monitoring the arterial oxygen saturation level in the patient's blood. Two sources of light originate from the probe at two wavelengths (650nm and 940nm). The light is partly absorbed by hemoglobin, by amounts which differ depending on its saturation of oxygen. By calculating the light absorption at the two wavelengths the processor can compute the proportion of oxygenated hemoglobin [C2899]

"Assessment on Self-mixing Laser Interferometry for Blood flow Measurement over Skin Surface"

We study self-mixing laser diode (SM-LD) as a low-cost and compact optical sensor for non-invasive blood flow measurement and profiling over the skin surface. By making in-vivo and in-vitro measurements, we compare the SM-LD based sensor with the commercially available flowmeters to assess the accuracy and feasibility of SM-LD sensors for such applications. For the SM-LD based sensor, we apply two different signal processing methods: (i) counting the intensity fluctuations of the signal from the SM-LD to obtain a frequency value; and (ii) the autocorrelation of the signal. In-vitro measurements show good agreement with the commercially available flowmeters. In-vivo measurements performed on test subjects revealed that autocorrelation technique shows much better results than the counting technique in blood flow profiling and SM-LD based sensor suffers from errors caused by external artifacts during measurements [C2900]

"Semitransparent Organic Light Emitting Device with Ag Electrodes"

A semitransparent organic light emitting device was fabricated by thermal evaporation only. Thin Ag films were used in both anode and cathode. The optical and electrical property of the device was improved after using

several methods to modify the electrodes. O2plasma pretreatment was employed after anode was formed, and the cathode was consisted of a composite metal cathode and a cap layer. The cap layer was used to enhance the cathode's transmission, and the thickness of the cap layer was derived from transfer matrix theory. The emitted light from anode shows much better performance than that of the light from cathode, and the whole device possesses superior electroluminescence characteristics that are proper for transparent display [C2901]

"Accurate Camera Calibration with New Minimizing Function"

Camera calibration has been studied extensively in computer vision and photogrammetry. But almost all the camera calibration techniques iterate with the general minimizing function by minimizing the discrepancy between the real position in pixels of a 2D image point and the calculated projection of the 3D object point on the image plane. Though the imaging distance errors are equal, the spatial anti-projection distance errors are not identical at different distance before the camera. As far as vision measurement system, its final object is to obtain the accurate space coordinate of the measured point. Theoretically, the space point should on the optical ray generated by its projection image point and the center of camera. To satisfy the special request of vision measurement system for camera calibration parameters, we present a valid camera calibration method based on new minimizing function using high precision virtual stereo calibration pattern, which is formed by moving an infrared light-emitting diode (IR LED) feature point with CMM on pre-defined paths. Radial distortion and decentering distortion are molded. The proposed technique consists of linear optimization parameter estimation and nonlinear refinement, which is carried out by minimizing the distance of all the 3D space points from the corresponding optical ray generated by their projections image points and the center of camera. Simulated data and real data are both shown that the calibration precision of the proposed method is better than that of the general minimizing the distance between the imaged points and the modeled projections. This method considerable reduces the distance of all the 3D space points from the corresponding optical ray generated from their projections image points and the center of camera, enhances the precision of camera calibration parameters, and improves the precision of the vision measurement system. [C2902]

"WDM PON with a single SLED seeding colorless RSOA-based OLT and ONUs"

This paper presents the experimental results obtained on a 16 users WDM PON architecture based on wavelength-seeded R-SOAs both at OLT and ONUs operating at 1,25 Gbit/s. A single spectrum-sliced SLED generates 32 wavelengths. [C2903]

"Field-Emission Diode and Triode Structures Using Self-Assembled Silicon Nanostructure Cathodes"

Field emission displays (FEDs) are one of the various technologies being developed for the flat-panel display market. Much recent work has centred on carbon-nanotube-patterned cathodes, however, and alternative technology that is compatible with conventional silicon CMOS processes would be desirable. Self-assembled silicon nanostructures are a possible alternative. Processes for forming diodes and triodes incorporating these nanostructures, along with electrical characterisation data, are presented in this paper. [C2904]

"An Algorithm for Real-Time Eye-Movement Tracking with Free Head Movement"

A fast algorithm for real-time eye-movement tracking with free head movement based using image subtraction was proposed in this study. for this purpose four reference points consisted of infra-red LEDs were used to compensate the subject's head movement and a fast gazing point detection algorithm was developed and applied to determine the subject's gazing point by comparing the relative distance and angle between the center points of the pupil area. the size of input image was scaled down to 1/16 to detect the eye and its neighbor area quickly and the theorem for a circumcenter of a triangle was applied to detect the center of the pupil [C2905]

"Low-Cost Laser-Based Wireless Optical Transceiver for 10-Mbps Ethernet Link"

Implementation of a low-cost full-duplex 10 Mbps optical transceiver for free-space optical data communication is presented. By employing easy-to-find electronic components, the transceiver consists three main parts namely interface circuit, transmitter and receiver. The transmitter-based on a simple inverter circuitry, drives a laser diode emitting 635 nm visible red light. The incoming light signal is focused via 10-cm-diameter lens onto a photodiode SFH203. The received signal current from the photodiode is converted to signal voltage by a resistive-feedback transimpedance amplifier, differentiator, and limiting amplifier and consequently delivered to the interface circuit. 10 Mbps Ethernet link between two personal computers situated 300 meters apart has been successfully tested [C2906]

"Microcavity Light Emitting Devices Based on Colloidal Semiconductor Nanocrystal Quantum Dots"

This paper describes the design, fabrication, and characterization of a microcavity-electroluminescence (EL) device based on colloidal semiconductor nanocrystal quantum dots (NQDs). We observed a significant reduction in EL emission bandwidth from the fabricated device. Enhancement in emission efficiency and output directionality will be reported as well. [C2907]

"Two-dimensional Photonic Crystal Microcavity with Germanium Self-assembled Quantum Dots"

We fabricated two-dimensional photonic crystals on silicon-on-insulator substrate. Ge/Si self-assembled quantum dots were embedded in the PhC cavity as light emitters. The photoluminescence spectra of H1 cavity at room temperature showed strong optical resonance in the cavity. Significant enhancement of the luminescence was achieved and a main peak at 1.43 mum was seen to dominate the spectrum. Reasonable shift of the resonant peak wavelength was observed by changing the PhC parameters. The results prove that combination between photonic crystal and Ge quantum dots is a reasonable way to realize Si-based light source. [C2908]

"Wavelength Tunable Light Emitting Nanostructures and Devices"

In this paper, we report our recent progress in wavelength tunable organic light emitting diodes (OLEDs) and nanostructures. For OLEDs, a considerable color tunability by changing the applied voltage is demonstrated and the mechanisms of the tunability are discussed. For the nanostructures, the tunable emission of ZnSe nanobelts by modifying the operation temperature is reported. The origins of the emission light will be discussed. [C2909]

"Stabilization and Control of the Wavelength of GaN LED"

In recent years, blue light emitting diodes of III-nitride semiconductors have been of much interest. In this paper we present stabilization and control of the wavelength of GaN LED which is used as a source of light for optical data communication. Wavelength of a LED varies with the change in the amount of current passing through it and the change in its pn junction temperature. It is proposed to use a feedback circuit to control the current passing through a LED and piezoelectric fan to control its pn junction temperature. Simulation results are shown good and stabilization and control of the wavelength of the LED. Hence the distortion, produced during data communication through an optical fiber, is reduced [C2910]

"A semi-spherical irradiance profiles meter used as a quality control device"

The design of a semi-spherical irradiance profile detector (SD) is shown. With this device, we obtain the distribution of illumination due to punctual sources in the visible range. This meter can be also used as quality control device for lamps and bulbs. We are interested in the distribution of the irradiance, instead of the total irradiance over a complete region, which is the information given by spherical meters, such as the Ulbrich spheres. The obtained discrete profiles corresponds to the irradiance, as equivalent to the voltage intensity detected in semispherical detector basic sensor. These voltage values permit us to obtain the corresponding profile to each source and give as the capability to chose the better sources for specifics tasks. [C2911]

"Enhancement of Light Extraction Efficiency in OLED with Periodic Nano-Structure"

To improve the light-extraction-efficiency of organic light emitting diode (OLED), we introduced novel photonic crystal slab (PCS) structures with Taper unit cells into the interface of ITO layer and glass substrate. By optimizing the geometric parameters, we proved that the PCS with triangular lattice of Taper cells was more effective in reducing the energy of guided wave trapped in OLED than the traditional PCS structures. Light-extraction-efficiency of OLED based on this PCS increased by 95.26%. Physical mechanisms of light- extraction-efficiency enhancement in these structures are further discussed. [C2912]

"A Driving Scheme for AMOLED Displays Based on Current Feedback"

A scheme of driving AMOLED displays with amorphous silicon (a-Si) thin film transistors (TFTs) is presented. By exploiting current feedback, a transresistance amplifier as column driver, and an accelerating current pulse, the driving scheme provides fast programming and low sensitivity of OLED current to shift in VTin a-Si TFTs. Prototypes of the pixel circuit and the transresistance amplifier were fabricated in an a-Si TFT process and a 0.8-mum 20-V CMOS technology. Measurements show less than 5% change in the OLED current for 2.5 V shift in VT. Settling times smaller than 70 mus were achieved for programming currents as small as 100 nA [C2913]

"Randomly non-lithographic masking and MOCVD regrowth of GaN micro-hillocks to improve light

emitting diode efficiencies"

First Page of the Article [C2914]

"The Future of Asian Optical Communications; Asian Optical Fiber Communication & Optoelectronic Exposition & Conference 2006"

The following topics were dealt with: advanced optical communication network; radio-over-fiber network; optical heterodyne OPESK system; polarisation mode dispersion on a single mode fiber; ultrafast bit and byte addressing; all optical memory; microring resonators; token-based optical burst switchng ring network; GMPLS Testing; Kerr nonlinearity; optical ASK-DPSK system; optical ASK-DQPSK system; CAD for photonics devices and circuit; ion-exchanged glass waveguide technology; fiber optical communication; PPM receiver; deep space communication; SOA based fibre ring laser; photonic crystal waveguide; fiber grating laser module package; PMD distribution measurement by an OTDR with polarimetry; deep-blue organic light emitting device; optical fibre Raman temperature sensor; and integrated network management system for 3TNET [C2915]

"Improved organic light-emitting devices with tunable IV by inserting a hole-blocking layer between hole-injecting layer and hole-transporting layer"

Insertion of hole-blocking layer (HBL) between the hole-transporting layer (HTL) and hole-injection layer for tris-(8-hydroxyquinoline) aluminum (Alq3)-based organic light-emitting device is shown to improve the current efficiency by 30%. The improvement was attributed to the better electron-hole balance in the device. Two different organic materials, 2,9-dimethyl-4, 7-diphenylphenanthroline (BCP) and Alq3were used as HBL. Variation of HBL thickness was shown to adjust the current efficiency with the optimum thickness of 3 nm and 2 nm for BCP and Alq3, respectively. Reduction of HTL thickness was observed to reduce the operating voltage. For device with BCP HBL, the current efficiency is independent of the HTL thickness, optimum performance was observed for device with BCP and HTL thicknesses of 3 nm and 5 nm, respectively. However for device with Alq3HBL the efficiency drops with reduction of HTL. The drop is due to electron leakage, as Alq3HBL does not block the electron, whereby the inefficient exciplex emission was observed [C2916]

"Flight Test Evaluation of Synthetic and Peripheral Vision Displays in General Aviation"

Spatial disorientation is one of the leading causes of accidents in general aviation (GA) and is a phenomenon that develops in a matter of seconds rather than minutes or hours. With instrumentation currently present in GA aircraft, during times of low visibility the pilot's awareness of his surroundings through visual, vestibular, and muscular cues can be misleading and may cause the pilot to put the aircraft inadvertently in an unusual attitude. This paper discusses the evaluation of a prototype synthetic and peripheral vision display system [C2917]

"Development of flat panel displays"

First Page of the Article [C2918]

"High Efficiency Deep-Blue Organic Light-Emitting Devices"

High efficiency, deep-blue organic light-emitting devices (OLEDs) with undoped and doped structures are fabricated. By using oligo(phenylenvinylene) derivatives as blue emitter, the maximum luminance efficiency of OLEDs attains 3.67 and 4.76 cd/A, corresponding to the undoped and doped device. The CIE coordinates of them are (0.15, 0.15) and (0.15, 0.12) at 1000 cd/m2, respectively [C2919]

"Calculations of Optical Systems of Light-Emitting Diodes Under Program Tracepro"

In the report results of calculations of beam patterns of light-emitting diodes with the various optical systems providing narrow and wide radiation are discussed. Objects of researches had two basic variants polymeric lenses (with a parameter of refraction n = 1,55): lenses with full internal reflection from a lateral surface with the maximal radiation in an axial direction and lenses with circular radiation from a lateral surface with the minimal radiation in an axial direction [C2920]

"MBARI's Midwater Ecology Low-Light Imaging System Development"

This paper focuses on the technology for an imaging system that allows MBARI's midwater ecologists to detect both illuminated, nearly transparent organisms and stimulated bioluminescence. The system utilizes high intensity red LEDs and an ICCD camera with the ability to gate the detected light. This system uses less power than traditional underwater video systems and provides a higher contrast image for use in future automated counting systems [C2921]

"Field Tests of a New Camera/LED Strobe System"

Two Hybrid ROV (HROV) subsystems were recently tested together in the deep sea using the Jason 2 ROV as a host. The first system is a new standards-based architecture for digital still camera control and telemetry; the second is a prototype LED array. The camera was used to trigger the strobe system while operating in 2300 m of water at the Juan de Fuca Vent Field. Several thousand images were collected under a range of varying conditions, validating several of the assumptions made in the development process, and guiding future development efforts [C2922]

"InGaAs/InP Single Photon Avalanche Diode Design and Characterization"

Single-photon avalanche diodes (SPAD) for 1550 nm wavelength can have InGaAs/InP structure similar to that of avalanche photodiodes of fiber optic systems, but for optimizing the device structure radically different criteria must be adopted. Such criteria are here discussed and a complete experimental characterization of the fabricated device is reported. Remarkable performance is verified also at moderately low temperature, as achieved with Peltier coolers [C2923]

"An Asynchronous 1.8MHz DC/DC Boost Converter Implemented in the Current Domain for Cellular Phone Lighting Management"

This paper presents an asynchronous 1.8MHz DC/DC boost converter used to generate any output voltage between 5.6V and 25V out of a single cell Li-ion battery. The output is controlled by a pulse-width-modulated (PWM) current programmed mode (CPM) controller. An area-efficient controller with excellent dynamic performance is achieved by using an adaptive P compensator; the proposed control circuit is entirely implemented in the current domain. The typical conversion efficiency of 80% at 120mA is mainly determined by conduction and switching losses in the external components. A 0.25mum standard CMOS technology with thick metal stack and a 5V device allows a direct-to-battery connection; the area is 0.34mm2 [C2924]

"Researches of Light-Emitting Diodes Luxeon Star with Various Polymeric Lenses"

Results of measurements and calculations of radiation patterns of light-emitting diodes Luxeon star with replaceable collimating and diffusing polymeric lenses are discussed [C2925]

"Design Optimization of Glass Substrate Handler for Evaporating Process System"

The mother glass substrate in OLED is needed to be enlarge for raising its productivity itself as well as the realization of the OLED TV. On the other hand the large-size glass substrate has some difficulties regarding its deflection during handling operation due to its thinness (0.5~0.7t) which is not even enough to stand its mass itself. This study is demonstrating a new solution of these difficulties through clamping and bending boundary conditions, which help to minimize the deflection of the glass substrate. The experiments had also been carried out to verify the proposed method for minimizing the glass-deflection. This new design of glass substrate handler may be useful in manufacturing the large OLED displays [C2926]

"Autonomous Flight Control for a Small RC Helicopter ~A Measurement System with an EKF and a Fuzzy Control via GA-Based Learning~"

To realize the autonomous flight control of an RC helicopter, this paper proposes a vision system with an extended Kalman filter and an automatic rule generation using genetic algorithm. A small helicopter is equipped with four LEDs as markers, and an EKF is formulated to enhance precision. Furthermore, fuzzy rules are automatically generated by using a genetic algorithm in a virtual world. This virtual world is realized by a delicately developed flight simulator. Consequently, this paper clearly shows that the small RC helicopter can hover [C2927]

"Improvement of the Ability to Recognize Sweet Peppers for Picking Robot in Greenhouse Horticulture"

This paper describes improvement of the ability to recognize sweet peppers for picking robot in greenhouse horticulture. A prototype of the picking robot for sweet peppers has been manufactured. This robot has an image processing system, a camera positioning system, and a cutting device. However the ability to recognize sweet peppers was low, the picking ability was also low. The color of fruits of sweet peppers is almost same color of leaves of it. For identifying a fruit from leaves, this system needs the lighting system. At first we used the fluorescent lamp on the lighting system. In this system, it was possible to identify only fruits in the condition of

mixed fruits and leaves. However, if the fruits overlapping with several other fruits, the shapes of these fruits did not exactly recognize, and it is possible to be different the two fruits that are recognized by right and left camera. In this case, because it cannot to exactly measure by stereovision system, the picking ability became low. So we use the new lighting system with LED. In the result of experiments, this CDD lighting system improves the ability to recognize the sweet peppers [C2928]

"A Cooperative Intelligent Decision Support System"

Traditional decision support systems give not enough possibilities of intervention to the user. In complex situations, decision is not structured and it becomes primordial to design intelligent and cooperative systems allowing a joint resolution of problem and dynamic sharing of the tasks between the user and the system according to problems to be solved and an appropriate cooperation mode. We propose, in this paper, a cooperative architecture for intelligent decision support system. The framework embeds expert knowledge within the DSS to provide intelligent decision support, and implements the intelligent DSS using collaboration technologies by putting the decision maker effectively in the loop of such DSS. To this end, besides the conceptual model of the domain, we used a structure based on task-method paradigm for task conceptual modelling. Applicability and relevance of this system are illustrated through a case study where the system and the user cooperate in decision problem solving which consists of identifying boiler defects, diagnosing and suggesting actions of cure [C2929]

"Measurement of methane gas concentration using an infrared LED"

This paper describes a simple method to measure methane (CH4) gas concentration using an infrared LED (wavelength=1.6 mum). Recently, CH4based natural gas is increasingly being used for city gas. However, CH4gas is hazardous to gas explosion, so that accurate and convenient concentration sensors of CH4are required. We have developed an infrared absorption system for measurement of CH4gas concentration. Our method is simpler and more user-friendly than existing measurement methods. The gas concentration is associated with the absorption, the optical path length and the absorption intensity. CH4molecule has absorption bands in the infrared region (near 1.3 mum, 1.6 mum, 3.3 mum and 7.6 mum) and the infrared LED can access the CH4absorption band in the wavelength region of 1.6 mum. For the purpose of development of concentration sensor of CH4gas, examination about the sensing property of absorption of CH4by the difference of its concentration is performed, and it reports briefly [C2930]

"Temperature Dependence of Phosphor Contained Silica Gel Sensor"

Variations in the photoluminescence (PL) spectra from porous silica gel containing the luminous organic pigments, which is sensitive to organic vapors, were evaluated at various temperatures. PL intensity from rhodamine and fluorescein contained silica gel decreases with temperature. Temperature coefficient of peak intensity from rhodamine and fluorescein contained silica gel is found to be different. In order to evaluate using rhodamine and/or fluorescein contained silica gel sensors, temperature must be controlled during measurement. Fluorescence thermometer is also suggested to be developed based on temperature dependence of photoluminescence from rhodamine and fluorescein contained silica gel sensors [C2931]

"A House Cleaning Robot System -Path indication and Position estimation using ceiling camera"

Finding the desired path for a mobile robot in order to perform cleaning efficiently is a difficult task. Moreover, in complex indoor environments, mobile robot position estimation and its correction remains to be one big problem. This paper describes a cleaning robot system, which is composed of path indication and auto position estimation. This system allows the user to teach the robot a determined cleaning path and provides long time cleaning stability [C2932]

"Materials Challenges and Solutions for the Packaging of High Power LEDs"

As a future lighting source, high power LED lighting is significant in that it provides decades of lifetime under normal operation, requiring a fraction of the power demanded for traditional lighting solutions. For LED lighting to be a viable lighting source, there are many technical challenges to be resolved. Among them the light extraction efficiency, the chip overheating, and the light output degradation are the key issues, which turn out to be all related to the packaging materials. This talk outlines those challenges and reports some of the recent progresses in resolving the key problems [C2933]

"Light extraction from light-emitting diodes: effect of die geometries"

Comparison study is performed for the first time for the light extraction efficiency (LEE) of GaN-based LED of

four different basic geometries (square, circular or cylindrical, pentagonal and hexagonal cubic structures) with and without texturing die top surface by employing ray tracing simulation technique. It is found that the chip with highly negative deformed angles (HNDA-chips) has the highest LEE among all studied chip structures. For the HNDA chips, the circular-base chips have the highest LEE, i.e., significantly higher than that of square-, pentagonal- and hexagonal-base cubic chips. The industry often used surface texturing only improves the LEE over the conventional LED structure. The LEE of GaN chips with the textured surface is found to be always smaller than that of the HNDA-chips with un-textured surfaces [C2934]

"Unconscious transmission of human feelings"

This paper was focused on the next generation of ubiquitous services by using ubiquitous networks and devices. This paper was especially focused on the transmission services of feelings to others. In the paper, some conventional transmission services of feelings were introduced and a few of the unconscious transmission services of feelings to both specific targets and multiple targets were pointed out. The paper proposed two examples of the new services that would enable the users to transmit their feelings unconsciously to others by using ubiquitous networks and devices. These services were proposed through the PRESPE (participatory requirements elicitation using scenarios and photo essays) approach and called respectively the "aura transmission system" and "back scratcher system". The "aura transmission system" was an example for unconscious transmission of human feelings to multiple targets in a public space. The "back scratcher system" was an example for unconscious transmission of human feelings to specific targets in private. Further discussion about the usefulness and possible negative influences on human nature or society by the new services was done, and the future research efforts of these services were described in this paper [C2935]

"Biometric Authentication using Phase Only Correlation with Compensation Algorithm for Rotation"

In biometric authentication, phase only correlation is one of the effective method since the approach is robust for shift and irregularity of illumination of input images. But this method has a defect that the correlation values are considerably different when the image rotates from the original position. To improve this weak point, this paper deals with phase only correlation with compensation algorithm for rotation. For correct of rotation, we use Hough transform, Fourier transform and logarithm conversion. Our proposed method was applied to actual images of wrist vein. To capture more clearly vein pattern, we used CCD camera with infrared LEDs and enhanced it by image data processing. In this paper, those experiments in search of angle of rotation calculation precision and comparing our method with the early researches were performed. Our proposed method has possibility to be applied to identification with devices of facility, such as cellular phone [C2936]

"Real Time Mean Shift Tracking using Optical Flow Distribution"

This paper describes about real-time object tracking method based on mean shift tracking algorithm. The mean shift tracking algorithm is an efficient technique for tracking object through an image. The original mean shift tracking is proposed to apply the color image based on the color distribution. A near-infrared camera is used with surveillance system to take in the dark. It is difficult to track the target object in the low contrast image such as the infrared image. To overcome this problem, our idea is to consider optical flow distribution. The proposed method is integrated three distributions (color, flow magnitude and flow direction). Experiments were conducted for the color image and the infrared image compared with the original method. It is shown that our method is able to track a target object in the low contrast image [C2937]

"The design of the cooling system for the CMS Barrel Electromagnetic Calorimeter"

CMS is one of the four experiments being constructed for the LHC. The electromagnetic calorimeter (ECAL) is made of lead tungstate (PbWO4) crystals. Scintillation light from the crystals in the barrel is detected by avalanche photo diodes (APD). The number of scintillation photons emitted by the crystals and the amplification of the APD are both temperature dependent. Keeping the constant term of the energy resolution (the contribution to the fractional energy resolution which is independent of energy) below a few tenths of percent requires the temperature of crystals and APDs to be stabilized to within 0.057 K. In this contribution, we describe the innovative solutions which have been developed and implemented to achieve this performance. [C2938]

"An LED-based Tactile Sensor for Multi-sensing over Large Areas"

We present an optical-based tactile sensor that utilizes light emitting diodes (LEDs) in combination with a semi-opaque compliant medium. Previously we have presented this technology in application to sensing either force or a combination of point force and position. In this paper we now consider the application of this sensor to the sensing of object size. We propose a modification that enables sensing of the size on an incident object whilst retaining the previous sensing abilities. This is achieved by introducing a second deformable layer that may

optionally have different compressive and/or optically transmission properties. We present results of sensing the size of different objects using this modified sensor and consider the simultaneous measurement of force, size and position. This triple-sensing action, along with the soft nature of the sensor medium, is especially important in applications where the sensing elements may be widely dispersed, for example in safe and compliant robot skin covering. [C2939]

"Smart Flexible Turbidity Sensing Based on Embedded Neural Network"

This paper presents a flexible turbidity sensing system that implements single and multiple infrared (IR) beam architectures. The hardware includes two pairs of IR LED-IR photodiode whose relative position permits the materialization of different architectures for turbidity optical measurement. The control of the sensing architecture is performed by a microcontroller based I/O board that is wireless connected to a PC for advanced control and data processing based on neural networks. Using intelligent processing procedures, the best turbidity measurement architecture is selected in terms of measurement accuracy for a given turbidity level. Elements of neural network design, optimization and embedding as part of an advanced processing software component are presented. [C2940]

"UV LED arrays for spectroscopic sorting of bioaerosols"

A compact sensor for physically sorting bio-aerosols based on fluorescence spectra excited using UV-LED arrays is presented. The optical system integrates electronics for real-time processing of spectral data and a miniaturized aerodynamic deflector for particle separation. [C2941]

"64-pixel GPD array for WLS fiber readouts"

In this paper we report on the recent development and evaluation of silicon geiger photodiode (GPD) arrays designed to read out simultaneously 64 1 mm-diameter wavelength shifting (WLS) fibers. [C2942]

"Study of a new class of picosecond X-ray scintillators: organic/inorganic perovskite"

For high resolution X-ray imaging very thin scintillating layers are requested. Non powder based, homogeneous, sub-micrometer thick scintillating screen fabrication is difficult task. Scintillator deposition by spin coating could help to overcome the above mentioned difficulties. Easily soluble, (RNH3)2MX4type compounds, where R is the alkyl chain, M is a divalent metal cation and the ligand X is halogen, after solvent evaporation, will produce a self organized layered perovskite structure. In these layered organic-inorganic structures the inorganic octahedral coordinated inorganic MX42-layers are sandwiched between two layers composed from R-NH3+. This self organized two dimensional structure can be characterized by a multiple quantum well structure with interesting physical properties. In the past it was proven that upon 2 MeV proton irradiation, radiation induced emission can be obtained. In our work we synthesized the (n-C6H13NH3)2MX4compound and found that visible light emission could be obtained by X-ray irradiation. In principle the light emission from these compounds due to the excitonic emission is extremely fast, falls in the picosecond range. There are numerous potential applications for this new type of scintillators. [C2943]

"A new type of highly sensitive portable ozone sensor operating at room temperature"

In2O3(001) thin films were grown on (0001) sapphire by metal-organic chemical vapor deposition. Highly textured In2O3films were tested as ozone sensors based on the photoreduction and oxidation effects. The sensors were found to have the largest sensitivity at room temperature. With such In2O3based sensors, the ozone concentrations in a wide range from 15 ppb up to 92 ppm were measured. [C2944]

"Diffuse Optical Tomography in a Spinal Cage: Monte Carlo Simulation and in-Vitro Studies"

Vertebral arthrodesis supported by cage devices is a successful surgical option for treating degenerative disorders of the spine. Despite the favourable results reported, the process of formation and maintenance of bone tissue is not well understood. Improving knowledge on these multifactorial biological mechanisms is crucial to advance the technique. Diffuse optical tomography (DOT), implemented with microfabricated optodes, is a promising way of monitoring bone growth in the spinal cage. In this paper, we present a preliminary study on the feasibility and value of such a system. The direct problem has been addressed numerically and through in-vitro measurements. Two scenarios of interbody fusion (creeping substitution and endochondral ossification) have been simulated using Monte Carlo techniques for several optode configurations. A 16times16 photodiode-based DOT system based on fibre-optics has been developed to validate the numerical results in conjunction with an in-vitro model of the biological problem. We have found that the small tissue volumes involved permit a Continuous Wave implementation based on LED's and photodiodes. The needed levels of optical power are

compatible with operation from a telemetry link. Significant contrast has been found for the various stages of spinal fusion in the considered scenarios, which suggests that the inversion problem will be able to differentiate among them. [C2945]

"Path Generation Using Matrix Representations of Previous Robot State Data"

Humans learn by repetition and using past experiences. It is possible for robots to act in a similar fashion. By representing past path traversal experiences with matrices, a new path can be generated without relying on calculations of complex dynamics or control laws. This paper presents one approach for allowing robots to use past experience to generate new paths and control actions. This approach relies on using several matrices to associate each new input value with previous robot states. An example is provided and analyzed which shows a successful simulated implementation of this approach. In addition a real world test of the approach was conducted which demonstrates that the implementation not only generates new paths, but does so fast enough to be feasible for real time systems [C2946]

"A CMOS Image Sensor for Fluorescence Lifetime Imaging"

In this paper, a CMOS image sensor for fluorescence lifetime imaging (FLIM) is presented. The fluorescence lifetime is a powerful tool to analyze molecules because the fluorescence lifetime reflects a molecule's structure, dynamics, and environments. The proposed CMOS FLIM sensor consists of pixel array to realize the sifting ability for fluorescence, noise canceling column readout amplifiers, and output buffers. The pixel has a photodiode and an image intensifier to sift fluorescence from the excited light pulses. A prototype CMOS FLIM sensor with 320(H) times 80(V) pixels is designed and implemented in 0.18 mum CMOS technology. The results show that the CMOS FLIM sensor has the ability to sift fluorescence from the excited light pulses using a blue and an ultraviolet light-emitting diodes. It also shows that the CMOS FLIM sensor can measure the lifetime in a wide range of fluorescence lifetime. [C2947]

"Low Cost Optical Array Sensing Platform"

A low cost, highly sensitive optical device was constructed with an array of LED emitter and a single LED light detector for colorimetric analysis. Enhanced selectivity for a specific chromophore was obtained by choosing LEDs with emission bands that overlap with its absorption band. This multi-sensor approach coupled with statistical technique PCA was demonstrated to discriminate between various single-dye samples and to resolve complex colour mixtures. [C2948]

"Refractive Index Measurement of Liquids Using A Dual-color Optical Fiber SPR Sensing System"

In this paper we present practical capability of a dual-color optical fiber surface plasmon resonance (SPR) sensing system for measuring the refractive index (RI) of liquids. The sensor system consists of two LEDs, two optical couplers, a photodiode and an electronics followed by a laptop computer via an A/D converter. Features of the developed system are compact, portable and inexpensive. Principle of the proposed SPR sensing system is based on the differential reflectance method. Changes of reflectance at two wavelengths are proportional to the refractive index change of a sensed medium. Differential of two reflectance gives two-folded sensitivity. Three liquids with different RI ranges were tested. Also the reproducibility of measured data was checked. As a result, it was demonstrated experimentally that the dual-color optical fiber SPR sensing system is capable of measuring the RI of liquids over the range of from 1.329 to 1.36 with the RI resolution of 2.35 X 10-4. [C2949]

"Mechanical Properties of Polymer Dielectric Films at ElevatedTemperatures"

The miniaturization of microelectronics has led to the use of polymer dielectric films with a thickness less than a micrometer. The use of polymer dielectric films has introduced new failure modes. To have a better understanding of these failures, knowledge of the mechanical properties is necessary. The through-plane elastic modulus and change in permittivity for a 1 mum thick Cyclotenetrade 4022 film sandwiched by two aluminium electrodes on a silicon wafer are reported. Two circular parallel plate capacitors and four interdigitated electrodes where tested at a pressure of 0, 5, 7.5 and 10 MPa. An initial relative dielectric constant of the film of 2.66plusmn0.05 was obtained. This yields a change in constant equal to 1.241middot10-4plusmn2.1middot10-5per MPa pressure at room temperature. The through-plane modulus showed a linear elastic behaviour equal to 4.73plusmn0.46, 4.11plusmn0.39, 3.64plusmn0.31 and 3.56plusmn0.32 GPa for 20deg, 50deg, 70deg and 100deg C respectively. The modulus at room temperature is in good agreement with the values found in literature [C2950]

"The Design and Realization of Machine Vision System in Flip-chip Bonder"

Machine vision scheme and CCD install position are designed to realize the alignment of chip and substrate in the thermosonic flip-chip bonding process. Based on experiments on various color and style LED lights, the single-color LED illumination composed of a ring LED light and some LED lamps are adopted to get a uniform luminance of visual field and clear contours of the object's surface. The vision software is developed based on HexSight, the conference points are added to models of locator to recognize different objects (chip & substrate). The reasonable control scheme of two CCD cameras is adopted. According to the error of translation and rotation estimated by experiments on many real images, the composite position error of the vision system on scale 1 times 1mm chip is calculated, which indicates the high precision and satisfaction of this vision system in microelectronic packaging [C2951]

"Powerline Communication System for Monitoring and Supervision of Feeder Equipments for MV Substation Automation"

With the deregulation of power market and for providing better services to electric consumers, the current substation should be automated. In the past decade, new communications schemes have been designed and retrofitted into the substations by the utilities to integrate data from relays and intelligent electronic devices (IEDs) and capitalize on the protection, control, metering, fault recording, communication functions available in digital devices. Generally, using station bus to connect all equipments inside the substation, except some primary equipments which are outsider substations such as MV/LV transformer and switchgears. For those outsider equipments, we propose using the REMPLI powerline communication (PLC) technologies to communicate with the substation. The simulation results have shown that the REMPLI PLC network guarantees the substation automation requirements. [C2952]

"Analysis of Dark Stain on Chip Surface of High-Power LED"

In the process of aging or in service of some high power blue LEDs, dark stain may occur on the LED chip surface, which cast a shadow over the chip and thus led to the losing of luminous flux. In the degraded samples, it was found that firstly the dark stain was formed on the chip surface equably, and then the color of this stain gradually darken with time. In this paper, this kind of dark stain was detected and analyzed. The morphology of the dark stain and the elements contained in it were measured by scanning electron microscopy (SEM) and energy dispersive analysis by X-ray (EDAX), respectively. A large mount of oxygen and carbon were found in the black zones, which implied that some chemical reactions occurred on the interface. After we removed the black materials off the chip surface, the quantity of luminous flux evidently increased. The origin of oxygen and the possible reason of the dark stain were also discussed [C2953]

"Effects of Bonding Parameters on the Lighting Performance of High Power LEDs Fabricated by Thermosonic Flip Chip Bonding"

LED technology has flourished for the past few decades. Under the rapid development of new LED industry, thermosonic flip chip bonding is considered as a quite useful fabrication method to manufacture the high power and high brightness LEDs. The effects of bonding parameters of thermosonic flip chip on the lighting performance of LEDs were surveyed in this paper. Since the thermosonic flip chip bonding process consists of three main parameters which involving substrate heating temperature, bonding force and ultrasonic power, the experiments were performed by altering these parameters. To study the relationship between the bonding parameters and lighting performance, flip chip LEDs was tested with a probing machine and a LED tester. The test results were recorded by a computer connected with the tester. By analyzing the data, similar trends of lighting intensity and domain wavelength under different bonding parameters were observed, and concrete effects of these parameters on the lighting performance of high power LEDs fabricated by thermosonic flip chip bonding were concluded [C2954]

"Heat Spreader with Aligned CNTs Designed for Thermal Management of HB-LED Packaging and Microelectronic Packaging"

A novel heat spreader with aligned CNT arrays synthesized on both sides is demonstrated to provide a low cost, effective thermal management method for high-brightness light emitter diode (HB-LED) packaging and microelectronic packaging. With this heat spreader, Si device and heat sink can be directly bridged and no further TIM or individual heat spreader is needed. The thermal resistance of the novel heat spreader with CNTs on both sides was only about 30% of that of conventional heat spreader with silver epoxy TIM on both sides. The thermal performance of the novel heat spreader can be further improved by optimizing CNT synthesis parameters [C2955]

"Characterization and theoretical modeling of light extraction enhancement in GaN photonic crystal

light emitting diodes"

A photonic crystal blue light emitting diodes is fabricated and characterized. The optical power enhancement with factor of two is demonstrated and could be attributed to guided resonances. [C2956]

"Investigation of InGaN/GaN light emitting diodes by excimer laser etching"

The InGaN/GaN light emitting diodes (LEDs) with a nano-roughened top p-GaN surface which using Ni nano-mask and laser etching methods were demonstrated and analyzed. The light output power of the InGaN/GaN LED with a nano-roughened top p-GaN surface with laser etching energy of 300 mJ/cm-2is 1.55 times that of a conventional LED, and the wall-plug efficiency is 68% at 20 mA. The series resistance of InGaN/GaN LED was reduced by 32% by the increase in the contact area of the nano-roughened surface. [C2957]

"3D modelling of enhanced surface emission using surface roughening"

3D FDTD is used to study the effect of surface roughening on the emission of a point source embedded in GaAs with a mirror behind the dipole. Enhancement factors of 10: 1 are observed. [C2958]

"Enhancement of light extraction in GaInN light-emitting diodes by conductive omni-directional reflectors"

Enhancement of light extraction in a GaInN light-emitting diode employing a conductive omnidirectional reflector consisting of GaN, an indium-tin oxide nanorod low-refractive-index layer, and an Ag layer is presented. [C2959]

"2-μm InGaSb/AlGaAsSb multiple-quantum-well light-emitting diodes"

We report fabrication and characterization of light-emitting diodes operating at room temperature with a peak wavelength of ~2.0 mum by using heterostructures of InGaSb/AlGaAsSb quantum wells grown by molecular beam epitaxy on GaSb substrates. [C2960]

"Experimental and theoretical analysis on ultraviolet 370-nm AlGaInN light-emitting diodes"

A 370-nm LED with an AlGaN electron-block layer is fabricated. Simulation results suggest that optimal performance is obtained when the LED has more than 3 wells and the AlGaN has Al composition of 19-21%. [C2961]

"A fork connected auto-transformer based 24-pulse AC-DC converter"

In this paper, a 24-pulse AC-DC converter is designed, modeled and simulated to feed non-isolated industrial loads. The proposed configuration consists of an auto-transformer based on fork connection to overcome current harmonic problems in AC mains. It improves power quality at AC mains and it meets IEEE-519 standard requirements at varying loads. A set of power quality indices on input AC mains and on DC bus for a load fed from 6-pulse and 12-pulse AC-DC converters is also given to compare their performance. It is observed that input current total harmonic distortion (THD) of less than 5% is possible with the proposed topology of AC-DC converter at varying loads. [C2962]

"A Line Power-Supply for LED Lighting using Piezoelectric Transformers in Class-E Topology"

An up to 5 Watts wide range power supply LED driver demonstrator with a piezoelectric transformer (PT) has been built to show the static and dynamic behavior as an off-line power supply. The target of the power converter controller using a PT, with 2.3 mm thickness and 17 mm diameter at frequency of 155-175 kHz, designed in a resonant circuit of class-E topology, is to maintain a constant output current of 290 mA/DC with variable output voltage drop at wide input voltage range of 85-250 V/AC. Also, the ZVS (zero-voltage-switching) condition is achieved over the full operation range. The used 1200 V fieldstop IGBT (1A-Type) shows losses around 200 mW over the full operating range for constant output current. The paper shows the regulation method for off-line power supplies using PT in class-E topology in constant current mode regulation (CCMR). The regulation algorithm has been programmed in C language operated by a 32-bit DSP (TMS320F2812). Besides, in the class-E application, the duty cycle of the switching frequency needs to be controlled in order to achieve the ZVS during the operation at different load and input condition. This goal is achievable only by phase locked loop (PLL) feedback in a satisfying way. To solve this problem, the idea of PT with an auxiliary tap has been applied. The application is suited for low size LED line adapters, to be integrated in bulb sockets. The results are applicable for any controller design of resonant PT step-down topologies. The several suited optimum control concept is investigated in this paper, considering the circuit expense being minimized [C2963]

"Thermal characterization of multi-die packages"

Thermal measurement and modeling of multi-die packages became a hot topic recently in different fields like RAM chip packaging or LEDs and LED assemblies. In our present study, besides the overview of usual multi die packages, we present results for a more complex structure: an opto-coupler device with 4 chips in a combined lateral and vertical arrangement. The paper gives an overview of measurement and modeling techniques and it describes actual measurement results along with our structure function based methodology which helps validating the detailed model of the package being studied. Also, we show how one can derive junction-to-pin thermal resistances with a technique using structure functions [C2964]

"Process development for yellow phosphor coating on blue light emitting diodes (LEDs) for white light illumination"

There are several methods to produce a white light emitting diode (LED). The most common commercially available white LED is made by mixing the blue light from a GaN chip and the yellow light from the emission of a yttrium aluminum garnet cerium (YAG:Ce) yellow phosphor coating. The quality of white LED using this approach heavily depends on the optimization of packing density, thickness and uniformity of the phosphor layer. The present study is intended to develop a new methodology for coating a uniform yellow phosphor layer. This newly developed coating method is based on the concept of screen-printing. A matrix array of LEDs is firstly mounted on a silicon substrate with the flip chip configuration. A silicon mold plate is fabricated with etched cavities that match with the dimensions and pattern of LED array. The silicon mold plate is then placed over the substrate that carries the LED array and serves as a printing mask. The yellow phosphor powder is pushed into the apertures by a squeegee blade and bonded to the LED with UV curable epoxy. The silicon mold plate is released after curing. Compared with other coating approaches, this yellow phosphor printing method is relatively simple and can make good quality white LEDs [C2965]

"A Novel Harmonic Mitigation Converter for Variable Frequency Drives"

In this paper, a novel autotransformer for 56-pulse AC-DC converter configuration is designed, modeled and simulated to feed vector controlled induction motor drive (VCIMD). The proposed autotransformer configuration consists of two paralleled 14-pulse AC-DC converters involving seven-phase shifted uncontrolled diode bridges with pulse doubling circuit. It improves power quality at AC mains and it meets IEEE-519 standard requirements at varying loads. [C2966]

"General Study for using LED to replace traditional lighting devices"

High power LED provides a high luminous and high efficient for using as a lighting source. Because of the advent for LED as lighting device, LED lighting becomes one of the new trends in the lighting industry. In this paper, the power circuit design based on the constant current flyback and the heat distribution matter are discussed. The aims of the work are provide a solution for using LED to replace the traditional lighting device. [C2967]

"DC Electrical Distribution Systems in Buildings"

With the gaining of popularity of concept of distribution generation (DG) and sustainable development, DG with renewable energy (RE) sources is one of the possible ways for building energy supply in the future. The current "DC-AC-DC" route from DG to DC loads via inverters may not be rational from the viewpoint of system simplicity and energy efficiency, a review on the current electrical distribution systems should be made. This paper reviews and evaluates possibilities of using DC electrical distribution systems with increasing RE resources and DC loads. There is potential of increasing energy efficiency and power quality. Drawbacks and merits are also identified. [C2968]

"A Low-Cost Light Source for WDM-PONs with Shared High Power Fiber Lasers"

Wavelength division multiplexing (WDM) provides a future approach to upgrade existing power splitting passive optical networks (PONs). In this paper, three options of low- cost optical network units (ONUs), namely spectrum-slicing, injection-wavelength-locking, and loop-back architectures are introduced, and a novel light source based on shared high power fiber lasers is proposed. A brief analysis from the perspective of power budget shows a single fiber laser with the output of several watts can be shared by several thousands of ONUs, and the cost for WDM light sources can be greatly reduced. [C2969]

"Optical Front-Ends for Low-Cost Laser-Based 10-Mbps Free-Space Optical Transceiver"

Implementation of a low-cost full-duplex 10Mbps optical transceiver for free-space optical data communication is presented. By employing easy-to-find electronic components, the transceiver consists three main parts namely interface circuit, transmitter and receiver. The transmitter-based on a simple inverter circuitry, drives a laser diode emitting 635nm visible red light. The incoming light signal is focused via 10-cm-diameter lens onto a photodiode SFH203. The received signal current from the photodiode is converted to signal voltage by a resistive-feedback transimpedance amplifier, differentiator, and limiting amplifier and consequently delivered to the interface circuit. 10Mbps Ethernet link between two personal computers situated 300 meters apart has been successfully tested [C2970]

"Effect of Anode Material and Cavity Design on the Performance of Microcavity OLEDs"

The authors report on the effect of the replacement of the conventional ITO anode with the semitransparent metallic material on the performance of microcavity OLEDs. The authors performed comprehensive simulations of the emission from microcavity OLEDs consisting of widely used organic materials, N,N'-di(naphthalene-l-yl)-N,N'-diphenylbenzidine (NPB) as a hole transport layer and tris (8-hydroxyquinoline) (Alq3) as emitting and electron transporting layer. Silver and LiF/Al were considered as a cathode, while metallic (Au and Ag) anode was used and simulations were performed on devices with both the metallic and conventional ITO anode. The electroluminescence emission spectra, electric field distribution inside the device, carrier density, recombination rate and exciton density were calculated as a function of the position of the emission layer. The results show that the metallic anode enhances light output and that optimum emission from a microcavity OLED is achieved when the position of the recombination region is aligned with the antinode of the standing wave inside the cavity. The microcavity OLED devices with Ag/Ag and Ag/Au mirrors were fabricated and characterized. The experimental results have been compared to the simulations and the influence of the different anode, emission region width and position on the performance of microcavity OLEDs was discussed. [C2971]

"Short time die attach characterization of leds for in-line testing application"

The qualification of the die attach of light emitting diodes (LED) is a very important element of predicting the reliability of the package, as the temperature of the chip is strongly affected by the quality of the die attach. LED manufacturers are seeking for solutions to be able to test die attach quality in mass production. This paper describes our findings regarding LED package testing with a focus on die attach quality testing, necessary short measurement times only. Requirements against the physical testing and the further processing are shown based on our experimental findings. [C2972]

"Stretchable electronic systems"

The variety and applications of electronic systems have undergone a considerable evolution during the past century. Paramount milestones have been the introduction of the printed wiring board, which allowed for a rationalized assembly of electronic systems and the fabrication of integrated circuits with still ongoing increase of functional density due to miniaturization. Additionally sensors, micro electro mechanical systems, displays, and light emitting diodes have greatly added application potentials to electronic systems. Miniaturization is still one of the drivers for development in electronic components. On the other hand, however, conformity of the electronic systems to some give shape or space is increasingly requested for future applications. At present a great number of electronic appliances e.g. in mobile communication and medical electronics are manufactured to be foldable by using flexible printed wiring boards for assembly. The flexible printed wiring board restricts the bending to be only around on axis at a time. For a conformity to a truly three dimensional shape the wiring substrate needs to be stretchable to a certain extend. The development of stretchable wiring boards is the aim of the European project STELLA (stretchable electronics for large area applications). In the present paper process technologies for the efficient fabrication of stretchable wiring substrates using printing technology and/or photo structuring will be described. The conductive wiring which has to be as stretchable as the substrate matrix is designed as a meander and was optimized using FEM modelling. The electric contact formation is effected either by soldering techniques using low melting solder alloys or with anisotropic conductive adhesive. The interface between components assembled on the stretchable board and the wiring is mechanically the most fragile point of the wiring. Approaches for the reinforcement of the vicinity of the assembled components and first results a- re presented. [C2973]

"LEDS: Providing Location-Aware End-to-End Data Security in Wireless Sensor Networks"

First Page of the Article [C2974]

"Sequential Color LED Back-Light Driving System for LCD Panels"

In this paper, a sequential color light emitting diode (LED) backlight driving system for liquid crystal display (LCD)

panels is proposed. Due to improvement on luminous efficacy, long life and wide color gamut, LED has gradually substituted for cold cathode fluorescent lamp as backlight The proposed driving system adopts sequential color scanning scheme to improve light utilization efficiency by removing color filter. To meet display performance requirement where color variation Delta UV needs to be limited below 0.002, this paper also proposes a family of output current ripple free topologies to reduce color variation caused by ripple current. In addition, a driving voltage resetter is introduced to resolve current-spike problem, improving backlight reliability and availability. A forward-type current ripple free converter has been built, from which experimental measurements have verified the discussed performance and feasibility of the proposed system [C2975]

"Quantum, Power, and Compound Semiconductor Devices -- III-V FETs for Logic: Lasers and Light Emitters in Si and III-V's"

First Page of the Article [C2976]

"Highly Stable Ga2O3-In2O3-ZnO TFT for Active-Matrix Organic Light-Emitting Diode Display Application"

We, for the first time, have successfully fabricated amorphous Ga 2O3-In2O3-ZnO thin film transistor (TFT) with excellent electrical properties and good stability under constant current stress. This transistor shows a field effect mobility of 10 cm2/Vs, an off current below 2 pA and a drain current on-to-off ratio of above 108. The threshold voltage shift was less than 0.2 V for 100 hours at 3 muA and 60 degC. Such stable oxide transistors can be utilized as driving transistor for large area OLED display [C2977]

"1.5 µm Emission from a Silicon MOS-LED Based on a Dislocation Network"

A novel Si MOS-LED is demonstrated, which is fully compatible with Si technology. It is based on a dislocation network fabricated by wafer direct bonding. Light emission at 1.5 µm was observed when the network was near the Si/SiO2interface close to/inside the accumulation layer induced by the gate voltage [C2978]

"Overview of emerging technologies-nano"

The existence of a technology-based business is predicated on providing the customers with the technology that satisfies their needs. The tracking and application of similar technology developments is not a difficult proposition. However, it is very easy to overlook the emergence of alternate technological solutions. While there is not a single predicator that will provide an insight to key emerging technologies, the tracking of trends provides a beginning. Understanding these trends and being able to sort wheat from chaff is the most difficult task. A significant portion of being able to determine exactly what is being manufactured. If a manufactured item can not be measured and quantified, the device can not really be manufactured. [C2979]

"Highly Efficient GaN-Based LEDs with Photonic Crystals Replicated from Patterned Si Substrates"

We report on highly efficient GaN-based light emitting diodes (LEDs) with the photonic crystals (PhC) which are initially patterned on Si substrates. The PhC structures are replicated at the LED bottom by hetero-epitaxial growth and a subsequent wafer-transfer technique. Owing to the synergetic effects of the higher crystal quality obtained by lateral growth on the patterned Si substrate and the increased optical emission by PhC, resultant LEDs with the PhC achieved enhanced output power by 70% compared with that without patterned Si substrate. The present technology will open a new era of low-cost and bright blue LEDs [C2980]

"High Stability, Low Leakage Nanocrystalline Silicon Bottom Gate Thin Film Transistors for AMOLED Displays"

We report performance characteristics of nanocrystalline silicon thin-film transistors (TFTs) fabricated at 280 degC by plasma-enhanced chemical vapor deposition. The TFTs exhibit field-effect mobility of 0.8 cm2V-1s-1, threshold voltage of 4 V, on/off current ratio about 108with an off-current of 10-13A, and subthreshold slope of 0.8 V/dec. Bias stress measurements show that the TFT is 3-5 times more stable than the hydrogenated amorphous silicon (a-Si:H) counterpart, with a shift in threshold voltage that is less than 5 % at a gate voltage of 15 V [C2981]

"Low Energy, Distributed, and QoS-Coverage-Preserving Architecture for Cluster-Based Sensor Networks"

An important design challenge for node scheduling is to extend the lifespan of sensor networks while preserving sufficient sensing coverage after switching off some sensors. This paper adapts the energy-balanced

coordinated node scheduling (ECONS) scheme, a distributed and adaptive protocol previously developed for flat sensor-net architecture, to the clustered architecture. ECONS exploits a geometry-inclusive approach to accurately determine the sensing coverage and the sleeping eligibility, effectively balances the energy consumption among different sensors, and consumes minimal communication overhead. The paper further integrates ECONS with the existing distributed clustering and routing protocols that are specifically designed for cluster-based dense sensor networks, and proposes a new architecture, referred to as the low-energy, distributed and QoS-coverage-preserving (EEDS) architecture. The system performance of EEDS is evaluated under two exemplary cases that require high and low QoS on sensing coverage, respectively. [C2982]

"Student Notice Board Based on LED Matrix System Controlled over TCP/IP Protocol"

In the age of semiconductor domination, LED light sources became cheap and popular. Authors of the project, focused on application of LED in graphic displays. Main target of designed and manufactured system was its versatility. It was obtained by projecting similar segments that one can merge at will. This allows us to build simple clock with one segment or sophisticated display for advertisements. LED matrices are driven by 8-bit shift registers, which are controlled by AVR micro-controllers. Micro-controller application allows connecting extension modules such as digital thermometer, easily. Communication between micro-controller and personal computer is over RS232 interface. This provides possibility to drive display over TCP/IP protocol [C2983]

"Modelling of Organic Device Cathode Obtained by Ion Beam Assisted Deposition"

Organic devices like solar cells or light emitting diodes (OLEDs) are intensively studied since the last years and are potentially able to reach the market. Nevertheless both polymer or small molecule based devices behave poor stability in open air conditions so that encapsulation process will by essential. A solution would be to use the top electrode (generally the cathode) as the encapsulating layer. In this case ion beam assisted deposition (IBAD) of the layer is an accurate process to obtain a dense layer which can act as a barrier to moisture and oxygen. First, a computer simulation, with the SRIM code based on the binary collision approximation, of a low energy argon ion beam interaction with an aluminium layer describes the densification effect of the IBAD process. It is found that the densification process is obtained by the aluminium recoil atom replacements which are preferentially located in a first domain near the surface, corresponding to the lacunas occurred by ion implantation, and a domain deeper than the mean free pass of the ions. Due to this latter replacement domain, a non assisted buffer layer is needed in the case of direct deposition of the metallic electrode on optically active organic layer, in order to avoid recoils atoms to act as traps. Then this process will be illustrated in the case of life time improvement of small molecule based OLEDs [C2984]

"A large-area flexible wireless power transmission sheet using printed plastic MEMS switches and organic field-effect transistors"

We have successfully manufactured a large-area power transmission sheet by using printing technologies. The position of electronic objects on this sheet can be contactlessly sensed by electromagnetic coupling using an organic transistor active matrix. Power is selectively fed to the objects by an electromagnetic field using a plastic MEMS-switching matrix [C2985]

"Influence of thickness and position of an ultrathin yellow layer on color tuning (including white) of Organic Light Emitting Diodes"

Non-doped white organic light-emitting diodes using (i) a yellow-emitting ultrathin layer of rubrene (5,6,11,12-tetraphenylnaphtacene) inserted on the either side of the interface of a hole-transporting alpha-NPB (4,4'-bis[N-(1-naphtyl)-N-phenylamino]biphenyl) layer and a blue-emitting DPVBi (4,4'-bis(2,2'-diphenylvinyl)-1,1'-biphenyl) layer, (ii) a hole-injecting layer of CuPc (copper pthalocyanine), (iii) an electron-transporting layer of Al(Q)3(aluminium tris[8-hydroxyquinolinate]), are described. Both the thickness and the position of the rubrene layer within the hole transporting layer of alpha-NPB and the blue-emitting film of DPVBi allow to achieve the desired color from deep blue with CIE coordinates (x= 0.17, y= 0.15) and an external quantum efficiency etaext= 3.4%, (at 30 mA/cm 2), to pure yellow with CIE (0.51, 0.48) and etaext =1.3%, via a bright white (WOLED) with excellent CIE coordinates (x= 0.33, y= 0.32), a etaextof 1.9%, a color rendering index (CRI) of 70 and a luminance of 2230 cd/m2at 60 mA/cm 2. Such a single-well-like structure provides a fine tuning of the emission color by means of the adjustment of the exciton diffusion zone via the exciton-confinement layer of rubrene [C2986]

"Synergies of Controller-Based LED Drivers and Quality Solid-State Lighting"

The present paper emphasizes the importance of electronics and microelectronics towards the future entrance of

high-power light emitting diodes (HP-LEDs) in the general lighting market. Electronic controller-based drivers have a key role on the successful and rapid acceptance of solid-state lighting (SSL) products. This paper describes as an example of the SSL potentialities, a LED-base prototype luminaire with adjustable correlated color temperature (CCT) control [C2987]

СПИСОК ЛИТЕРАТУРЫ

C1528. Youngwoo Kim. Optimization of ceramic packages including thermal via-hole for light emitting diode. / Youngwoo Kim, Jaepil Kim, Jaebum Kim, MinSung Kim, Sungmo Park, Sangbin Song, Yeongseog Lim. // 2008 33rd IEEE/CPMT International Electronic Manufacturing Technology Symposium (IEMT). - Penang, 4-6 Nov. 2008. - P. 1-3.

C1529. Law R.C. Six sigma methodology in improving assembly yield of high-power and high-brightness ligth-emitting diodes packages for automotive application. / Law R.C., Li Zhang, Beh H.Y., Kmetec J., Wall F., Chan C.E., Koay H.K. // 2008 33rd IEEE/CPMT International Electronic Manufacturing Technology Symposium (IEMT). - Penang, 4-6 Nov. 2008. - P. 1-7.

C1530. Jian Xu. Developing bright and color-saturated quantum dot light emitting diodes towards next generation displays and solid state lighting. / Jian Xu, Zhanao Tan, Ting Zhu, Fan Zhang, Hedrick B., Pickering S., An Cheng, Thein M., Wang A.Y., Qingjiang Sun, Yongfang Li. // 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-3.

C1531. Li Y.W. New field sequential color displays with transient LCD modes. / Li Y.W., Kwok H.S. // 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-3.

C1532. Thompson M.E. Exciton migration in organic LEDs and solar cells. / Thompson M.E., Chao Wu, Djurovich P., Perez M.D. // 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-2.

C1533. el Halim A.A.A. Design of exponential stage for organic pixel addressing. / el Halim A.A.A., Korzec D.Z. // 2008. ICM 2008. International Conference on Microelectronics. - Sharjah, 14-17 Dec. 2008. - P. 441-444.

C1534. Montasser M.M. Investigation of using the organic thin film transistors in the pixel circuit of the active matrix organic light emitting diode flat panel display. / Montasser M.M., Korzec D. // 2008. ICM 2008. International Conference on Microelectronics. - Sharjah, 14-17 Dec. 2008. - P. 437-440.

C1535. Zhao Jun Liu. GaN based active matrix light emitting diode array by flip-chip technology. / Zhao Jun Liu, Chi Wing Keung, Kei May Lau. // 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-3.

C1536. Ji Hoon Seo. The structure optimization for high-efficiency white organic light-emitting diodes. / Ji Hoon Seo, Young Kwan Kim. // 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-3.

C1537. Chuen-Ching Wang. Optical and thermal analysis for a modified flip-chip Light Emitted Diode. / Chuen-Ching Wang, Wen-Ren Yang, Jin-Jia Chen, Wei-Wen Shih, Wang I.-J., Tsung-Yi Guo, Kwang-Long Huang. // 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-3.

C1538. Chun-Yu Lee. ZnO nanorods/P3HT nanocomposite film light emitting diodes. / Chun-Yu Lee, Jing-Shun Huang, Sheng-Hao Hsu, Wei-Fang Su, Ching-Fuh Lin. // 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-3.

C1539. Olexander K. Research of penetration radiation photomedically LED actuator into biological cloths. / Olexander K., Andriy Z. // 2008 Proceedings of International Conference on Modern Problems of Radio Engineering, Telecommunications and Computer Science. - Lviv-Slavsko, 19-23 Feb. 2008. - P. 145-146.

C1540. Jin-Jia Chen. A fiber-and-LED based vehicle headlamp. / Jin-Jia Chen, Kuang-Lung Huang, Po-Chun Lin, Kai-Hung Cheng. // 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-3.

C1541. Wen-Gong Chen. Layout design of LEDs in an LED-based lighting system with a conventional Fresnel lens to optimize the illuminance and uniformity by using Genetic Algorithm and Tabu Search. 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-3.

C1542. Kuang-Lung Huang. The novel design of direct LED backlight with lens caps and parabolic reflectors. / Kuang-Lung Huang, Jin-Jia Chen, Kai-Hung Cheng. // 2008. AOE 2008. Asia Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, Oct. 30 2008-Nov. 2 2008. - P. 1-3.

C1543. Fupei Wu. An AOI algorithm for PCB based on feature extraction. / Fupei Wu, Xianmin Zhang, Yongcong Kuan, Zhenzhen He. // 2008. WCICA 2008. 7th World Congress on Intelligent Control and Automation. - Chongqing, 25-27 June 2008. - P. 240-247.

C1544. Lian Li. Online non-contact fault detection of LED chips. / Lian Li, Jing wen, Ping Li, Yumei Wen, Fei Yin. // 2008. WCICA 2008. 7th World Congress on Intelligent Control and Automation. - Chongqing, 25-27 June 2008. - P. 280-283.

C1545. Busquets-Monge S. Pulsewidth modulations for the comprehensive capacitor voltage balance of n-level diode-clamped converters. / Busquets-Monge S., Alepuz S., Rocabert J., Bordonau J. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 4479-4486.

C1546. Topal C. A wearable head-mounted sensor-based apparatus for eye tracking applications. / Topal C., Dogan A., Gerek O.N. // 2008. VECIMS 2008. IEEE Conference on Virtual Environments, Human-Computer Interfaces and Measurement Systems. - Istanbul, 14-16 July 2008. - P. 136-139.

C1547. Gokdel Y.D. LED integrated miniaturized polymer MEMS display. / Gokdel Y.D., Sarioglu B., Yalcinkaya A.D. // 2008. PRIME 2008. Ph.D. Research in Microelectronics and Electronics. - Istanbul, June 22 2008-April 25 2008. - P. 93-96.

C1548. Zhang Guang Yuan. A real-time eye detection system based on the active IR illumination. / Zhang Guang Yuan, Cheng Bo, Jin Zhe, Li Jia Wen. // 2008. CCDC 2008. Chinese Control and Decision Conference. - Yantai, Shandong, 2-4 July 2008. - P. 1255-1260.

C1549. Nakazawa N. Study on human-machine interface based on mouth open/close motions. / Nakazawa N., Satoh F., Yamada K. // 2008. WCICA 2008. 7th World Congress on Intelligent Control and Automation. - Chongqing, 25-27 June 2008. - P. 3673-3678.

C1550. Sevim A.O. Post fabrication electric field treatment of polymer light emitting and photovoltaic devices. / Sevim A.O., Mutlu S. // 2008. PRIME 2008. Ph.D. Research in Microelectronics and Electronics. - Istanbul, June 22 2008-April 25 2008. - P. 17-20.

C1551. Zhongming Ye. Design considerations of a high power factor SEPIC converter for high brightness white LED lighting applications. / Zhongming Ye, Greenfeld F., Zhixiang Liang. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 2657-2663.

C1552. {no data available}. Session TH4: LED technologies II. 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, Greece, 15-19 June 2008. - P. 4184.

C1553. Kang-Ho Lee. Power-efficient series-charge parallel-discharge charge pump circuit for LED drive. / Kang-Ho Lee, Young-Jin Woo, Hee-Seok Han, Kwang-Chan Lee, Chang-Seok Chae, Gyu-Hyeong Cho. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 2645-2649.

C1554. Patterson J. Series input modular architecture for driving multiple LEDs. / Patterson J., Zane R. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 2650-2656.

C1555. Mineiro Sa E. Low cost self-oscillating ZVS-CV driver for power LEDs. / Mineiro Sa E., Antunes F.L.M., Perin A.J. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 4196-4201.

C1556. Chia-Lin Chiu. A high accuracy current-balanced control technique for LED backlight. / Chia-Lin Chiu, Ke-Horng Chen. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 4202-4206.

C1557. Doshi M. Reconfigurable and fault tolerant digital phase shifted modulator for luminance control of LED light sources. / Doshi M., Zane R. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 4185-4191.

C1558. Xiaoru Xu. High dimming ratio LED driver with fast transient boost converter. / Xiaoru Xu, Xiaobo Wu. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 4192-4195.

C1559. Azam A.B.M.S. Integrated multifunctional fluorescence biosensor based on OLED technology. / Azam A.B.M.S., Boukadoum M., Izquierdo R., Acharya A., Packirisamy M. // 2008. NEWCAS-TAISA 2008. 2008 Joint 6th International IEEE Northeast Workshop on Circuits and Systems and TAISA Conference. - Montreal, QC, 22-25 June 2008. - P. 173-176.

C1560. Yao Lv. Recent progress of ohmic contact on ZnO. / Yao Lv, Lixi Wan. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-4.

C1561. Pin-Hsuan Weng. Intelligent Systems and Applications The Predictions of Luminous Intensity and Wavelength of Light-Emitting Diode by Neural Network. / Pin-Hsuan Weng, Fang-Tsung Liu, Huang-Chu Huang, Yu-Ju Chen, Rey-Chue Hwang. // 2008. ICICIC '08. 3rd International Conference on Innovative Computing Information and Control. - Dalian, Liaoning, 18-20 June 2008. - P. 293.

C1562. Sabov A. Segmentation of 3D points from range camera data using scanlines. / Sabov A., Kruger J. // 2008. IWSSIP 2008. 15th International Conference on Systems, Signals and Image Processing. - Bratislava, 25-28 June 2008. - P. 429-432.

C1563. Rongfeng Guan. Design and implementation of LED daylight lamp lighting system. / Rongfeng Guan, Dalei Tian, Xing Wang. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-3.

C1564. Zongyuan Liu. Effects of phosphor's thickness and concentration on performance of white LEDs. / Zongyuan Liu, Sheng Liu, Kai Wang, Xiaobing Luo. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-6.

C1565. Xiaobing Luo. A simplified thermal resistance network model for high power LED street lamp. / Xiaobing Luo, Wei Xiong, Sheng Liu. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-7.

C1566. Zongyuan Liu. Effects of phosphor's location on LED packaging performance. / Zongyuan Liu, Sheng Liu, Kai Wang, Xiaobing Luo. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-7.

C1567. Wang Jiwu. Empirical research on the technology opportunities analysis based on morphology analysis and conjoint analysis. / Wang Jiwu, Huang Lucheng, Li Jiang, Li Jian. // 2008. PICMET 2008. Portland International Conference on Management of Engineering & Technology. - Cape Town, 27-31 July 2008. - P. 2041-2047.

C1568. Kobayashi K. Smoothing human-robot speech interaction with blinking-light expressions. / Kobayashi K., Funakoshi K., Yamada S., Nakano M., Kitamura Y., Tsujino H. // 2008. RO-MAN 2008. The 17th IEEE International Symposium on Robot and Human Interactive Communication. - Munich, 1-3 Aug. 2008. - P. 47-52.

C1569. Zhao Zhihong. Studying and implement of routing in wireless sensor network for the type of cluster tree. / Zhao Zhihong, Xia Hongsen, Zhou Hongjie, Guo Zhi. // 2008. CCDC 2008. Chinese Control and Decision Conference. - Yantai, Shandong, 2-4 July 2008. - P. 2012-2017.

C1570. Gerardino A. Electrical injection of a photonic crystal nanocavity. / Gerardino A., Francardi M., Balet L., Chauvin N., Bitauld D., Li L.H., Alloing B., Fiore A. // 2008. ICTON 2008. 10th Anniversary International

Conference on Transparent Optical Networks. - Athens, 22-26 June 2008. - Vol. 2. - P. 124-126.

C1571. Litvinov S.D. Production of nanocrystalline hydroxyapatite on collagen template during in vivo tooth and bone regeneration with use of collagen-Ca-phosphate preparations. / Litvinov S.D., Gabuda S.P. // 2008. SIBIRCON 2008. IEEE Region 8 International Conference on Computational Technologies in Electrical and Electronics Engineering. - Novosibirsk, 21-25 July 2008. - P. 223-224.

C1572. Yamada K. Design and Development of a Tactile Shape Display by Optical Switching. / Yamada K., Mitsui H. // 2008. ICICIC '08. 3rd International Conference on Innovative Computing Information and Control. - Dalian, Liaoning, 18-20 June 2008. - P. 58.

C1573. Min Gyu Kim. Determining color and blinking to support facial expression of a robot for conveying emotional intensity. / Min Gyu Kim, Hui Sung Lee, Jeong Woo Park, Su Hun Jo, Myung Jin Chung. // 2008. RO-MAN 2008. The 17th IEEE International Symposium on Robot and Human Interactive Communication. - Munich, 1-3 Aug. 2008. - P. 219-224.

C1574. Yi-Cheng Huang. Experiment study on bonding tool of thermosonic transducer for flip-chip bonding. / Yi-Cheng Huang, Kun-Yang Li, Chi-Hui Chen. // 2008. AIM 2008. IEEE/ASME International Conference on Advanced Intelligent Mechatronics. - Xian, 2-5 July 2008. - P. 1002-1007.

C1575. Xiaoli Li. Antireflective sub-wavelength gratings fabricated by UV-NIL. / Xiaoli Li, Qingkang Wang, Jun Shen, Yanbo Liu, Zhaoying Zhu, Yongzhong Wan, Xiaoming Niu. // 2008. INEC 2008. 2nd IEEE International Nanoelectronics Conference. - Shanghai, 24-27 March 2008. - P. 415-421.

C1576. Lu Ji. Luminous performance of YAG:Ce powder synthesized via self-propagating synthesis process. / Lu Ji, Cheng Zhang. // 2008. INEC 2008. 2nd IEEE International Nanoelectronics Conference. - Shanghai, 24-27 March 2008. - P. 655-658.

C1577. Djurisic A.B. ZnO nanorod heterojunctions and LEDs. / Djurisic A.B., Hsu Y.F., Xi Y.Y., Ng A.M.C., Tam K.H., Chant W.K. // 2008. INEC 2008. 2nd IEEE International Nanoelectronics Conference. - Shanghai, 24-27 March 2008. - P. 182-185.

C1578. Su Y.K. Improvement of blue GaN-based light-emitting diodes with nanosphere layers. / Su Y.K., Kao C.C., Chen J.J., Chuang R.W., Lin C.L. // 2008. INEC 2008. 2nd IEEE International Nanoelectronics Conference. - Shanghai, 24-27 March 2008. - P. 214-216.

C1579. Da Su. Thin-film packaging of high-power LEDs by magnetron sputtering. / Da Su, Demiao Wang, Gaochao Ren, Yaoming Wang. // 2008. INEC 2008. 2nd IEEE International Nanoelectronics Conference. - Shanghai, 24-27 March 2008. - P. 848-850.

C1580. Bhatnagar P.K. Study of photoluminescence quenching and DC conductivity measurements in polymer-SWNT composite films for various SWNT concentrations. / Bhatnagar P.K., Mathur P.C., Singh I., Bharadwaj L.M., Pandey R. // 2008. INEC 2008. 2nd IEEE International Nanoelectronics Conference. - Shanghai, 24-27 March 2008. - P. 972-974.

C1581. Cao M.L. Improved heat-dissipating silicone by Nano-materials for LED packaging. / Cao M.L., Pang F.Y., Zhang M.C., Cheng Z.J., Gao Y., He P.G., Pane L.K., Sung Z. // 2008. INEC 2008. 2nd IEEE International Nanoelectronics Conference. - Shanghai, 24-27 March 2008. - P. 758-760.

C1582. Zhang D.W. Quasi-solid-state dye-sensitized solar cells prepared with a D 102 sensitizer and a polymer electrolyte. / Zhang D.W., Li X.D., Sun Z., Chen Y.W., Huang S.M. // 2008. INEC 2008. 2nd IEEE International Nanoelectronics Conference. - Shanghai, 24-27 March 2008. - P. 761-765.

C1583. Yun Shuai. On-Chip Fluorescence Detection Using Organic Thin Film Devices for a Disposable Lab-on-a-Chip. / Yun Shuai, Banerjee A., Klotzkin D., Papautsky I. // 2008. UGIM 2008. 17th Biennial University/Government/Industry Micro/Nano Symposium. - Louisville, KY, 13-16 July 2008. - P. 169-172.

C1584. Banerjee A. High-Sensitivity MEMS Based On-Chip Fluorescence Detection System: Measurement and Analysis of Ultimate Sensitivity Limits. / Banerjee A., Yun Shuai, Klotzkin D., Papautsky I. // 2008. UGIM 2008. 17th Biennial University/Government/Industry Micro/Nano Symposium. - Louisville, KY, 13-16 July 2008. - P. 177-182.

C1585. Bennett A.J. Hong-Ou-Mandel interference with a LED. / Bennett A.J., Patel R.B., Atkinson P., Nicoll C.A., Cooper K., Ritchie D.A., Shields A.J. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1586. Steckl A.J. NanoBioMaterials-From BioLEDs to Tissue Engineering. 2008. UGIM 2008. 17th Biennial University/Government/Industry Micro/Nano Symposium. - Louisville, KY, 13-16 July 2008. - P. 41-43.

C1587. Fukuda S. Detecting Emotions and Dangerous Actions for Better Human-System Team Working. 2008. SSIRI '08. Second International Conference on Secure System Integration and Reliability Improvement. - Yokohama, 14-17 July 2008. - P. 205-206.

C1588. Sanjeev. Generic Model of SH-LED for Mid-infrared (2-5μm) Applications. / Sanjeev, Chakrabarti P. // 2008. ICETET '08. First International Conference on Emerging Trends in Engineering and Technology. - Nagpur, Maharashtra, 16-18 July 2008. - P. 453-456.

C1589. Xu L. An integrated wrist-worn routine monitoring system for the elderly using BSN. / Xu L., Tay F.E.H., Guo D.G., Yu L.M., Nyan M.N., Chong F.W., Yap K.L., Xu B. // 2008. ISSS-MDBS 2008. 5th International Summer School and Symposium on Medical Devices and Biosensors. - Hong Kong, 1-3 June 2008. - P. 45-48.

C1590. Cong-Zhi Wang. Home-Telecare of the elderly living alone using an new designed ear-wearable sensor. / Cong-Zhi Wang, Yong-Ping Zheng. // 2008. ISSS-MDBS 2008. 5th International Summer School and Symposium on Medical Devices and Biosensors. - Hong Kong, 1-3 June 2008. - P. 71-74.

C1591. Chang C.C. Efficient full-spectrum white polymer light-emitting diodes by plasma polymerization. / Chang C.C., Chang Y.H., Jou J.H., Yang A., Hwang K.C. // 2008. ICOPS 2008. IEEE 35th International Conference on Plasma Science. - Karlsruhe, 15-19 June 2008. - P. 1.

C1592. Cardesin J. LED Permanent Emergency Lighting System based on a single magnetic component. / Cardesin J., Ribas J., Garcia-Garcia J., Rico-Secades M., Calleja A.J., Lopez Corominas E., Dalla Costa M.A. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 418-423.

C1593. Lee S. Discrete multitone for novel application areas of optical communications. / Lee S., Walewski J.W., Randel S., Breyer F., van den Boom H.P.A., Koonen A. // 2008 Digest of the IEEE/LEOS Summer Topical Meetings. - Acapulco, 21-23 July 2008. - P. 163-164.

C1594. Young June Hong. Design and realisation of apparatus to study capillary discharge in gas. / Young June Hong, Phil Yong Oh, Gi Chung Kwon, Hee Myoung Shin, Eun Ha Choi. // 2008. ICOPS 2008. IEEE 35th International Conference on Plasma Science. - Karlsruhe, 15-19 June 2008. - P. 1.

C1595. {no data available}. Session WE1: LED technologies I. 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, Greece, 15-19 June 2008. - P. 2639.

C1596. de Britto J.R. A proposal of Led Lamp Driver for universal input using Cuk converter. / de Britto J.R., Demian A.E., de Freitas L.C., Farias V.J., Coelho E.A.A., Vieira J.B. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 2640-2644.

C1597. Garcia J. An estimator of luminous flux for enhanced control of high brightness LEDs. / Garcia J., Lamar D.G., Dalla-Costa M.A., Alonso J.M., Rico M.S. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 1852-1856.

C1598. Jacobs J. A simple digital current controller for solid-state lighting. / Jacobs J., Shen Jie, Hente D. // 2008. PESC 2008. IEEE Power Electronics Specialists Conference. - Rhodes, 15-19 June 2008. - P. 2417-2422.

C1599. Nam Hwang. Failure analysis matrix of light emitting diodes for general lighting applications. 2008. IPFA 2008. 15th International Symposium on the Physical and Failure Analysis of Integrated Circuits. - Singapore, 7-11 July 2008. - P. 1-4.

C1600. Lay-Ekuakille A. Design and characterization of LED-based scialitic source for operating rooms: Impact of uncertainty on surgery field. / Lay-Ekuakille A., Vendramin G., Visconti P., Trotta A. // 2008. AMUEM 2008. IEEE International Workshop on Advanced Methods for Uncertainty Estimation in Measurement. - Trento, 21-22

July 2008. - P. 46-49.

C1601. Belousov D.S. Development of educational laboratory complex for microprocessor technology. / Belousov D.S., Korchmit M.N., Makukha V.K., Markov A.V., Mikerin V.A., Solovyev A.F., Ulichenko M.A. // 2008. EDM 2008. 9th International Workshop and Tutorials on Electron Devices and Materials. - Novosibirsk, 1-5 July 2008. - P. 204-206.

C1602. Ben-Ezra M. An LED-only BRDF measurement device. / Ben-Ezra M., Jiaping Wang, Wilburn B., Xiaoyang Li, Le Ma. // 2008. CVPR 2008. IEEE Conference on Computer Vision and Pattern Recognition. - Anchorage, AK, 23-28 June 2008. - P. 1-8.

C1603. Chen Long. A design of basic gate circuit ICs detection system. / Chen Long, Zhang Yajun, Fan Lingyan. // 2008 International Conference on Neural Networks and Signal Processing. - Nanjing, 7-11 June 2008. - P. 609-611.

C1604. Xiaojing Zhang. Near-field Scanning Optical Microscopy-Breaking the diffraction limit using nano light emitting probe tip. / Xiaojing Zhang, Hoshino K., Vanden Bout D.A. // 2008 Digest of the IEEE/LEOS Summer Topical Meetings. - Acapulco, 21-23 July 2008. - P. 89-90.

C1605. Feng Tian. Research and realization of LED display system based on combining CAN bus with DMX512 standard. / Feng Tian, Xiang Wu, Jingao Liu. // 2008. ICALIP 2008. International Conference on Audio, Language and Image Processing. - Shanghai, 7-9 July 2008. - P. 813-818.

C1606. Feng Tian. Research and realization of innovative LED illumination system for DLP projector. / Feng Tian, Xiang Wu, Jingao Liu. // 2008. ICALIP 2008. International Conference on Audio, Language and Image Processing. - Shanghai, 7-9 July 2008. - P. 194-199.

C1607. Meihua Xu. Design of a low voltage band-gap reference circuit for OLED-On-Silicon. / Meihua Xu, Jian Wu, Feng Ran, Tiezhu Li. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-4.

C1608. Kashani-Shirazi K. Simulation of active regions for GaSb-based VCSELs. / Kashani-Shirazi K., Bachmann A., Amann M.C. // 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 137-138.

C1609. Tomita Y. Role of vapor-phase diffusion in selective-area MOVPE of InGaN MQWs. / Tomita Y., Shioda T., Nakano Y., Sugiyama M. // 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 163-164.

C1610. Yi Luo. LED street lighting technologies with high human-eye comfortability. / Yi Luo, Xianpeng Zhang, Jiayao Liu, Changbo Zhou, Keyuan Qian, Yanjun Han. // 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 84-85.

C1611. Kishino K. GaN-based nanocolumn emitters and related technology. 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 87-88.

C1612. Lau E.K. Small-signal modulation bandwidth of Purcell-enhanced nanocavity light emitters. / Lau E.K., Tucker R.S., Wu M.C. // 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 317-318.

C1613. Kamimura J. Growth and properties of InAlN nanocolumns emitting in optical communication wavelengths. / Kamimura J., Kishino K., Kikuchi A. // 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 341-342.

C1614. Cheng-Hung Lin. Photonic crystal light-emitting diode fabricated with photoelectrochemical wet etching and phase mask interference. / Cheng-Hung Lin, Cheng-Yen Chen, Dong-Ming Yeh, Yang C.C. // 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 253-254.

C1615. Wang Lai. Influence of Si-doping in the barriers on optical and electrical properties of InGaN/GaN MQW LEDs. / Wang Lai, Luo Yi, Han Yanjun, Li Hongtao, Xi Guangyi, Jiang Yang, Zhao Wei. // 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 257-258.

C1616. Atten P. Field induced disruption of a planar water-oil interface influenced by a close metallic sphere. / Atten P., Raisin J., Reboud J.-L. // 2008. ICDL 2008. IEEE International Conference on Dielectric Liquids. - Futuroscope-Chasseneuil, June 30 2008-July 3 2008. - P. 1-4.

C1617. Burdea G.C. The Rutgers Arm II rehabilitation system. / Burdea G.C., Fensterheim D., Cioi D., Arezki A. // 2008 Virtual Rehabilitation. - Vancouver, BC, 25-27 Aug. 2008. - P. 76.

C1618. Seung-Han Kim. Embedded systems course for potential automotive engineers. / Seung-Han Kim, Suk-Hyun Seo, Jin-Ho Kim, Tae-Yoon Moon, Sung-Ho Hwang, Key-Ho Kwon, Jae Wook Jeon. // 2008. INDIN 2008. 6th IEEE International Conference on Industrial Informatics. - Daejeon, 13-16 July 2008. - P. 1584-1589.

C1619. Iwasaki S. Visible light road-to-vehicle communication using high-speed camera. / Iwasaki S., Premachandra C., Endo T., Fujii T., Tanimoto M., Kimura Y. // 2008 IEEE Intelligent Vehicles Symposium. - Eindhoven, 4-6 June 2008. - P. 13-18.

C1620. Dong-Ming Yeh. Surface plasmon coupling for light emission/absorption/conversion enhancement. / Dong-Ming Yeh, Cheng-Yen Chen, Yen-Cheng Lu, Kun-Ching Shen, Jyh-Yang Wang, Wen-Hung Chuang, Yean-Woei Kiang, Yang C.C. // 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 22-23.

C1621. Shimomura K. Selective MOVPE grown semiconductor optical waveguide array and its application for optical devices. 2008. i-NOW 2008. International Nano-Optoelectronics Workshop. - Shonan Village, 2-15 Aug. 2008. - P. 30-31.

C1622. Se-gon Roh. Flexible docking mechanism using combination of magnetic force with error-compensation capability. / Se-gon Roh, Jae Hoon Park, Young Kouk Song, KwangWoong Yang, Moosung Choi, Hong-Seok Kim, Hogil Lee, Hyouk Ryeol Choi. // 2008. CASE 2008. IEEE International Conference on Automation Science and Engineering. - Arlington, VA, 23-26 Aug. 2008. - P. 697-702.

C1623. Mohd Azwan Azim Rosli. A hardware based approach in designing infrared traffic light system. / Mohd Azwan Azim Rosli, Mohd Helmy Abd Wahab, Sanudin Rahmat, Sahdan Mohd Zainizan. // 2008. ITSim 2008. International Symposium on Information Technology. - Kuala Lumpur, Malaysia, 26-28 Aug. 2008. - Vol. 4. - P. 1-5.

C1624. Piccolo G. Silicon LEDs with antifuse injection. / Piccolo G., Tu Hoang, Holleman J., Kovalgin A.Y., Schmitz J. // 2008 5th IEEE International Conference on Group IV Photonics. - Cardiff, 17-19 Sept. 2008. - P. 49-51.

C1625. Dongsheng Li. Electroluminescence of silicon-rich silicon nitride light-emitting devices. / Dongsheng Li, Jianhao Huang, Deren Yang. // 2008 5th IEEE International Conference on Group IV Photonics. - Cardiff, 17-19 Sept. 2008. - P. 119-121.

C1626. Aggarwal G. Light emitting transistors using silicon quantum dots in an organic matrix. / Aggarwal G., Xiaodong Pi, Lu R.P., Ramirez A.D., Kortshagen U., Campbell S.A. // 2008 5th IEEE International Conference on Group IV Photonics. - Cardiff, 17-19 Sept. 2008. - P. 43-45.

C1627. Marconi A. Electroluminescence from nanocrystalline-Si/SiO2 multilayers with an electron injection barrier. / Marconi A., Anopchenko A., Moser E., Wang M., Pucker G., Bellutti P., Pavesi L. // 2008 5th IEEE International Conference on Group IV Photonics. - Cardiff, 17-19 Sept. 2008. - P. 46-48.

C1628. Kasik V. FPGA-Powered Embedded Vector Graphics. 2008. UBICOMM '08. The Second International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies. - Valencia, Sept. 29 2008-Oct. 4 2008. - P. 419-421.

C1629. Sacconi F. Electronic and transport properties of GaN/AlGaN quantum dot-based p-i-n diodes. / Sacconi F., Romano G., Penazzi G., Povolotskyi M., Auf der Maur M., Pecchia A., Di Carlo A. // 2008. SISPAD 2008. International Conference on Simulation of Semiconductor Processes and Devices. - Hakone, 9-11 Sept. 2008. - P. 177-180.

C1630. Chun-Yuan Huang. Fabrication and characterization of hybrid DBPPV-CdSe/ZnS quantum dot light-emitting diodes. / Chun-Yuan Huang, Ying-Chih Chen, Hsin-Chieh Yu, Yan-Kuin Su, Ten-Chin Wen, Tzung-Fang Guo. // 2008. ICONN 2008. International Conference on Nanoscience and Nanotechnology. - Melbourne,

Vic., 25-29 Feb. 2008. - P. 192-195.

C1631. Taesu Kim. PiggyBrothers: Emotional Communication Devices for Saving Habits of Children. / Taesu Kim, Yunyoung Nam, We-Duke Cho. // 2008. UBICOMM '08. The Second International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies. - Valencia, Sept. 29 2008-Oct. 4 2008. - P. 323-326.

C1632. Tucker R.S. Small-signal modulation bandwidth of Purcell-enhanced nanocavity light emitters. / Tucker R.S., Lau E.K., Wu M.C. // 2008. ISLC 2008. IEEE 21st International Semiconductor Laser Conference. - Sorrento, 14-18 Sept. 2008. - P. 181-182.

C1633. Nomura I. Proposal of BeZnSeTe/MgZnCdSe II-VI compound semiconductors on InP substrates for green laser diodes. / Nomura I., Kishino K., Ebisawa T., Kushida S., Uota J., Tasai K., Nakamura H., Asatsuma T., Nakajima H. // 2008. ISLC 2008. IEEE 21st International Semiconductor Laser Conference. - Sorrento, 14-18 Sept. 2008. - P. 183-184.

C1634. Kurillo G. Wide-area external multi-camera calibration using vision graphs and virtual calibration object. / Kurillo G., Zeyu Li, Bajcsy R. // 2008. ICDSC 2008. Second ACM/IEEE International Conference on Distributed Smart Cameras. - Stanford, CA, 7-11 Sept. 2008. - P. 1-9.

C1635. Bachmann A. GaSb-based electrically pumped VCSEL with buried tunnel junction operating continuous wave up to 50°C. / Bachmann A., Kashani-Shirazi K., Amann M.-C. // 2008. ISLC 2008. IEEE 21st International Semiconductor Laser Conference. - Sorrento, 14-18 Sept. 2008. - P. 39-40.

C1636. Morschbach M. Visible to infrared light emission from reverse defect engineered silicon junctions. / Morschbach M., Oehme M., Werner J., Kasper E. // 2008 5th IEEE International Conference on Group IV Photonics. - Cardiff, 17-19 Sept. 2008. - P. 32-34.

C1637. Irrera A. Strauctural properties of Si nanocrystals: implications for light emitting devices fabrication. / Irrera A., Franzo G., Miritello M., Lo Savio R., Boninelli S., Priolo F., Iacona F., Nicotra G., Bongiorno C., Spinella C., Coffa S. // 2008 5th IEEE International Conference on Group IV Photonics. - Cardiff, 17-19 Sept. 2008. - P. 38-40.

C1638. Pang G.K.H. Automated inspection of solder paste by directional LED lighting. / Pang G.K.H., Chu M.-H. // 2008. ICAL 2008. IEEE International Conference on Automation and Logistics. - Qingdao, 1-3 Sept. 2008. - P. 232-237.

C1639. Hay S. Optical tracking using commodity hardware. / Hay S., Newman J., Harle R. // 2008. ISMAR 2008. 7th IEEE/ACM International Symposium on Mixed and Augmented Reality. - Cambridge, 15-18 Sept. 2008. - P. 159-160.

C1640. Milanovic V. Fast and high-precision 3D tracking and position measurement with MEMS micromirrors. / Milanovic V., Wing Kin Lo. // 2008 IEEE/LEOS Internationall Conference on Optical MEMs and Nanophotonics. - Freiburg, 11-14 Aug. 2008. - P. 72-73.

C1641. Chun-Yu Lee. White-light electroluminescence from ZnO nanowires/polyfluorene heterojunction diodes. / Chun-Yu Lee, Jing-Shun Huang, Sheng-Hao Hui, Wei-Fang Su, Ching-Fuh Lin. // 2008 IEEE/LEOS Internationall Conference on Optical MEMs and Nanophotonics. - Freiburg, 11-14 Aug. 2008. - P. 118-119.

C1642. Ow Shen Wah. Solving radiative transfer equation (RTE) in time-dependent mode. / Ow Shen Wah, Wong J., Tan Ching Seong. // 2008. CITISIA 2008. IEEE Conference on Innovative Technologies in Intelligent Systems and Industrial Applications. - Cyberjaya, 12-13 July 2008. - P. 35-38.

C1643. Sun-ki Chae. Micropatterned complex optical surface for wide angle illumination. / Sun-ki Chae, Hyukjin Jung, Ki-Hun Jeong. // 2008 IEEE/LEOS Internationall Conference on Optical MEMs and Nanophotonics. - Freiburg, 11-14 Aug. 2008. - P. 37-38.

C1644. Wang Xin. Optical mouse sensor for detecting height variation and translation of a surface. / Wang Xin, Shida K. // 2008. ICIT 2008. IEEE International Conference on Industrial Technology. - Chengdu, 21-24 April 2008. - P. 1-6.

C1645. Feng Li. Spectrum flattening of white OLED with photonic crystal patterned capping layer. / Feng Li,

Wai P.K.A., Surya C. // 2008 and the 2008 Australian Conference on Optical Fibre Technology. OECC/ACOFT 2008. Joint conference of the Opto-Electronics and Communications Conference. - Sydney, 7-10 July 2008. - P. 1-2.

C1646. Zhang J.X.J. Near-field scanning nanophotonic microscopy. / Zhang J.X.J., Hoshino K., Gopal A. // 2008 IEEE/LEOS Internationall Conference on Optical MEMs and Nanophotonics. - Freiburg, 11-14 Aug. 2008. - P. 180-181.

C1647. Yang Wang. Simulation of a novel detecting algorithm for cascade shunt active power filter. / Yang Wang, Ping Wang. // 2008. ICIT 2008. IEEE International Conference on Industrial Technology. - Chengdu, 21-24 April 2008. - P. 1-6.

C1648. Kai Wang. Optical analysis of a 3W light-emitting diode (LED) MR16 lamp. / Kai Wang, Sheng Liu, Xiaobing Luo, Zhongyuan Liu, Fei Chen. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-5.

C1649. Ting Cheng. Simulation on thermal characteristics of LED chips for design optimization. / Ting Cheng, Xiaobing Luo, Suyi Huang, Zhiyin Gan, Sheng Liu. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-4.

C1650. Zongyuan Liu. Analysis of factors affecting color distribution of white LEDs. / Zongyuan Liu, Sheng Liu, Kai Wang, Xiaobing Luo. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-8.

C1651. Chen Zhangjin. Development of OLED demonstration system based on SD card. / Chen Zhangjin, Jin Chen, Wang Hao. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-4.

C1652. Qin Zhang. Dynamic mechanical properties of the transparent silicone resin for high power LED packaging. / Qin Zhang, Xiu Mu, Kai Wang, Zhiyin Gan, Xiaobing Luo, Sheng Liu. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-4.

C1653. Qiang Fang. A study on application of N&K Analyzer in OLED failure analysis. / Qiang Fang, Yafang Peng, Yu H.K. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-3.

C1654. Rong Zhang. Wafer level LED packaging with integrated DRIE trenches for encapsulation. / Rong Zhang, Lee S. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-6.

C1655. Li C.Y. Encapsulation of organic light-emitting devices for the application of display. / Li C.Y., Wei B., Zhang J.H. // 2008. ICEPT-HDP 2008. International Conference on Electronic Packaging Technology & High Density Packaging. - Shanghai, 28-31 July 2008. - P. 1-4.

C1656. Mercier G. A Robotic Spectrometer System for LED Display Measurements. / Mercier G., Ross J., Ginobbi P., Venkat R. // 2008. ICSENG '08. 19th International Conference on Systems Engineering. - Las Vegas, NV, 19-21 Aug. 2008. - P. 412-417.

C1657. Rahman M.M. Fabrication and Characterization of White Light Emitting Diodes Based on ZnO Nano-Rods Grown on p-Si. / Rahman M.M., Klason P., Naveed H.A., Willander M. // 2008. NANO '08. 8th IEEE Conference on Nanotechnology. - Arlington, Texas, 18-21 Aug. 2008. - P. 51-54.

C1658. Karthikeya Udayagiri V R J.M. Detection Algorithms for the Nano Nose. / Karthikeya Udayagiri V R J.M., Moazzeni T., Yingtao Jiang, Das B. // 2008. ICSENG '08. 19th International Conference on Systems Engineering. - Las Vegas, NV, 19-21 Aug. 2008. - P. 399-404.

C1659. Shlayan N. A Novel RGBW Pixel for LED Displays. / Shlayan N., Venkat R., Ginobbi P., Mercier G. // 2008. ICSENG '08. 19th International Conference on Systems Engineering. - Las Vegas, NV, 19-21 Aug. 2008. - P. 407-411.

C1660. Hoshino K. Near-Field Scanning Optical Imaging with Monolithic Silicon Light Emitting Diode on Probe

Tip. / Hoshino K., Gopal A., Bout D.A.V., Xiaojing Zhang. // 2008. NANO '08. 8th IEEE Conference on Nanotechnology. - Arlington, Texas, 18-21 Aug. 2008. - P. 110-111.

C1661. Chun-Yu Lee. White Light Electroluminescence from Zinc Oxide Nanowire Composites. / Chun-Yu Lee, Jing-Shun Huang, Ching-Fuh Lin. // 2008. NANO '08. 8th IEEE Conference on Nanotechnology. - Arlington, Texas, 18-21 Aug. 2008. - P. 120-123.

C1662. Enzmann R. Towards an Electro-Optical Driven Single Photon Device. / Enzmann R., Jendrysik C., Seidl C., Heindl A., Baierl D., Bohm G., Meyer R., Finley J., Amann M.-C. // 2008. NANO '08. 8th IEEE Conference on Nanotechnology. - Arlington, Texas, 18-21 Aug. 2008. - P. 67-70.

C1663. Yaling Zhou. Fabrication of Tungsten Photonic Crystals for High Efficacy Incandescent Light Emitters. / Yaling Zhou, Sridhar S., Kailash Mishra, Daubach R., Garner R., Klotzkin D. // 2008. NANO '08. 8th IEEE Conference on Nanotechnology. - Arlington, Texas, 18-21 Aug. 2008. - P. 75-77.

C1664. Lubin Zeng. Equalisation for high-speed Visible Light Communications using white-LEDs. / Lubin Zeng, Hoa Le Minh, O'Brien D., Faulkner G., Kyungwoo Lee, Daekwang Jung, YunJe Oh. // 2008. CNSDSP 2008. 6th International Symposium on Communication Systems, Networks and Digital Signal Processing. - Graz, 25-25 July 2008. - P. 170-173.

C1665. Grubor J. Bandwidth-efficient indoor optical wireless communications with white light-emitting diodes. / Grubor J., Randel S., Langer K.-D., Walewski J.W. // 2008. CNSDSP 2008. 6th International Symposium on Communication Systems, Networks and Digital Signal Processing. - Graz, 25-25 July 2008. - P. 165-169.

C1666. Martelli C. Molecular electronics inside optical fibres. / Martelli C., Canning J., Reimers J.R., Sintic M., Stocks D., Crossley M.J. // 2008 and the 2008 Australian Conference on Optical Fibre Technology. OECC/ACOFT 2008. Joint conference of the Opto-Electronics and Communications Conference. - Sydney, 7-10 July 2008. - P. 1-2.

C1667. Koonen A.M.J. Recent research progress in hybrid fiber-optic in-building networks. / Koonen A.M.J., Yang H., Jung H.-D., Zheng Y., Yang J., van den Boom H.P.A., Tangdiongga E. // 2008 and the 2008 Australian Conference on Optical Fibre Technology. OECC/ACOFT 2008. Joint conference of the Opto-Electronics and Communications Conference. - Sydney, 7-10 July 2008. - P. 1-2.

C1668. Shimizu T. DOA estimation of space light communication sensor network with exponentially amplitude modulated LED. / Shimizu T., Sato K. // 2008. INSS 2008. 5th International Conference on Networked Sensing Systems. - Kanazawa, 17-19 June 2008. - P. 228.

C1669. Matsumoto Y. CMOS photo-transistor array detection system for visual light identification (ID). / Matsumoto Y., Hara T., Kimura Y. // 2008. INSS 2008. 5th International Conference on Networked Sensing Systems. - Kanazawa, 17-19 June 2008. - P. 99-102.

C1670. Hashemi S.K. Orthogonal frequency division multiplexing for indoor optical wireless communications using visible light LEDs. / Hashemi S.K., Ghassemlooy Z., Chao L., Benhaddou D. // 2008. CNSDSP 2008. 6th International Symposium on Communication Systems, Networks and Digital Signal Processing. - Graz, 25-25 July 2008. - P. 174-178.

C1671. Osawa T. Implementation of Hierarchical GAF. / Osawa T., Inagaki T., Ishihara S. // 2008. INSS 2008. 5th International Conference on Networked Sensing Systems. - Kanazawa, 17-19 June 2008. - P. 247.

C1672. Hang Gao. Combination with Gas Flotation Preconcentration Based on Ternary Association Complexes and Flame Atomic Absorption Spectrometry Detection for Trace Heavy Metals in Complicated Water Samples. / Hang Gao, Qiaoru Liu, Songtian Li, Ying Nie. // 2008. ICBBE 2008. The 2nd International Conference on Bioinformatics and Biomedical Engineering. - Shanghai, 16-18 May 2008. - P. 2869-2872.

C1673. Ning Zou. Study of Immobilization and Removal Efficiency of ZnI+ from Wastewater by Anabaena Sp. / Ning Zou, Rui Zong, Pan Y., Donghong Sun, Yan Liang, Jiantao Lv. // 2008. ICBBE 2008. The 2nd International Conference on Bioinformatics and Biomedical Engineering. - Shanghai, 16-18 May 2008. - P. 2885-2887.

C1674. Liang Bing. Porosity Prediction with Settlement and Biodegradation in Municipal Landfill. / Liang Bing, Liu Lei, Xue Qiang, Zhao Ying. // 2008. ICBBE 2008. The 2nd International Conference on Bioinformatics and Biomedical Engineering. - Shanghai, 16-18 May 2008. - P. 1289-1292.

C1675. Yu-Jen Chen. The Study of a Handheld Digital Microscope for Biomedical Applications. / Yu-Jen Chen, Yu-Sing Yeh, Ming-Shing Young, Yan-Chay Li, Chen-Song Chiang, Sun-Lon Jen, Ke-Nung Huang. // 2008. ICBBE 2008. The 2nd International Conference on Bioinformatics and Biomedical Engineering. - Shanghai, 16-18 May 2008. - P. 1543-1546.

C1676. Letavic T. 55V Integrated Power and Non-Volatile Technology for Solid State Lighting Applications. / Letavic T., Cook R., Sharma S., Brock R., Mandhare C., Effing H., Dormans D., Daniel B., Deurenberg P., Rooijackers C., de Nie R. // 2008. ISPSD '08. 20th International Symposium on Power Semiconductor Devices and IC's. - Orlando, FL, 18-22 May 2008. - P. 60-63.

C1677. King A.P. Model-based respiratory motion correction using 3-D echocardiography. / King A.P., Jansen C., Boubertakh R., Rhode K.S., Razavi R., Penney G.P. // 2008. ISBI 2008. 5th IEEE International Symposium on Biomedical Imaging: From Nano to Macro. - Paris, 14-17 May 2008. - P. 1465-1468.

C1678. Lubin Zeng. Improvement of Date Rate by using Equalization in an Indoor Visible Light Communication System. / Lubin Zeng, O'Brien D., Le-Minh H., Kyungwoo Lee, Daekwang Jung, Yunje Oh. // 2008. ICCSC 2008. 4th IEEE International Conference on Circuits and Systems for Communications. - Shanghai, 26-28 May 2008. - P. 678-682.

C1679. Lee I.E. A Dual-Receiving Visible-Light Communication System for Intelligent Transportation System. / Lee I.E., Sim M.L., Kung F.W.L. // 2008. ICCSC 2008. 4th IEEE International Conference on Circuits and Systems for Communications. - Shanghai, 26-28 May 2008. - P. 698-702.

C1680. Norwood R.A. Electro-optic polymer modulators for telecommunications applications. 2008. OFC/NFOEC 2008. Conference on Optical Fiber communication/National Fiber Optic Engineers Conference. - San Diego, CA, 24-28 Feb. 2008. - P. 1-3.

C1681. Lee S.C. Low-Cost and Robust 1-Gbit/s Plastic Optical Fiber Link Based on Light-Emitting Diode Technology. / Lee S.C., Breyer F., Randel S., Ziemann O., van den Boom H.P.A., Koonen A.M.J. // 2008. OFC/NFOEC 2008. Conference on Optical Fiber communication/National Fiber Optic Engineers Conference. - San Diego, CA, 24-28 Feb. 2008. - P. 1-3.

C1682. Han C.N. Sapphire-removed induced the deformation of high power InGaN light emitting diodes. / Han C.N., Chou T.L., Huang C.F., Chiang K.N. // 2008. EuroSimE 2008. International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Micro-Systems. - Freiburg im Breisgau, 20-23 April 2008. - P. 1-5.

C1683. Rudol P. Micro Unmanned Aerial Vehicle Visual Servoing for Cooperative Indoor Exploration. / Rudol P., Wzorek M., Conte G., Doherty P. // 2008 IEEE Aerospace Conference. - Big Sky, MT, 1-8 March 2008. - P. 1-10.

C1684. Linnartz J.-P.M.G. Communications and Sensing of Illumination Contributions in a Power LED Lighting System. / Linnartz J.-P.M.G., Feri L., Hongming Yang, Colak S.B., Schenk T.C.W. // 2008. ICC '08. IEEE International Conference on Communications. - Beijing, 19-23 May 2008. - P. 5396-5400.

C1685. Hong Hong. Information Illuminating System for Healthcare Institution. / Hong Hong, Yi Ren, Chenxu Wang. // 2008. ICBBE 2008. The 2nd International Conference on Bioinformatics and Biomedical Engineering. - Shanghai, 16-18 May 2008. - P. 801-804.

C1686. Nuttall D.R. Design of a LED street lighting system. / Nuttall D.R., Shuttleworth R., Routledge G. // 2008. PEMD 2008. 4th IET Conference on Power Electronics, Machines and Drives. - York, 2-4 April 2008. - P. 436-440.

C1687. Tsung-Yi Huang. Mobile Charge Induced Breakdown Instability in 700V LDMOSFET. / Tsung-Yi Huang, Chiang P.Y., Huang C.C., Huang P.C., Huo K.H., Su R.Y., Shih J.R., Fu-Hsin Chen, Chen C., Ken Chen, Chien C.C., Hsu S.L., Mingo Liu, Gong J., Chun-Lin Tsai. // 2008. VLSI-TSA 2008. International Symposium on VLSI Technology, Systems and Applications. - Hsinchu, 21-23 April 2008. - P. 105-108.

C1688. Saymta M. Scanning Led Array Based Volumetric Display. / Saymta M., Isikman S.O., Urey H. // 2008 3DTV Conference: The True Vision-Capture, Transmission and Display of 3D Video. - Istanbul, 28-30 May 2008. - P. 21-24.

C1689. Surman P. European Research into Head Tracked Autostereoscopic Displays. / Surman P., Sexton I., Hopf K., Wing Kai Lee, Buckley E., Jones G., Bates R. // 2008 3DTV Conference: The True Vision-Capture, Transmission and Display of 3D Video. - Istanbul, 28-30 May 2008. - P. 161-164.

C1690. Taekhyun Kim. LED Lamp Flicker Caused by Interharmonics. / Taekhyun Kim, Rylander M., Powers E.J., Grady W.M., Arapostathis A. // 2008. IMTC 2008. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Victoria, BC, 12-15 May 2008. - P. 1920-1925.

C1691. Norgia M. Characterization of Optical Sensors for Real-Time Measurement of Motorcycle Tilt Angles. / Norgia M., Svelto C., Boniolo I., Tanelli M., Savaresi S.M. // 2008. IMTC 2008. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Victoria, BC, 12-15 May 2008. - P. 2070-2073.

C1692. Ogihara M. 1200dpi thin film LED array by silicon photonics technology. / Ogihara M., Sagimori T., Mutoh M., Suzuki T., Igari T., Furuta H., Nakai Y., Morisaki S., Fujiwara H., Abiko I., Sakuta M. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 765-772.

C1693. Yi-Cheng Hsu. Decay mechanisms of lumen and chromaticity for high-power phosphor-based white-light-emitting diodes in thermal aging. / Yi-Cheng Hsu, Chun-Chin Tsai, Ming-Hung Chen, Yuan-Tsun Lo, Chao-Wei Lee, Wood-Hi Cheng. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 779-782.

C1694. Hentschke S. Multi-View 3D TV Sub-Pixel Coding for Stress Free Perception. / Hentschke S., Boercsoek J., Elle T., Fuchs E., Becker J., Neumann T. // 2008 3DTV Conference: The True Vision-Capture, Transmission and Display of 3D Video. - Istanbul, 28-30 May 2008. - P. 221-224.

C1695. Sijung Hu. Feasibility of Imaging Photoplethysmography. / Sijung Hu, Jia Zheng, Chouliaras V., Summers R. // 2008. BMEI 2008. International Conference on BioMedical Engineering and Informatics. - Sanya, 27-30 May 2008. - Vol. 2. - P. 72-75.

C1696. Chun-Yu Hsieh. LED drivers with PPD compensation for achieving fast transient response. / Chun-Yu Hsieh, Shih-Jung Wang, Yu-Huei Lee, Ke-Horng Chen. // 2008. ISCAS 2008. IEEE International Symposium on Circuits and Systems. - Seattle, WA, 18-21 May 2008. - P. 2202-2205.

C1697. Lopez M.A. Characterization of PEDOT:PSS dilutions for inkjet printing applied to OLED fabrication. / Lopez M.A., Sanchez J.C., Estrada M. // 2008. ICCDCS 2008. 7th International Caribbean Conference on Devices, Circuits and Systems. - Cancun, 28-30 April 2008. - P. 1-4.

C1698. Nelson N. A handheld fluorometer for measuring cellular metabolism. / Nelson N., Sander D., Dandin M., Sarje A., Prakash S., Honghao Ji, Abshire P. // 2008. ISCAS 2008. IEEE International Symposium on Circuits and Systems. - Seattle, WA, 18-21 May 2008. - P. 1080-1083.

C1699. Olsson J.A.M. Two color asynchronous event photo pixel. / Olsson J.A.M., Hafliger P. // 2008. ISCAS 2008. IEEE International Symposium on Circuits and Systems. - Seattle, WA, 18-21 May 2008. - P. 2146-2149.

C1700. Lay-Ekuakille A. LED-Based Sensing System Control for Photocatalytic Biomedical Gas Purification. / Lay-Ekuakille A., Trotta A., Vendramin G. // 2008. IMTC 2008. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Victoria, BC, 12-15 May 2008. - P. 525-528.

C1701. Rovati L. On the use of deep UV-LEDs for monitoring dialysis. / Rovati L., Cattini S. // 2008. IMTC 2008. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Victoria, BC, 12-15 May 2008. - P. 956-960.

C1702. Bilgi M. Multi-element Free-Space-Optical spherical structures with intermittent connectivity patterns. / Bilgi M., Yuksel M. // IEEE INFOCOM Workshops 2008. - Phoenix, AZ, 13-18 April 2008. - P. 1-4.

C1703. Azuma Y. The single emission spectrum densitometry for radiochromic films by flat-bed document scanner with transparency unit employing light emitting diode. / Azuma Y., Aoyama H., Goto S. // 2008. IMTC 2008. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Victoria, BC, 12-15 May 2008. - P. 294-298.

C1704. Katz H.E. Interfacial and Nanostructural Enhancements in Organic Semiconductor Sensors and

Diodes. 2008 Flexible Electronics and Displays Conference and Exhibition. - Phoenix, AZ, 21-24 Jan. 2008. - P. 1-4.

C1705. Jin-Nyoung Jang. Development of Plasma-Damage Free Neutral Beam Sputtering System; High Performance Indium Tin Oxide Films at Room Temperature with Application to Top Emmission OLED. / Jin-Nyoung Jang, YouJong Lee, JooHyoung Kim, Ie-Hong Yang, Kyoung Suk Oh, Suk Jae Yoo, Daechul Kim, Bonju Lee, Soung Woong Choi, Young Chun Park, MunPyo Hong. // 2008 Flexible Electronics and Displays Conference and Exhibition. - Phoenix, AZ, 21-24 Jan. 2008. - P. 1-5.

C1706. Hyungsuk Lee. Inorganic-Organic Barrier Coatings for Flexible OLED Applications. / Hyungsuk Lee, Guangneng Zhang, Junghyun Cho. // 2008 Flexible Electronics and Displays Conference and Exhibition. - Phoenix, AZ, 21-24 Jan. 2008. - P. 1-7.

C1707. Ha Soo Hwang. Photolithographic Patterning in Supercritical Carbon Dioxide: Application to Patterned Light-emitting Devices. / Ha Soo Hwang, Zakhidov A., Jin-Kyun Lee, DeFranco J.A., Hon Hang Fong, Malliaras G.G., Ober C.K. // 2008 Flexible Electronics and Displays Conference and Exhibition. - Phoenix, AZ, 21-24 Jan. 2008. - P. 1-4.

C1708. Tai-Shan Liao. The development of Portable digital microscope inspecting instrument. / Tai-Shan Liao, Feng-Chang Hsu, Chien-Shing Lee, Kuo-Cheng Huang, Po-Jui Chen, Fong-Zhi Chen. // 2008. ICSMA 2008. International Conference on Smart Manufacturing Application. - Gyeonggi-do, 9-11 April 2008. - P. 474-476.

C1709. Eungki Lee. Study on Gripping Large-size FPD Glass Substrates. / Eungki Lee, Sookhan Kim, Minseok Kim, Sungchul Hong, Jaejun In, Jinsung Kang. // 2008. ICSMA 2008. International Conference on Smart Manufacturing Application. - Gyeonggi-do, 9-11 April 2008. - P. 39-42.

C1710. Wu G.M. InGaN/GaN multiple quantum wells with silicon delta doping in GaN barriers for light-emitting diodes. / Wu G.M., Chung T.J., Nee T.E., Wang J.C., Lu H.C. // 2008. NEMS 2008. 3rd IEEE International Conference on Nano/Micro Engineered and Molecular Systems. - Sanya, 6-9 Jan. 2008. - P. 596-599.

C1711. Saito T. A New Tracking Method using Image Sensor and Photo Diode for Visible Light Road-to-Vehicle Communication. / Saito T., Haruyama S., Nakagawa M. // 2008. ICACT 2008. 10th International Conference on Advanced Communication Technology. - Gangwon-Do, 17-20 Feb. 2008. - Vol. 1. - P. 673-678.

C1712. Sato H. A cyborg beetle: Insect flight control through an implantable, tetherless microsystem. / Sato H., Berry C.W., Casey B.E., Lavella G., Ying Yao, VandenBrooks J.M., Maharbiz M.M. // 2008. MEMS 2008. IEEE 21st International Conference on Micro Electro Mechanical Systems. - Tucson, AZ, 13-17 Jan. 2008. - P. 164-167.

C1713. Ikuta K. Finger-top total protein analysis system based on new biochemical IC chip. / Ikuta K., Satake N., Ohashi T., Shibata M. // 2008. MEMS 2008. IEEE 21st International Conference on Micro Electro Mechanical Systems. - Tucson, AZ, 13-17 Jan. 2008. - P. 236-239.

C1714. Hoshino K. Single monolayer nanocrystal LED on probe tip for near-field molecular imaging and patterning. / Hoshino K., Gopal A., Ostrowski D., Rozanski L., Patel R., Heitsch A., Korgel B., VandenBout D., Zhang X.J. // 2008. MEMS 2008. IEEE 21st International Conference on Micro Electro Mechanical Systems. - Tucson, AZ, 13-17 Jan. 2008. - P. 128-131.

C1715. Jeong Oen Lee. A new method of driving an AMOLED with MEMS switches. / Jeong Oen Lee, Hyun-Ho Yang, Weon Wi Jang, Jun-Bo Yoon. // 2008. MEMS 2008. IEEE 21st International Conference on Micro Electro Mechanical Systems. - Tucson, AZ, 13-17 Jan. 2008. - P. 132-135.

C1716. Koetse M.M. Optical sensor platforms by modular assembly of organic electronic devices. / Koetse M.M., Rensing P.A., van Heck G.T., Meulendijks N.N.M.M., Kruijt P.G.M., Enting E.H., Wieringa F.P., Schoo H.F.M. // 2008. SAS 2008. IEEE Sensors Applications Symposium. - Atlanta, GA, 12-14 Feb. 2008. - P. 1-3.

C1717. Chang-Yu Lin. Flexible wireless power-transmission system fabricated by 13.56 MHz polymer rectifier. / Chang-Yu Lin, Chia-Hung Chou, Tarng-Shiang Hu, Hou J. // 2008 Flexible Electronics and Displays Conference and Exhibition. - Phoenix, AZ, 21-24 Jan. 2008. - P. 1-4.

C1718. Muraki M. Organic semiconductor based strain sensors for input system on flexible oleds. / Muraki M., Takamatsu S., Matsumoto K., Shimoyama I. // 2008. MEMS 2008. IEEE 21st International Conference on Micro

Electro Mechanical Systems. - Tucson, AZ, 13-17 Jan. 2008. - P. 904-907.

C1719. Yoshino M. High-accuracy positioning system using visible LED lights and image sensor. / Yoshino M., Haruyama S., Nakagawa M. // 2008 IEEE Radio and Wireless Symposium. - Orlando, FL, 22-24 Jan. 2008. - P. 439-442.

C1720. Yuequan Hu. A novel LED driver with adaptive drive voltage. / Yuequan Hu, Jovanovic M.M. // 2008. APEC 2008. Twenty-Third Annual IEEE Applied Power Electronics Conference and Exposition. - Austin, TX, 24-28 Feb. 2008. - P. 565-571.

C1721. In-Hwan Oh. An analysis of current accuracies in peak and hysteretic current controlled power LED drivers. 2008. APEC 2008. Twenty-Third Annual IEEE Applied Power Electronics Conference and Exposition. - Austin, TX, 24-28 Feb. 2008. - P. 572-577.

C1722. Tseng S.-Y. LED backlight power system with auto-tuning regulation voltage for LCD panels. / Tseng S.-Y., Lin S.-C., Lin H.-C. // 2008. APEC 2008. Twenty-Third Annual IEEE Applied Power Electronics Conference and Exposition. - Austin, TX, 24-28 Feb. 2008. - P. 551-557.

C1723. Wei-Hsu Chang. A Digital boost converter to drive white LEDs. / Wei-Hsu Chang, Hung-Shou Nien, Chih-Hung Chen. // 2008. APEC 2008. Twenty-Third Annual IEEE Applied Power Electronics Conference and Exposition. - Austin, TX, 24-28 Feb. 2008. - P. 558-564.

C1724. Rae B.R. A Microsystem for Time-Resolved Fluorescence Analysis using CMOS Single-Photon Avalanche Diodes and Micro-LEDs. / Rae B.R., Griffin C., Muir K.R., Girkin J.M., Gu E., Renshaw D.R., Charbon E., Dawson M.D., Henderson R.K. // 2008. ISSCC 2008. Digest of Technical Papers. IEEE International Solid-State Circuits Conference. - San Francisco, CA, 3-7 Feb. 2008. - P. 166-603.

C1725. Jin-Yong Jeon. A Direct-Type Fast Feedback Current Driver for Medium-to Large-Size AMOLED Displays. / Jin-Yong Jeon, Yong-Joon Jeon, Young-Suk Son, Kwang-Chan Lee, Hyung-Min Lee, Seung-Chul Jung, Kang-Ho Lee, Gyu-Hyeong Cho. // 2008. ISSCC 2008. Digest of Technical Papers. IEEE International Solid-State Circuits Conference. - San Francisco, CA, 3-7 Feb. 2008. - P. 174-604.

C1726. Manjing Xie. A Dc-Dc current source power supply with novel load current signal extraction. / Manjing Xie, Jindong Zhang. // 2008. APEC 2008. Twenty-Third Annual IEEE Applied Power Electronics Conference and Exposition. - Austin, TX, 24-28 Feb. 2008. - P. 1651-1655.

C1727. Harrison Reid. Medical & Displays. / Harrison Reid, Kwon Oh-Kyong. // 2008. ISSCC 2008. Digest of Technical Papers. IEEE International Solid-State Circuits Conference. - San Francisco, CA, 3-7 Feb. 2008. - P. 160-161.

C1728. Biber C. LED Light Emission as a Function of Thermal Conditions. 2008. Semi-Therm 2008. Twenty-fourth Annual IEEE Semiconductor Thermal Measurement and Management Symposium. - San Jose, CA, 16-20 March 2008. - P. 180-184.

C1729. See C.H. Wireless sensor transmission range measurement within the ground level. / See C.H., Abd-Alhameed R.A., Hu Y.F., Horoshenkov K.V. // 2008. LAPC 2008. Loughborough Antennas and Propagation Conference. - Loughborough, 17-18 March 2008. - P. 225-228.

C1730. Katsumata T. Fluorescence Thermometer Based on 2-Dimensional Photoluminescence Imaging. / Katsumata T., Kano Y., Nakayama C., Harako S., Aizawa H., Komuro S. // 2008. ICSMA 2008. International Conference on Smart Manufacturing Application. - Gyeonggi-do, 9-11 April 2008. - P. 163-166.

C1731. Yu J.H. PC Board Thermal Management of High Power LEDs. / Yu J.H., Oepts W., Konijn H. // 2008. Semi-Therm 2008. Twenty-fourth Annual IEEE Semiconductor Thermal Measurement and Management Symposium. - San Jose, CA, 16-20 March 2008. - P. 63-67.

C1732. Sebastian J. A very simple control strategy for power factor correctors driving high-brightness light-emitting diodes. / Sebastian J., Lamar D.G., Arias M., Rodriguez M., Hernando M.M. // 2008. APEC 2008. Twenty-Third Annual IEEE Applied Power Electronics Conference and Exposition. - Austin, TX, 24-28 Feb. 2008. - P. 537-543.

C1733. Bhattacharya A. Effects of parametric uncertainty in designing a high-brightness LED light system. /

Bhattacharya A., Lehman B., DiMarzio C.A., Shteynberg A., Rodriguez H. // 2008. APEC 2008. Twenty-Third Annual IEEE Applied Power Electronics Conference and Exposition. - Austin, TX, 24-28 Feb. 2008. - P. 544-550.

C1734. Oliveira S.C. Real time monitoring of the leakage current of 230 kV insulator strings under washing. / Oliveira S.C., Fontana E., Cavalcanti F.J.M. // 2008. T& Transmission and Distribution Conference and ExpositionD. IEEE/PES. - Chicago, IL, 21-24 April 2008. - P. 1-4.

C1735. {no data available}. Session 16 lighting applications / LEDS. 2008. APEC 2008. Twenty-Third Annual IEEE Applied Power Electronics Conference and Exposition. - Austin, TX, 24-28 Feb. 2008. - P. 535-536.

C1736. Liuxi Tan. A light emitting diode's chip structure with low stress and high light extraction efficiency. / Liuxi Tan, Jia Li, Zongyuan Liu, Kai Wang, Pei Wang, Zhiying Gan, Sheng Liu. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 783-788.

C1737. Ellis B. Silicon based colloidal quantum dot photonic crystal light emitters at telecom wavelengths. / Ellis B., Cademartiri L., Fushman I., Ozin G.A., Vuckovic J. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1738. Chih-Feng Lu. Reduced blue shift in screening the quantum-confined stark effect of an InGaN/GaN quantum well with the prestrained growth of a light-emitting diode. / Chih-Feng Lu, Chi-Feng Huang, Yang C.C. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1739. Sun L. PbS quantum dot photoluminescence quenching induced by an applied bias. / Sun L., Bartnik A., Hyun B., Wise F., Reed J., Slinker J., Malliaras G., Zhong Y., Bao L., Abruna H. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1740. Hoevel S. Room-temperature spin-controlled optoelectronic devices. / Hoevel S., Gerhardt N.C., Hofmann M.R., Fang-Yuh Lo, Reuter D., Wieck A.D., Schuster E., Keune W. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1741. Qihuang Gong. Photosensitizer-doped organic light-emitting diodes for near infrared to visible optical upconversion. / Qihuang Gong, Zhijian Chen, Lixin Xiao, Yuan Zheng, Jiashu Lu. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1742. Hung-Cheng Lin. Enhancing the light extraction of InGaN light-emitting diodes by patterning the dicing streets. / Hung-Cheng Lin, Yen-Chun Tseng, Jen-Inn Chyi, Chia-Ming Lee. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1743. Fang-I Lai. High enhancement in light output of InGaN-based micro-hole array LEDs by photoelectrochemical (PEC) oxidation. / Fang-I Lai, Lin S.G., Hsieh C.E., Kuo H.C., Lu T.C., Wang S.C. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1744. Withers N.J. Effects of gamma irradiation on optical properties of CdSe/ZnS colloidal quantum dots. / Withers N.J., Sankar K., Akins B.A., Memon T.A., Tingyi Gu, Jiangjiang Gu, Smolyakov G.A., Osinki M. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1745. Yik-Khoon Ee. Size effects and light extraction efficiency optimization of III-Nitride light emitting diodes with SiO2 / polystyrene microlens arrays. / Yik-Khoon Ee, Kumnorkaew P., Arif R.A., Hua Tong, Gilchrist J.F., Tansu N. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1746. Duggal A.R. OLEDs for solid state lighting. 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. -

P. 1-2.

C1747. Kyeong-Jae Byeon. Enhanced light extraction of light-emitting diodes with photonic crystal pattern fabricated by nanoimprint. / Kyeong-Jae Byeon, Seon-Yong Hwang, Ki-Yeon Yang, Heon Lee, Chang-Hee Hong, Eun-Kyung Suh. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1748. Cheng-Yen Chen. Fabrication of photonic crystal light-emitting diode with photoelectrochemical wet etching and phase mask interference. / Cheng-Yen Chen, Cheng-Hung Lin, Dong-Ming Yeh, Chih-Feng Lu, Chi-Feng Huang, Yang C.C. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1749. Chun-Feng Lai. Anisotropy light extraction with high polarization ratio from photonic crystal light-emitting diodes. / Chun-Feng Lai, Hao-Chung Kuo, Tien-Chang Lu, Shing-Chung Wang, Chao C.H., Hsueh H.T., Wang J.-F.T., Yeh W.Y., Chi J.Y. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1750. Fan Zhang. Investigating high-speed modulation characteristics of quantum dots in red emitting quantum dot-light emitting diodes. / Fan Zhang, Chunfeng Zhang, Zhanao Tan, Ting Zhu, Jian Xu. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1751. Chopra N. Highly efficient, charge balanced blue phosphorescent OLEDs employing wide band gap host with p-i-n architecture. / Chopra N., Jaewon Lee, So F. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1752. Jaewon Lee. Triplet energy confinement effect in blue phosphorescent organic light emitting devices. / Jaewon Lee, Chopra N., So F. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1753. Buss I.J. Measurement of mid-infrared alinsb light-emitting diodes with surface patterning. / Buss I.J., Mirza B.I., Nash G.R., Storey C., Buckle L., Coomber S.D., Emeny M.T., Rarity J.G., Cryan M.J. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1754. Chung-Hsiang Chang. Blue and yellow electroluminescence of MOSLED made on Si-rich SiOx grown by PECVD with detuning buried Si nanoclusters size. / Chung-Hsiang Chang, Gong-Ru Lin. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1755. Basiev T.T. Stimulated emission of laser dyes in opal-like matrix (photonic crystal) under nanosecond pulsed laser excitation. / Basiev T.T., Alimov O.K., Orlovskii Yu.V. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1756. Chiu C.H. High efficiency white LEDs with 2D photonic quasi-crystal and patterned sapphire substrate. / Chiu C.H., Cheng B.S., Kuo H.C., Lu T.C., Wang S.C., Huang H.W., Yu C.C., Lin C.H. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1757. Heng Xu. Microscale flexible image projection device for spatiotemporal excitation in the research of visual system development. / Heng Xu, Davitt K.M., Wei Dong, Yoon-Kyu Song, Pattersion W.R., Aizenman C.D., Nurmikko A.V. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1758. Khurgin J.B. Enhancing efficiency of electroluminescence using individual metal nanoparticles and ordered nanoparticle arrays. / Khurgin J.B., Sun G., Soref R.A. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1759. Pavel N. High-power emission of Nd-vanadate thin-disk lasers in-band pumped at 0.88 μm directly into the emitting level. / Pavel N., Krankel C., Peters R., Petermann K., Huber G. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1760. Qiaoqiang Gan. A prototype miniaturized chip for bio-imaging applications. / Qiaoqiang Gan, Yu Wang, Yaohua Sun, Tatic-Lucic S., Bartoli F. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1761. Shun-Wei Liu. Degradation of organic light-emitting diodes: Dependence on deposition rate. / Shun-Wei Liu, Chih-Chien Lee, Guo-Jun Huang, Jiun-Haw Lee, Chin-Ti Chen, Juen-Kai Wang. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1762. Yuh-Renn Wu. InGaN light emitters: A comparison of quantum dot and quantum well based devices. / Yuh-Renn Wu, Yih-Yin Lin, Jasprit Singh J. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1763. Zhanao Tan. Bright and color-saturated emission from blue light emitting diodes based on solution-processed colloidal nanocrystal quantum dots. / Zhanao Tan, Fan Zhang, Ting Zhu, Jian Xu, Mohney S.E., Ruzyllo J., Wang A.Y., Dixon J.D., Linsong Li. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1764. Park S.-H. Optical anisotropy in InGaN/GaN quantum-well light-emitting diodes with a general crystal orientation. / Park S.-H., Ahn D., Oh J.-E. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1765. Hander S. Controlling the radiative rate of electrophosphorescent organometallic complexes by engineering the singlet-triplet splitting. / Hander S., Da Como E., Feldmann J., Lupton J.M., Lennartz C., Erk P., Fuchs E., Molt O., Munster I., Schildknecht C., Wagenblast G. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1766. Chun-Feng Lai. Enhanced vertical extraction efficiency from a thin-film InGaN/GaN photonic crystal light-emitting diodes. / Chun-Feng Lai, Huang H.W., Lin C.H., Kuo H.C., Lu T.C., Wang S.C., Chia-Hsin Chao. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1767. Joonhee Lee. High extraction efficiency GaN light-emitting diode with photonic crystal patterns and angled sidewall deflectors. / Joonhee Lee, Donguk Kim, Sihan Kim, Sungmo Ahn, Heonsu Jeon. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1768. Yen-Sheng Lin. Crystal fiber based white light source using Ce,Sm:YAG as the active medium. / Yen-Sheng Lin, Cheng-Nan Tsai, Po-Jui Liao, Dong-Yo Jheng, Sheng-Lung Huang. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1769. Krumnikl M. A New Method for Bryophyte Canopy Analysis Based on 3D Surface Reconstruction. / Krumnikl M., Sojka E., Gaura J., Motyka O. // 2008. CISIM '08. 7th Computer Information Systems and Industrial Management Applications. - Ostrava, 26-28 June 2008. - P. 210-211.

C1770. Meneghini M. Combined optical and electrical analysis of AlGaN-based deep-UV LEDs reliability. / Meneghini M., Trivellin N., Trevisanello L., Lunev A., Jinwei Yang, Bilenko Y., Wenhong Sun, Shatalov M., Gaska R., Zanoni E., Meneghesso G. // 2008. IRPS 2008. IEEE International Reliability Physics Symposium. - Phoenix, AZ, April 27 2008-May 1 2008. - P. 441-445.

C1771. Prabhakar T.V. Simulation blocks for TOSSIM-T2. / Prabhakar T.V., Venkatesh S., Sujay M.S., Kuri J., Praveen K. // 2008. COMSWARE 2008. 3rd International Conference on Communication Systems Software and Middleware and Workshops. - Bangalore, 6-10 Jan. 2008. - P. 17-23.

C1772. Mozumdar M.M.R. A Framework for Modeling, Simulation and Automatic Code Generation of Sensor Network Application. / Mozumdar M.M.R., Gregoretti F., Lavagno L., Vanzago L., Olivieri S. // 2008. SECON '08. 5th Annual IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks. - San Francisco, CA, 16-20 June 2008. - P. 515-522.

C1773. Singh R. Global green energy conversion revolution in 21st century through solid state devices. / Singh R., Gupta N., Poole K.F. // 2008. MIEL 2008. 26th International Conference on Microelectronics. - Nis, 11-14 May 2008. - P. 45-54.

C1774. Salinger J. Optimal resolution of LBIV/LBIC methods for diagnostics of solar cell homogeneity. / Salinger J., Benda V., Machacek Z. // 2008. MIEL 2008. 26th International Conference on Microelectronics. - Nis, 11-14 May 2008. - P. 251-253.

C1775. Lifang Lou. Acomprehensive compact SCR model for CDM ESD circuit simulation. / Lifang Lou, Liou J.J. // 2008. IRPS 2008. IEEE International Reliability Physics Symposium. - Phoenix, AZ, April 27 2008-May 1 2008. - P. 635-636.

C1776. Kavehrad M. Energy-efficient broadband data communications using white LEDs on aircraft powerlines. / Kavehrad M., Hajjarian Z., Enteshari A. // 2008. ICNS 2008 Integrated Communications, Navigation and Surveillance Conference. - Bethesda, MD, 5-7 May 2008. - P. 1-8.

C1777. Shan Gao. Design optimization on the heat transfer and mechanical reliability of High Brightness Light Emitting Diodes (HBLED) package. / Shan Gao, Jupyo Hong, Sanghyun Shin, Yongki Lee, Seogmoon Choi, Sung Yi. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 798-803.

C1778. Zhang Kai. Directly synthesizing CNT-TIM on aluminum alloy heat sink for HB-LED thermal management. / Zhang Kai, Yuen M.M.F., Xiao D.G.W., Fu Y.Y., Chan P. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 1659-1663.

C1779. Luqiao Yin. Multi-chip integrated high-power white LED device on the multi-layer ceramic substrate. / Luqiao Yin, Weiqiao Yang, Yansheng Guo, Kejun Ma, Shuzhi Li, Mingfa Chen, Jia Li, Jianhua Zhang. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 790-794.

C1780. Kuan Chun Chen. Thermal management and novel package design of high power light-emitting diodes. / Kuan Chun Chen, Su Y.K., Lin C.L., Yu-Hsuan Lu, Wen-Ling Li, Chuang R.W., Jin-Quan Huang, Shi-Ming Chen. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 795-797.

C1781. Li C.Y. Thin film encapsulation of OLED displays with organic-inorganic composite film. / Li C.Y., Wei B., Hua Z.K., Zhang H., Li X.F., Zhang J.H. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 1819-1824.

C1782. Hsun-Tien Li. Enhancement of light efficiency of LED using a novel high refractive encapsulant. / Hsun-Tien Li, Chia-Wen Hsu, Kai-Chi Chen. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 1926-1930.

C1783. Evans D.D. High brightness matrix LED assembly challenges and solutions. 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 1704-1708.

C1784. Tsai M.Y. Thermal analyses and measurements of low-Cost COP package for high-power LED. / Tsai M.Y., Chen C.H., Kang C.S. // 2008. ECTC 2008. 58th Electronic Components and Technology Conference. - Lake Buena Vista, FL, 27-30 May 2008. - P. 1812-1818.

C1785. Arif R.A. Spontaneous recombination rate and luminescence efficiency of staggered InGaN quantum wells light emitting diodes. / Arif R.A., Hongping Zhao, Yik-Khoon Ee, Penn S.T., Dierolf V., Tansu N. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1786. Jong Kyu Kim. The origin of efficiency droop in GaN-based light-emitting diodes and its solution. /

Jong Kyu Kim, Min-Ho Kim, Schubert M.F., Qi Dai, Tan Sakong, Sukho Yoon, Cheolsoo Sone, Yongjo Park, Piprek J., Schubert E.F. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1787. Lepinski G.J. Using eye contact and contextual speech recognition for hands-free surgical charting. / Lepinski G.J., Vertegaal R. // 2008. PervasiveHealth 2008. Second International Conference on Pervasive Computing Technologies for Healthcare. - Tampere, Jan. 30 2008-Feb. 1 2008. - P. 119-120.

C1788. Garrett G.A. Time-resolved optical studies of InGaN LED structures grown on semipolar and nonpolar bulk GaN substrates. / Garrett G.A., Hongen Shen, Wraback M., Tyagi A., Schmidt M.C., Zhongyuan Jia, Speck J.S., DenBaars S.P., Nakamura S. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1789. Arif R.A. InGaN-GaNAs type-II 'W' quantum well lasers for emission at 450-nm. / Arif R.A., Hongping Zhao, Tansu N. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1790. Shtein M. OLEDs on fibers and AFM cantilevers. / Shtein M., O'Connor B., Yiying Zhao, Pipe K.P. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1791. Wiesmann C. Efficiency of InGaN LEDs incorporating Surface Plasmon Polaritons. / Wiesmann C., Linder N., Schwarz U.T. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1792. Taeil Jung. Improving quantum efficiency with nanostructured semipolar III-nitride light emitters. / Taeil Jung, Ku P.C. // 2008 and 2008 Conference on Quantum Electronics and Laser Science. CLEO/QELS 2008. Conference on Lasers and Electro-Optics. - San Jose, CA, 4-9 May 2008. - P. 1-2.

C1793. Rodrigues C. Bidirectional transmission over standard step index PMMA polymer optical fiber. / Rodrigues C., Mao-Cheia P., Teixeira A., Nogueira R., Lima M., Pinto J.L., Andre P.S. // 2008. ISCE 2008. IEEE International Symposium on Consumer Electronics. - Vilamoura, 14-16 April 2008. - P. 1-2.

C1794. Buss I.J. Three-dimensional parallel FDTD simulation of light-emitting diodes. / Buss I.J., Cryan M.J., Nash G.R., Rarity J.G. // 2008. CEM 2008. 2008 IET 7th International Conference on Computation in Electromagnetics. - Brighton, 7-10 April 2008. - P. 100-101.

C1795. Cassanelli G. Failure analysis of high power white LEDs. / Cassanelli G., Mura G., Fantini F., Vanzi M. // 2008. MIEL 2008. 26th International Conference on Microelectronics. - Nis, 11-14 May 2008. - P. 255-257.

C1796. Jyi-Tsong Lin. A compensation threshold voltage shift pixel circuit for active matrix organic light emitting diode. / Jyi-Tsong Lin, Cheng-Neng Wen, Po-Hsieh Lin. // 2008. MIEL 2008. 26th International Conference on Microelectronics. - Nis, 11-14 May 2008. - P. 259-262.

C1797. Shen Qian. Neural Network Modeling for Retrieval of Water Quality of Lake Taihu from Field Spectral Measurement. / Shen Qian, Zhang Bing, Li Junsheng, Zhang Hao, Chen Mo. // 2008. CISP '08. Congress on Image and Signal Processing. - Sanya, China, 27-30 May 2008. - Vol. 5. - P. 178-182.

C1798. Piyush Jain. Sleep circuit for SRAM core with improved noise-margin. / Piyush Jain, Dasani J., Kumar A. // 2008. ICICDT 2008. IEEE International Conference on Integrated Circuit Design and Technology and Tutorial. - Austin, TX, 2-4 June 2008. - P. 139-142.

C1799. Keane B. Advances in hazardous location lighting-Past, present and future. / Keane B., Francis R. // 2008. PCIC Europe 2008. 5th Petroleum and Chemical Industry Conference Europe-Electrical and Instrumentation Applications. - Weimar, 10-12 June 2008. - P. 1-7.

C1800. Sadek T. Poor confinement of e-h recombination zone in blue oleds. / Sadek T., Aziz H., Loutfy R.O., Smith P.M. // 2008. CCECE 2008. Canadian Conference on Electrical and Computer Engineering. - Niagara Falls, ON, 4-7 May 2008. - P. 001117-001120.

C1801. Po-Yen Chen. RGB LED backlight driving system with area control. / Po-Yen Chen, Yi-Hua Liu, Jen-Hao Teng. // 2008. ICSET 2008. IEEE International Conference on Sustainable Energy Technologies. -

Singapore, 24-27 Nov. 2008. - P. 765-768.

C1802. Tseng S.-Y. Buck converter associated with active clamp flyback converter for PV power system. / Tseng S.-Y., Li Y.-J., Wu Y.-J. // 2008. ICSET 2008. IEEE International Conference on Sustainable Energy Technologies. - Singapore, 24-27 Nov. 2008. - P. 916-921.

C1803. Tse-Ju Liao. Robust LED backlight driver with low output voltage drop and hig output current accuracy. / Tse-Ju Liao, Chern-Lin Chen. // 2008. ICSET 2008. IEEE International Conference on Sustainable Energy Technologies. - Singapore, 24-27 Nov. 2008. - P. 63-66.

C1804. Po-Yen Chen. Development of an energy efficient street light driving system. / Po-Yen Chen, Yi-Hua Liu, Yeu-Torng Yau, Hung-Chun Lee. // 2008. ICSET 2008. IEEE International Conference on Sustainable Energy Technologies. - Singapore, 24-27 Nov. 2008. - P. 761-764.

C1805. Kwansik Cho. Accurate localization in short distance based on computer vision for mobile sensors. / Kwansik Cho, Ha Yoon Song, Jun Park. // 2008. IMCSIT 2008. International Multiconference on Computer Science and Information Technology. - Wisia, 20-22 Oct. 2008. - P. 487-493.

C1806. Okayama Y. Fabrication of Ultraviolet range Light Guide Plate. / Okayama Y., Yamashita K., Noda D., Hattori T. // 2008. MHS 2008. International Symposium on Micro-NanoMechatronics and Human Science. - Nagoya, 6-9 Nov. 2008. - P. 408-413.

C1807. Yu-Ting Tai. A high-sensitivity CMOS-compatible immunosensor based on the HRP/TMB/streptavidin system. / Yu-Ting Tai, Yu-Wei Chang, Ming-Yu Lin, Yuh-Shyong Yang, Yang-Tung Huang. // 2008. ICST 2008. 3rd International Conference on Sensing Technology. - Tainan, Nov. 30 2008-Dec. 3 2008. - P. 297-300.

C1808. Cervigon R. Wavelet variance differences in atrial fibrillation during anaesthetic effect. / Cervigon R., Castells F., Moreno J., Mateo J., Sanchez C., Millet J. // 2008 Computers in Cardiology. - Bologna, 14-17 Sept. 2008. - P. 621-624.

C1809. Zhang-Cheng Hao. High Selective Ultra-Wideband (UWB) Bandpass Filter with Wideband Harmonic Suppression. / Zhang-Cheng Hao, Jia-Sheng Hong. // 2008. EuMC 2008. 38th European Microwave Conference. - Amsterdam, 27-31 Oct. 2008. - P. 353-356.

C1810. Mahapatra R.P. Ultra Sonic Sensor Based Blind Spot Accident Prevention System. / Mahapatra R.P., Kumar K.V., Khurana G., Mahajan R. // 2008. ICACTE '08. International Conference on Advanced Computer Theory and Engineering. - Phuket, 20-22 Dec. 2008. - P. 992-995.

C1811. Gang Cao. Fuzzy Comprehensive Estimation Model for the Anaerobic System Operation State Based on Fuzzy C-Mean. / Gang Cao, Cehui Mo, Mingyu Li. // 2008. IITA '08. Second International Symposium on Intelligent Information Technology Application. - Shanghai, 20-22 Dec. 2008. - Vol. 2. - P. 952-955.

C1812. Xu Mei-hua. Study and AISC design of a high efficiency OLED scan controller. / Xu Mei-hua, Zhang Qing, Ran Feng, Wang Lian-zhou. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 2156-2159.

C1813. Epstein A. Optical emission from organic light-emitting diodes. / Epstein A., Tessler N., Einziger P.D. // 2008. IEEEI 2008. IEEE 25th Convention of Electrical and Electronics Engineers in Israel. - Eilat, 3-5 Dec. 2008. - P. 358-362.

C1814. Prabuwono A.S. A Study of Car Park Control System Using Optical Character Recognition. / Prabuwono A.S., Idris A. // 2008. ICCEE 2008. International Conference on Computer and Electrical Engineering. - Phuket, 20-22 Dec. 2008. - P. 866-870.

C1815. Xuecheng Zou. Dynamic current limitation circuit for white LED driver. / Xuecheng Zou, Kai Yu, Zhaoxia Zheng, Xiaofei Chen, Zhige Zou, Dingbin Liao. // 2008. APCCAS 2008. IEEE Asia Pacific Conference on Circuits and Systems. - Macao, Nov. 30 2008-Dec. 3 2008. - P. 898-901.

C1816. Hong Hong. Electronic Shelf Label System based on public illuminating network. / Hong Hong, Yi Ren, Ricai Tian, Liyi Xiao. // 2008. APCCAS 2008. IEEE Asia Pacific Conference on Circuits and Systems. - Macao, Nov. 30 2008-Dec. 3 2008. - P. 1103-1106.

C1817. Shizuki B. Browsing 3D Media Using Cylindrical Multi-touch Interface. / Shizuki B., Naito M., Tanaka J. // 2008. ISM 2008. Tenth IEEE International Symposium on Multimedia. - Berkeley, CA, 15-17 Dec. 2008. - P. 489-490.

C1818. Jiang C. Photocathodes for Compact Optical Triggering of Back-Lighted Thyratrons. / Jiang C., Sozer E.B., Umstattd R.J., Chen H., Hsu H., Gundersen M.A. // Proceedings of the 2008 IEEE International Power Modulators and High Voltage Conference. - Las Vegas, NE, 27-31 May 2008. - P. 477-479.

C1819. Dwari S. A Novel direct AC/DC converter for efficient low voltage energy harvesting. / Dwari S., Dayal R., Parsa L. // 2008. IECON 2008. 34th Annual Conference of IEEE Industrial Electronics. - Orlando, FL, 10-13 Nov. 2008. - P. 484-488.

C1820. Chalmers A.N. A virtual imaging system for colour research. / Chalmers A.N., Wang L., Ramos M.V. // 2008. IVCNZ 2008. 23rd International Conference Image and Vision Computing New Zealand. - Christchurch, 26-28 Nov. 2008. - P. 1-6.

C1821. Vaezi A. Nonlinear signal and noise analysis of arbitrary number of anti-parallel diode mixer for 3G mobile. / Vaezi A., Abdipour A., Afrooz K. // 2008. MICROWAVE 2008. International Conference on Recent Advances in Microwave Theory and Applications. - Jaipur, 21-24 Nov. 2008. - P. 525-528.

C1822. Lin Ying-yan. An efficiency-enhanced low dropout Linear HB LED driver for automotive application. / Lin Ying-yan, Zhang Jing, Zou Xue-cheng, Li Wei. // 2008. EDSSC 2008. IEEE International Conference on Electron Devices and Solid-State Circuits. - Hong Kong, 8-10 Dec. 2008. - P. 1-4.

C1823. Andriyashin A. Illuminant dependence of PCA, NMF and NTF in spectral color imaging. / Andriyashin A., Parkkinen J., Jaaskelainen T. // 2008. ICPR 2008. 19th International Conference on Pattern Recognition. - Tampa, FL, 8-11 Dec. 2008. - P. 1-4.

C1824. Sheng-Liang Kuo. Characteristics of Thermal Resistance for High Power LEDs. / Sheng-Liang Kuo, Chun-Kai Liu, Ming-Ji Dai, Chih-Kuang Yu, Heng-Chieh Chien, Chung-Yen Hsu. // 2008. EPTC 2008. 10th Electronics Packaging Technology Conference. - Singapore, 9-12 Dec. 2008. - P. 149-154.

C1825. Tan C.M. Humidity Effect on the Degradation of Packaged Ultra-bright White LEDs. / Tan C.M., Chen B., Foo Y.Y., Chan R.Y., Xu G., Liu Y.J. // 2008. EPTC 2008. 10th Electronics Packaging Technology Conference. - Singapore, 9-12 Dec. 2008. - P. 923-928.

C1826. Sheng Liu. A Multi-physics Multi-scale Modeling Platform for Research and Development in Solid State Lighting. / Sheng Liu, Kai Wang, Zhiyin Gan, Zongyuan Liu, Zhaohui Chen, Han Yan, Xiaobing Luo, Wei Wei, Pei Wang. // 2008. EPTC 2008. 10th Electronics Packaging Technology Conference. - Singapore, 9-12 Dec. 2008. - P. 929-938.

C1827. de Samber M. A new Embedded Packaging Technology for high power LEDs. / de Samber M., v. d. Ackerveken T., Burghoom M., Bruinsma N., van Grunsven E. // 2008. EPTC 2008. 10th Electronics Packaging Technology Conference. - Singapore, 9-12 Dec. 2008. - P. 242-248.

C1828. Wei-Hao Chi. Analysis of Thermal Performance of High Power Light Emitting Diodes Package. / Wei-Hao Chi, Tsung-Lin Chou, Cheng-Nan Han, Kuo-Ning Chiang. // 2008. EPTC 2008. 10th Electronics Packaging Technology Conference. - Singapore, 9-12 Dec. 2008. - P. 533-538.

C1829. Zhongming Ye. A topology study of single-phase offline AC/DC converters for high brightness white LED lighting with power factor pre-regulation and brightness dimmable. / Zhongming Ye, Greenfeld F., Zhixiang Liang. // 2008. IECON 2008. 34th Annual Conference of IEEE Industrial Electronics. - Orlando, FL, 10-13 Nov. 2008. - P. 1961-1967.

C1830. Qin Y.X. Current source ballast for high power lighting emitting diodes without electrolytic capacitor. / Qin Y.X., Chung H.S.H., Lin D.Y., Hui S.Y.R. // 2008. IECON 2008. 34th Annual Conference of IEEE Industrial Electronics. - Orlando, FL, 10-13 Nov. 2008. - P. 1968-1973.

C1831. Uchiyama H. Photogrammetric system using visible light communication. / Uchiyama H., Yoshino M., Saito H., Nakagawa M., Haruyama S., Kakehashi T., Nagamoto N. // 2008. IECON 2008. 34th Annual Conference of IEEE Industrial Electronics. - Orlando, FL, 10-13 Nov. 2008. - P. 1771-1776.

C1832. {no data available}. Converters for LED Lighting. 2008. IECON 2008. 34th Annual Conference of IEEE Industrial Electronics. - Orlando, FL, 10-13 Nov. 2008. - P. 1959.

C1833. Xiaohui Qu. Isolated PFC Pre-Regulator for LED Lamps. / Xiaohui Qu, Wong S.C., Tse C.K., Xinbo Ruan. // 2008. IECON 2008. 34th Annual Conference of IEEE Industrial Electronics. - Orlando, FL, 10-13 Nov. 2008. - P. 1980-1987.

C1834. Nakazawa N. Welfare-support interface for PC mouse operations using mouth open/close motions and head tilting. / Nakazawa N., Hashimoto N., Yamada K. // 2008. IECON 2008. 34th Annual Conference of IEEE Industrial Electronics. - Orlando, FL, 10-13 Nov. 2008. - P. 3459-3464.

C1835. Chun-Jen Weng. Thermal modeling of enhancement LED package. 2008. EDSSC 2008. IEEE International Conference on Electron Devices and Solid-State Circuits. - Hong Kong, 8-10 Dec. 2008. - P. 1-4.

C1836. de Britto J.R. LED lamp driver using a converter with wide range conversion microcontroller-based. / de Britto J.R., de Freitas L.C., Farias V.J., Coelho E., Vieira J.B. // 2008. IECON 2008. 34th Annual Conference of IEEE Industrial Electronics. - Orlando, FL, 10-13 Nov. 2008. - P. 1988-1993.

C1837. Zhongming Ye. Offline SEPIC converter to drive the high brightness white LED for lighting applications. / Zhongming Ye, Greenfeld F., Zhixiang Liang. // 2008. IECON 2008. 34th Annual Conference of IEEE Industrial Electronics. - Orlando, FL, 10-13 Nov. 2008. - P. 1994-2000.

C1838. Fitzgerald E.A. Monolithic III-V/Si integration. / Fitzgerald E.A., Bulsara M.T., Bai Y., Cheng C., Liu W.K., Lubyshev D., Fastenau J.M., Wu Y., Urtega M., Ha W., Bergman J., Brar B., Drazek C., Daval N., Letertre F., Hoke W.E., LaRoche J.R., Herrick K.J., Kazior T.E. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 1421-1424.

C1839. Perchoux J. Photodiode-free Doppler velocimeter based on self-mixing effect in commercial VCSELs. / Perchoux J., Dougan H.E., Bony F., Rakic A.D. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 290-293.

C1840. Jian Guo. An auto-switched mode CMOS image sensor for high dynamic range scientific imaging applications. / Jian Guo, Sonkusale S. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 355-358.

C1841. Intermite A. All fiber strain sensor based on the Laser-Self-Mixing effect. / Intermite A., Radisavljevic B., Dabbicco M., Scamarcio G. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 138-139.

C1842. Sotnikova G.Yu. Modeling of performance of mid-infrared gas sensors based on immersion lens diode optopairs. / Sotnikova G.Yu., Aleksandrov S.E., Gavrilov G.A., Kapralov A.A., Matveev B.M., Remennyy M.A. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 278-281.

C1843. Fabian M. Investigation of binary liquid aqueous methanol and ethanol mixtures using meander-shaped fibre-optic evanescent-wave absorption sensors. / Fabian M., Lewis E., Newe T., Lochmann S.I. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 359-362.

C1844. Chivukula V.S. Capacitance controlled n-GaN SAW UV sensor. / Chivukula V.S., Ciplys D., Shur M.S., Rimeika R. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 984-987.

C1845. Jung Ho Kim. Development of optical sensing system for detection of Fe ions using conductive polymer actuator based microfluidic pump. / Jung Ho Kim, King Tong Lau, Fay C., Diamond D. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 1155-1158.

C1846. Lay-Ekuakille A. Sensor conditioning unit design for public lighting control. / Lay-Ekuakille A., Vendramin G., Trotta A. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 768-771.

C1847. Degner M. Real time exhaust gas sensor with high resolution for onboard sensing of harmful components. / Degner M., Damaschke N., Ewald H., Lewis E. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 973-976.

C1848. Hayashi Y. Luminescence of n-InGaAs/p-InP light emitting diode with superconducting Nb electrode. / Hayashi Y., Jo M., Kumano H., Suemune I., Tanaka K., Akazaki T. // 2008. IPRM 2008. 20th International Conference on Indium Phosphide and Related Materials. - Versailles, 25-29 May 2008. - P. 1-4.

C1849. Chauvin N. Enhancement of the recombination rate of InAs quantum dots in a photonic crystal light emitting diode. / Chauvin N., Bitauld D., Fiore A., Balet L., Li L.H., Alloing B., Francardi M., Gerardino A. // 2008. IPRM 2008. 20th International Conference on Indium Phosphide and Related Materials. - Versailles, 25-29 May 2008. - P. 1-2.

C1850. Takeda K. Polarization insensitive operation of multimode interference bistable laser all-optical flip-flop. / Takeda K., Kanema Y., Takenaka M., Tanemura T., Nakano Y. // 2008. IPRM 2008. 20th International Conference on Indium Phosphide and Related Materials. - Versailles, 25-29 May 2008. - P. 1-4.

C1851. Krishnamurthy D. Studies on TlInGaAsN double quantum well structures. / Krishnamurthy D., Ishimaru M., Ozasa M., Tanaka Y., Hasegawa S., Hirotsu Y., Asahi H. // 2008. IPRM 2008. 20th International Conference on Indium Phosphide and Related Materials. - Versailles, 25-29 May 2008. - P. 1-4.

C1852. Calfa A.-M. Polyphonic Smart Card. 2008. CAS 2008. International Semiconductor Conference. - Sinaia, 13-15 Oct. 2008. - Vol. 2. - P. 419-422.

C1853. Ching-Te Chiu. Design optimization of a global/local tone mapping processor on arm SOC platform for real-time high dynamic range video. / Ching-Te Chiu, Tsun-Hsien Wang, Wei-Ming Ke, Chen-Yu Chuang, Jhih-Rong Chen, Rong Yang, Ren-Song Tsay. // 2008. ICIP 2008. 15th IEEE International Conference on Image Processing. - San Diego, CA, 12-15 Oct. 2008. - P. 1400-1403.

C1854. Yun Shuai. On-chip fluorescence detection with organic thin film devices for disposable lab-on-a-chip sensors. / Yun Shuai, Banerjee A., Klotzkin D., Papautsky I. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 122-125.

C1855. Lingfei Zhang. A Fast Center of Mass Estimation Algorithm for Coordinates of IR Markers. / Lingfei Zhang, Gang Chen, Dong Ye, Rensheng Che. // 2008. ICYCS 2008. The 9th International Conference for Young Computer Scientists. - Hunan, 18-21 Nov. 2008. - P. 1120-1125.

C1856. Miao Liao. Real-time Light Fall-off Stereo. / Miao Liao, Liang Wang, Ruigang Yang, Minglun Gong. // 2008. ICIP 2008. 15th IEEE International Conference on Image Processing. - San Diego, CA, 12-15 Oct. 2008. - P. 1380-1383.

C1857. Sawada T. TOF range image sensor using a range-shift technique. / Sawada T., Ito K., Nakayama M., Kawahito S. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 1390-1393.

C1858. Marsik P. Optical characteristics and UV modification of low-k materials. / Marsik P., Baklanov M.R. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 765-768.

C1859. BeiJu Huang. Monolithic integration of light emitting diodes, photodetector and receiver circuit in standard CMOS technology. / BeiJu Huang, Xu Zhang, Zan Dong, Wei Wang, HongDa Chen. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 985-987.

C1860. Mase S. Error Correcting Scheme for Road-to-Vehicle Visible Light Communication using LED Array. / Mase S., Arai S., Yamazato T., Yendo T., Fujii T., Tanimoto M., Kimura Y. // 2008. ITSC 2008. 11th International IEEE Conference on Intelligent Transportation Systems. - Beijing, 12-15 Oct. 2008. - P. 1113-1117.

C1861. Jianchang Yan. High quality AlGaN grown on GaN template with HT-AlN interlayer. / Jianchang Yan, Junxi Wang, Zhe Liu, Naixin Liu, Jinmin Li. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 714-717.

C1862. Chia-Hsuan Wu. AZO transparent thin film with E-gun evaporate procedure and application on light emitting diode. / Chia-Hsuan Wu, Che-Kai Lin, Chao-Wei Lin, Hsien-Chin Chiu. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 1048-1051.

C1863. Wei-Chou Hsu. Improved white organic light-emitting devices with dual-emission-layer design. / Wei-Chou Hsu, Ying-Nan Lai, Ching-Sung Lee, Su-Wei Yeh, Wen-Feng Lai, Wen-Hsuan Lai. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 1017-1020.

C1864. Guangchen Zhang. The study on the thermal behavior of packaged power LEDs. / Guangchen Zhang, Shiwei Feng, Lu Wang, Xuesong Xie, Lichao Gao, Haijie Meng. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 1211-1214.

C1865. Liangchen Wang. Combined transparent electrodes for high power GaN-based LEDs with long life time. / Liangchen Wang, Xiaoyan Yi, Xiaodong Wang, Guohong Wang, Jinmin Li. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 1055-1057.

C1866. Jian Xu. Developing bright and color-saturated quantum dot light emitting diodes towards next generation displays and solid state lighting. / Jian Xu, Zhanao Tan, Ting Zhu, Fan Zhang, Hedrick B., Pickering S., Cheng A., Thein M., Wang A.Y., Qingjiang Sun, Yongfang Li. // 2008. ICSICT 2008. 9th International Conference on Solid-State and Integrated-Circuit Technology. - Beijing, 20-23 Oct. 2008. - P. 1002-1004.

C1867. Joasoon E. A method to reduce CPU overhead in blob detection and tracking algorithms. / Joasoon E., Henno J. // 2008. ICCC 2008. IEEE International Conference on Computational Cybernetics. - Stara Lesna, 27-29 Nov. 2008. - P. 89-94.

C1868. Tianren Wang. Infrared Marker Based Augmented Reality System for Equipment Maintenance. / Tianren Wang, Yue Liu, Yongtian Wang. // 2008 International Conference on Computer Science and Software Engineering. - Wuhan, Hubei, 12-14 Dec. 2008. - Vol. 5. - P. 816-819.

C1869. Beirne S. Chemical event tracking using a low-cost wireless chemical sensing network. / Beirne S., Corcoran B., King Tong Lau, Diamond D. // 2008 IEEE Sensors. - Lecce, 26-29 Oct. 2008. - P. 1615-1618.

C1870. Gutzeit E.M. Results of researches of distribution of light from light-emitting diodes of circular action with various external reflectors. / Gutzeit E.M., Maslov V.E., Sidorov A.M. // 2008. APEDE '08. International Conference on Actual Problems of Electron Devices Engineering. - Saratov, 24-25 Sept. 2008. - P. 345-350.

C1871. Cui Y.X. Giant optical transmission through a metallic nano-slit achieved by the optimization of the groove periodicity and other parameters. / Cui Y.X., He S., Okuno Y. // 2008 International Workshop on Metamaterials. - Nanjing, 9-12 Nov. 2008. - P. 236-239.

C1872. Hoa Le Minh. 80 Mbit/s Visible Light Communications using pre-equalized white LED. / Hoa Le Minh, O'Brien D., Faulkner G., Zeng L., Kyungwoo Lee, Daekwang Jung, YunJe Oh. // 2008. ECOC 2008. 34th European Conference on Optical Communication. - Brussels, 21-25 Sept. 2008. - P. 1-2.

C1873. Tan Hai. A Field Display Universal LED Configuration Design. / Tan Hai, Tang Bin, Zhou Xinqin, Pan Shaoming, Pan Shibin. // 2008. IITAW '08. International Symposium on Intelligent Information Technology Application Workshops. - Shanghai, 21-22 Dec. 2008. - P. 288-291.

C1874. Yang J. Cost-efficient WDM QAM transmission of 100 Mbit/s over 100m 1mm core diameter polymer optical fiber. / Yang J., van den Boom H.P.A., Koonen A.M.J. // 2008. ECOC 2008. 34th European Conference on Optical Communication. - Brussels, 21-25 Sept. 2008. - P. 1-2.

C1875. Breyer F. PAM-4 signalling for gigabit transmission over standard step-index plastic optical fibre using light emitting diodes. / Breyer F., Lee S.C.J., Randel S., Hani N. // 2008. ECOC 2008. 34th European Conference on Optical Communication. - Brussels, 21-25 Sept. 2008. - P. 1-2.

C1876. Suzuno M. 0.1-mW p-Si/β-FeSi2 /n-Si double heterostructures light-emitting diodes operating at 1.6 μm at room temperature. / Suzuno M., Murase S., Koizumi T., Suemasu T. // 2008 Device Research Conference. - Santa Barbara, CA, 23-25 June 2008. - P. 307-308.

C1877. Yu Lei. A study of the properties of RF sputtered MgXZn1-X O thin films. / Yu Lei, Zhao Li, Cui Yi-min, Zhang Zhi-yong. // 2008. COMMAD 2008. Conference on Optoelectronic and Microelectronic Materials and Devices. - Sydney, SA, July 28 2008-Aug. 1 2008. - P. 38-40.

C1878. Tu C.W. Materials and Light-Emitting Diode Properties of Dilute-Nitride GaNP/GaP Heterostructures. / Tu C.W., Odnoblyudov V.A., Chamings J., Ahmed S., Sweeney S.J., Keogh D.M. // 2008 Device Research Conference. - Santa Barbara, CA, 23-25 June 2008. - P. 299-300.

C1879. Sasakura H. Superconducting Effect on Radiative Recombinations in Long-wavelength Light Emitting

Diode. / Sasakura H., Hayashi Y., Tanaka K., Akazaki T., Kuramitsu S., Kumano H., Suemune I. // 2008 Device Research Conference. - Santa Barbara, CA, 23-25 June 2008. - P. 303-304.

C1880. Cargill G.S. A simple quasiclassical treatment of bias-dependent carrier capture in quantum wells. 2008. COMMAD 2008. Conference on Optoelectronic and Microelectronic Materials and Devices. - Sydney, SA, July 28 2008-Aug. 1 2008. - P. 59-66.

C1881. Fezari M. New speech processor and ultrasonic sensors based embedded system to improve the control of a motorised wheelchair. / Fezari M., Khati A.-E. // 2008. IDT 2008. 3rd International Design and Test Workshop. - Monastir, 20-22 Dec. 2008. - P. 345-349.

C1882. Fukuzawa M. High-speed distance measurement between moving vehicles with NIR-LED markers. / Fukuzawa M., Hama H., Nakamori N., Yamada M. // 2008. ICCIT 2008. 11th International Conference on Computer and Information Technology. - Khulna, 24-27 Dec. 2008. - P. 516-520.

C1883. Godlewski M. Nanoparticles doped with rare earth and transition metal ions for optoelectronic applications. / Godlewski M., Yatsunenko S., Opalinska A., Fidelus J., Lojkowski W. // 2008. COMMAD 2008. Conference on Optoelectronic and Microelectronic Materials and Devices. - Sydney, SA, July 28 2008-Aug. 1 2008. - P. 193-197.

C1884. Majdoub L. Soundness test cases generation for duration systems. / Majdoub L., Robbana R. // 2008. IDT 2008. 3rd International Design and Test Workshop. - Monastir, 20-22 Dec. 2008. - P. 57-62.

C1885. Saito S. Observation of optical gain in ultra-thin silicon resonant cavity light-emitting diode. / Saito S., Sakuma N., Suwa Y., Arimoto H., Hisamoto D., Uchiyama H., Yamamoto J., Sakamizu T., Mine T., Kimura S., Sugawara T., Aoki M., Onai T. // 2008. IEDM 2008. IEEE International Electron Devices Meeting. - San Francisco, CA, 15-17 Dec. 2008. - P. 1-4.

C1886. Ogihara M. Single-crystal thin-film bonding on diamond-like carbon film by intermolecular force for super high-density integration of high-power LEDs. / Ogihara M., Sagimori T., Mutoh M., Furuta H., Suzuki T., Fujiwara H., Sakuta M. // 2008. IEDM 2008. IEEE International Electron Devices Meeting. - San Francisco, CA, 15-17 Dec. 2008. - P. 1-4.

C1887. Bianchi R.A. High voltage devices integration into advanced CMOS technologies. / Bianchi R.A., Monsieur F., Blanchet F., Raynaud C., Noblanc O. // 2008. IEDM 2008. IEEE International Electron Devices Meeting. - San Francisco, CA, 15-17 Dec. 2008. - P. 1-4.

C1888. Zanoni Enrico. Session 19: Quantum, power, and compound semiconductors devices-RF power and optoelectronic devices. / Zanoni Enrico, Khemka Vishnu. // 2008. IEDM 2008. IEEE International Electron Devices Meeting. - San Francisco, CA, USA, 15-17 Dec. 2008. - P. 1.

C1889. Sunkook Kim. Aligned single-walled carbon nanotube thin-film transistor arrays for transparent electronics. / Sunkook Kim, Sanghyun Ju, Ju Hee Back, Yi Xuan, Ye P.D., Moonsub Shim, Janes D.B., Mohammadi S. // 2008 Device Research Conference. - Santa Barbara, CA, 23-25 June 2008. - P. 113-114.

C1890. Theiss S.D. ZnO Flexible Active Matrix Display Backplanes and Integrated Circuits. / Theiss S.D., Baude P.F., Bench M., Everaerts K., Griffin M.E., Haase M., McClure D.J., Pechacek T., Redinger D., Lynch T., Schreiber B., Tokie J. // 2008 Device Research Conference. - Santa Barbara, CA, 23-25 June 2008. - P. 233-236.

C1891. Hekmatshoar B. AMOLED Reliability with a-Si TFT's in Normal vs. Inverted TFT/OLED Integration Scheme. / Hekmatshoar B., Cherenack K., Ke Long, Kattamis A., Wagner S., Sturm J.C. // 2008 Device Research Conference. - Santa Barbara, CA, 23-25 June 2008. - P. 243-244.

C1892. Lee S.W. The characteristics of chemical lift off method using metallic buffer layer and its application to the vertical light emitting diodes. / Lee S.W., Jun-Seok Ha, Lee H.J., Lee S.H., Goto T., Fujii K., Cho M.W., Yao T. // 2008 Device Research Conference. - Santa Barbara, CA, 23-25 June 2008. - P. 139-140.

C1893. Wei-Chi Lee. Use of Highly Reflective Ohmic Contact and Surface KrF Laser Roughening to Improve Light Output of Vertical GaN-Based Light-Emitting Diodes. / Wei-Chi Lee, Kai-Ming Uang, Der-Ming Kuo, Jui-Chiang Chou, Tron-Min Chen, Hon-Yi Kuo, Shui-Jinn Wang. // 2008 Device Research Conference. - Santa Barbara, CA, 23-25 June 2008. - P. 141-142.

C1894. Hasan M. An intelligent aviation obstruction warning light. / Hasan M., Sarker B.C. // 2008. ICCIT 2008. 11th International Conference on Computer and Information Technology. - Khulna, 24-27 Dec. 2008. - P. 253-258.

C1895. Dhar A. Organic opto-electronics: Present status and future prospects. 2008. AOMD 2008. 2nd National Workshop on Advanced Optoelectronic Materials and Devices. - Varanasi, 22-24 Dec. 2008. - P. 19-27.

C1896. Kamalasanan M.N. Effect of doping on the electrical and optical properties of organic semiconductors. / Kamalasanan M.N., Srivastava R., Rai V.K. // 2008. AOMD 2008. 2nd National Workshop on Advanced Optoelectronic Materials and Devices. - Varanasi, 22-24 Dec. 2008. - P. 110-116.

C1897. Kreinin Lev. Significance of bias light spectral composition for accurate measurement of silicon solar cell spectral response. / Kreinin Lev, Bordin Ninel, Eisenberg Ygal, Eisenberg Naftali. // 2008. PVSC '08. 33rd IEEE Photovoltaic Specialists Conference. - San Diego, CA, USA, 11-16 May 2008. - P. 1-4.

C1898. Seren S. Fast illuminated Lock-In Thermography: An inline shunt detection measurement tool. / Seren S., Hahn G., Demberger C., Nagel H. // 2008. PVSC '08. 33rd IEEE Photovoltaic Specialists Conference. - San Diego, CA, USA, 11-16 May 2008. - P. 1-4.

C1899. Herold R. OLED-on-CMOS integration for augmented-reality systems. / Herold R., Vogel U., Richter B., Kreye D., Reckziegel S., Scholles M., Lakner H. // 2008 International Students and Young Scientists Workshop - Photonics and Microsystems. - Wroclaw, 20-22 June 2008. - P. 19-22.

C1900. Sanjeev. Modeling and ATLAS simulation studies on mid-infrared homojunction LED. / Sanjeev, Chakrabarti P. // 2008. AOMD 2008. 2nd National Workshop on Advanced Optoelectronic Materials and Devices. - Varanasi, 22-24 Dec. 2008. - P. 253-259.

C1901. Basu P.K. Ge/SiGeSn multiple quantum well photonic devices. / Basu P.K., Ghosh S., Mukhopadhyay B., Sen G. // 2008. AOMD 2008. 2nd National Workshop on Advanced Optoelectronic Materials and Devices. - Varanasi, 22-24 Dec. 2008. - P. 141-155.

C1902. Hardy K.R. Advances in High Brightness Light Emitting Diodes in underwater applications. / Hardy K.R., Olsson M.S., Lakin B.P., Steeves K.A., Sanderson J.R., Simmons J.E., Weber P.A. // OCEANS 2008. - Quebec City, QC, 15-18 Sept. 2008. - P. 1-5.

C1903. Kabi S. Further support to the large band gap 1.95 eV of InN. / Kabi S., Kumar S., Biswas D., Das T. // 2008. AOMD 2008. 2nd National Workshop on Advanced Optoelectronic Materials and Devices. - Varanasi, 22-24 Dec. 2008. - P. 260-268.

C1904. Fu C.M.-S. A novel method to reduce the operating temperature of high power light-emitting diodes. / Fu C.M.-S., Lu D.D.-C., Sathiakumar S. // 2008. AUPEC '08. Australasian Universities Power Engineering Conference. - Sydney, NSW, 14-17 Dec. 2008. - P. 1-6.

C1905. Changho Han. The Study of Improving the Accuracy in the 3D Data Acquisition of Motion Capture System. / Changho Han, Soonchul Kim, Choonsuk Oh, Pyoungwon Seo, Donggoo Hong, Youngkee Ryu. // 2008. FGCNS '08. Second International Conference on Future Generation Communication and Networking Symposia. - Sanya, 13-15 Dec. 2008. - Vol. 4. - P. 33-37.

C1906. Choi S.K. Two-way optical communication system in which each Si photo-diode plays two roles of light-receiver and light-emitting diode. / Choi S.K., Matsunaga S., Chang J.H., Kil G.S., Okamoto K. // 2008. PS 2008. International Conference on Photonics in Switching. - Sapporo, 4-7 Aug. 2008. - P. 1-2.

C1907. Singh K.M. Inkjet Printing of DNA for Use in Bioelectronic Applications. / Singh K.M., Brott L.L., Grote J.G., Naik R.R. // 2008. NAECON 2008. IEEE National Aerospace and Electronics Conference. - Dayton, OH, 16-18 July 2008. - P. 107-109.

C1908. Someya T. Printed organic nonvolatile memory for skin-like large-area interfaces. / Someya T., Sekitani T., Zaitsu K., Takamiya M., Sakurai T. // 2008. ISE-13. 13th International Symposium on Electrets. - Tokyo, 15-17 Sept. 2008. - P. B0003.

C1909. Mabuchi T. A 9-context optically reconfigurable gate array. / Mabuchi T., Watanabe M. // 2008. ISOCC

'08. International SoC Design Conference. - Busan, 24-25 Nov. 2008. - Vol. 01. - P. I-1-I-4-1.

C1910. Tsuno Yuki. New generation of PV module rating by LED solar simulator-A novel approach and its capabilities. / Tsuno Yuki, Koichi Kamisako, Kurokawa Kosuke. // 2008. PVSC '08. 33rd IEEE Photovoltaic Specialists Conference. - San Diego, CA, USA, 11-16 May 2008. - P. 1-5.

C1911. Sugimoto T. Acoustic characteristics and structural analysis of flexible PVDF loudspeaker. / Sugimoto T., Ono K., Ando A., Kurozumi K., Hara A., Morita Y., Miura A. // 2008. ISE-13. 13th International Symposium on Electrets. - Tokyo, 15-17 Sept. 2008. - P. B1003.

C1912. Rahim M. The Development of Computer Controlled Multicolor Illumination Network Using RGB based Light Emitting Diodes. / Rahim M., Rashid R.A., Mahalin N.H., Cheng E. // Telecommunication Technologies 2008 and 2008 2nd Malaysia Conference on Photonics. NCTT-MCP 2008. 6th National Conference on. - Putrajaya, 26-28 Aug. 2008. - P. 12-16.

C1913. Kato Y. A large-area, flexible, ultrasonic imaging system with a printed organic transistor active matrix. / Kato Y., Sekitani T., Noguchi Y., Takamiya M., Sakurai T., Someya T. // 2008. IEDM 2008. IEEE International Electron Devices Meeting. - San Francisco, CA, 15-17 Dec. 2008. - P. 1-4.

C1914. Wang Ting. The study of Si/metal/GaN fusion bonding. / Wang Ting, Xu Lixin, Cui Zhanzhong. // 2008. ISSCAA 2008. 2nd International Symposium on Systems and Control in Aerospace and Astronautics. - Shenzhen, 10-12 Dec. 2008. - P. 1-3.

C1915. Baig M.I. Accurate measurement of pressure in Natural Gas Vehicles: A digital/electronic design and fabrication. / Baig M.I., Elahi T. // 2008. INMIC 2008. IEEE International Multitopic Conference. - Karachi, 23-24 Dec. 2008. - P. 520-524.

C1916. Leeson M.S. Spectrum slicing for low cost wavelength division multiplexing. / Leeson M.S., Sun S. // 2008. ICTON-MW 2008. 2nd ICTON Mediterranean Winter. - Marrakech, 11-13 Dec. 2008. - P. 1-4.

C1917. Joung J. Preliminary evaluation of a silicon drift diode based gamma detector. / Joung J., Lee J., Kang J., Moon J., Lee K., Henseler D., Metzger W., Schmand M. // 2008. NSS '08. IEEE Nuclear Science Symposium Conference Record. - Dresden, Germany, 19-25 Oct. 2008. - P. 4872-4876.

C1918. Yaqoob A. Joint ESPIRIT for time delay estimation of chirp spread spectrum. / Yaqoob A., Jongwha Chong. // 2008. INMIC 2008. IEEE International Multitopic Conference. - Karachi, 23-24 Dec. 2008. - P. 525-528.

C1919. Mehta R. LEDs A Competitive Solution for General Lighting Applications. / Mehta R., Deshpande D., Kulkarni K., Sharma S., Divan D. // 2008. ENERGY 2008. IEEE Energy 2030 Conference. - Atlanta, GA, 17-18 Nov. 2008. - P. 1-5.

C1920. Wada K. Light Emission and Detection for Si Photonics. 2008. IPGC 2008. IEEE PhotonicsGlobal@Singapore. - Singapore, 8-11 Dec. 2008. - P. 1-3.

C1921. Soraghan Christopher J. Optical safety assessment of a near-infrared brain-computer interface. / Soraghan Christopher J., Ward Tomas E., Matthews Fiachra, Markham Charles. // 208. (ISSC 2008). IET Irish Signals and Systems Conference. - Galway, Ireland, 18-19 June 2008. - P. 174-179.

C1922. Aoyama Y. An LED Module Array System Designed for Streetlight Use. / Aoyama Y., Yachi T. // 2008. ENERGY 2008. IEEE Energy 2030 Conference. - Atlanta, GA, 17-18 Nov. 2008. - P. 1-5.

C1923. Choudhary S. Life time issues in organic light emitting diodes. / Choudhary S., Qureshi S. // TENCON 2008-2008 IEEE Region 10 Conference. - Hyderabad, 19-21 Nov. 2008. - P. 1-4.

C1924. Sepeai S. Electroluminescent from hybrid of Cdse quantum dot-organic light emitting diode. / Sepeai S., Umar A.A., Salleh M.M., Yahaya M. // 2008. ICSE 2008. IEEE International Conference on Semiconductor Electronics. - Johor Bahru, 25-27 Nov. 2008. - P. 263-266.

C1925. Guan Rong-feng. Thermal, Mechanical and Optical Analysis of SiC-based LED. / Guan Rong-feng, Tian Da-lei, Wang Xing, Zhao Wen-qing. // 2008. EPTC 2008. 10th Electronics Packaging Technology Conference. - Singapore, 9-12 Dec. 2008. - P. 939-944.

C1926. Livelo E. Microdot Epoxy Stamping Process Qualification For Substrate Based Optocoupler BGA Packaging. / Livelo E., Rojas R. // 2008. EPTC 2008. 10th Electronics Packaging Technology Conference. - Singapore, 9-12 Dec. 2008. - P. 1131-1136.

C1927. Aziz T.H.T. Fabrication of CdSe quantum dots-PHF organic hybrid light emitting diodes. / Aziz T.H.T., Salleh M.M., Yahaya M., Umar A.A. // 2008. ICSE 2008. IEEE International Conference on Semiconductor Electronics. - Johor Bahru, 25-27 Nov. 2008. - P. 316-318.

C1928. Yang Zhou. An Architecture of Wavelength-Utilizing Rate Doubled WDM-PON. / Yang Zhou, Chaoqin Gan. // 2008 China-Japan Joint Microwave Conference. - Shanghai, 10-12 Sept. 2008. - P. 729-732.

C1929. Lacatusu I. Encapsulating the green tea extract by templated sol-gel procedure based on nonionic tensioactive agent of alkenyl succinic anhydrides class. / Lacatusu I., Badea M.N., Murariu A., Garcia C.V., Giurginca M., Meghea A. // 2008. ICTON-MW 2008. 2nd ICTON Mediterranean Winter. - Marrakech, 11-13 Dec. 2008. - P. 1.

C1930. Ehsan A.A. Optical transceiver design for POF portable optical access-card system using light-to-frequency converter. / Ehsan A.A., Shaari S., Rahman M.K.A., Khan K.M. // 2008. ICSE 2008. IEEE International Conference on Semiconductor Electronics. - Johor Bahru, 25-27 Nov. 2008. - P. 345-349.

C1931. Bakar N.A. Synthesis of CdSe quantum dots: Effect of surfactant on the photoluminescence property. / Bakar N.A., Umar A.A., Aziz T.H.T., Abdullah S.H., Salleh M.M., Yahaya M., Majlis B.Y. // 2008. ICSE 2008. IEEE International Conference on Semiconductor Electronics. - Johor Bahru, 25-27 Nov. 2008. - P. 528-531.

C1932. Yi Luo. Growth of III-Nitride Materials and Blue Light-Emitting Diodes by Metal Organic Vapor Phase Epitaxy. / Yi Luo, Lai Wang, Hongtao Li, Yanjun Han, Changzheng Sun, Zhibiao Hao. // 2008. IPGC 2008. IEEE PhotonicsGlobal@Singapore. - Singapore, 8-11 Dec. 2008. - P. 1-7.

C1933. Chen C.H. Thermal resistance and reliability of low-cost high-power LED packages under WHTOL test. / Chen C.H., Tsai W.L., Tsai M.Y. // 2008. EMAP 2008. International Conference on Electronic Materials and Packaging. - Taipei, 22-24 Oct. 2008. - P. 271-276.

C1934. Hsun-Tien Li. A novel high refractive transparent material in LED package applications. / Hsun-Tien Li, Chia-Wen Hsu, Kai-Chi Chen. // 2008. EMAP 2008. International Conference on Electronic Materials and Packaging. - Taipei, 22-24 Oct. 2008. - P. 309-312.

C1935. Fu-Ming Tzu. Optical density measurement of TFT-LCD by PMT coupled monochrome LED. / Fu-Ming Tzu, Jung-Hua Chou. // 2008. EMAP 2008. International Conference on Electronic Materials and Packaging. - Taipei, 22-24 Oct. 2008. - P. 65-68.

C1936. Lee S.W.R. Development of surface mount compatible reel-to-reel assembly Process of LED arrays for wide area general lighting. / Lee S.W.R., Tong Y.W., Chan Y.S., Lo J., Zhang R. // 2008. EMAP 2008. International Conference on Electronic Materials and Packaging. - Taipei, 22-24 Oct. 2008. - P. 255-258.

C1937. Okuno A. Unique transparent lens formation for high brightness LED by VPES (Vacuum Printing Encapsulation Systems) process. / Okuno A., Miyawaki Y., Dongxu Wang, Tanaka O. // 2008. EMAP 2008. International Conference on Electronic Materials and Packaging. - Taipei, 22-24 Oct. 2008. - P. 329-332.

C1938. Kaushik R. 3D map construction using heterogeneous robots. / Kaushik R., Yi Feng, Morris W., Jizhong Xiao, Zhigang Zhu. // 2008. ICARCV 2008. 10th International Conference on Control, Automation, Robotics and Vision. - Hanoi, 17-20 Dec. 2008. - P. 1230-1235.

C1939. Hekmatshoar B. Amorphous silicon thin-film transistors with DC saturation current half-life of more than 100 years. / Hekmatshoar B., Cherenack K.H., Wagner S., Sturm J.C. // 2008. IEDM 2008. IEEE International Electron Devices Meeting. - San Francisco, CA, 15-17 Dec. 2008. - P. 1-4.

C1940. {no data available}. "Can I have a digital multimeter that's easy to see, even in low light?". 2008. ICED 2008. International Conference on Electronic Design. - Penang, Malaysia, 1-3 Dec. 2008. - P. 1.

C1941. Abdullah B.M. Monitoring of TIG welding using laser and diode illumination sources: A comparison study. / Abdullah B.M., Smith J.S., Lucas W., Lucas J., Malek F. // 2008. ICED 2008. International Conference on Electronic Design. - Penang, 1-3 Dec. 2008. - P. 1-4.

C1942. Liang-Yi Chen. Quantum Confine Stark Effect Suppressed Nanorod Structure Light Emitting Diode. / Liang-Yi Chen, Cheng-Yin Wang, Cheng-Pin Chen, Yun-Wei Cheng, Min-Yung Ke, JianJang Huang. // 2008. IPGC 2008. IEEE PhotonicsGlobal@Singapore. - Singapore, 8-11 Dec. 2008. - P. 1-4.

C1943. Tansu N. Polarization Engineering of InGaN-Based Nanostructures for Low-Threshold Diode Lasers and High-Efficiency Light Emitting Diodes. / Tansu N., Hongping Zhao, Arif R.A., Yik-Khoon Ee, Guangyu Liu, Xiaohang Li, Huang G.S. // 2008. IPGC 2008. IEEE PhotonicsGlobal@Singapore. - Singapore, 8-11 Dec. 2008. - P. 1-3.

C1944. Ee Y.-K. Optimization and Fabrication of III-Nitride Light-Emitting Diodes with Self-assembled Colloidal-based Convex Microlens Arrays. / Ee Y.-K., Kumnorkaew P., Gilchrist J.F., Arif R.A., Tong H., Tansu N. // 2008. IPGC 2008. IEEE PhotonicsGlobal@Singapore. - Singapore, 8-11 Dec. 2008. - P. 1-4.

C1945. Chun-Yuan Huang. Hybridization of CdSe/ZnS Quantum Dots on InGaN/GaN Multiple Quantum Well Light-Emitting Diodes for Pink Light Emission. / Chun-Yuan Huang, Yan-Kuin Su, Ying-Chih Chen, Cheng-Tien Wan. // 2008. IPGC 2008. IEEE PhotonicsGlobal@Singapore. - Singapore, 8-11 Dec. 2008. - P. 1-3.

C1946. Demir H.V. White light generating semiconductor nanocrystal luminophors with high photometric quality. 2008. IPGC 2008. IEEE PhotonicsGlobal@Singapore. - Singapore, 8-11 Dec. 2008. - P. 1-3.

C1947. Karamiata M.H. Implementation of pseudo PWM pulse to adjust brightness of LEDs in video displays. / Karamiata M.H., Farahmand H.Z., Orooji M., Movafagh M. // 2008. IIT 2008. International Conference on Innovations in Information Technology. - Al Ain, 16-18 Dec. 2008. - P. 89-91.

C1948. Ostmann A. Manufacturing Concepts for Stretchable Electronic Systems. / Ostmann A., Loher T., Seckel M., Bottcher L., Reichl H. // 2008. IMPACT 2008. 3rd International Microsystems, Packaging, Assembly & Circuits Technology Conference. - Taipei, 22-24 Oct. 2008. - P. 24-27.

C1949. Zhao D.W. Enhanced Open-Circuit Voltage in Tandem Polymer Solar Cell. / Zhao D.W., Sun X.W., Jiang C.Y., Kyaw A.K.K. // 2008. IPGC 2008. IEEE PhotonicsGlobal@Singapore. - Singapore, 8-11 Dec. 2008. - P. 1-3.

C1950. Chun-Yuan Huang. Hybrid Quantum Dot Light-Emitting Diodes: Design, Fabrication, and Characterization. / Chun-Yuan Huang, Tsung-Syun Huang, Ying-Chih Chen, Wan C.-T., Rao M.V.M., Yan-Kuin Su, Tzung-Fang Guo, Ten-Chin Wen. // 2008. IPGC 2008. IEEE PhotonicsGlobal@Singapore. - Singapore, 8-11 Dec. 2008. - P. 1-3.

C1951. Loeser M. A novel finite-element formulation applied to wave propagation in optically large structures. / Loeser M., Witzigmann B. // 2008. NUSOD '08. International Conference on Numerical Simulation of Optoelectronic Devices. - Nottingham, 1-4 Sept. 2008. - P. 55-56.

C1952. Jongwoon Park. Performance analysis of layered and blended organic light-emitting diodes. / Jongwoon Park, Seounghwan Park, Dongchan Shin, Deahee Park. // 2008. NUSOD '08. International Conference on Numerical Simulation of Optoelectronic Devices. - Nottingham, 1-4 Sept. 2008. - P. 23-24.

C1953. Wenzel H. Interplay of screening and band gap renormalization effects in near UV InGaN light emitting diodes. / Wenzel H., Knauer A., Kolbe T., Kneissl M. // 2008. NUSOD '08. International Conference on Numerical Simulation of Optoelectronic Devices. - Nottingham, 1-4 Sept. 2008. - P. 5-6.

C1954. Guo D.G. A Long-term Wearable Vital Signs Monitoring System using BSN. / Guo D.G., Tay F.E.H., Xu L., Yu L.M., Nyan M.N., Chong F.W., Yap K.L., Xu B. // 2008. DSD '08. 11th EUROMICRO Conference on Digital System Design Architectures, Methods and Tools. - Parma, 3-5 Sept. 2008. - P. 825-830.

C1955. Lasance C.J.M. On the standardisation of thermal characterisation of LEDs Part I: Comparison with IC packages and proposal for action. 2008. THERMINIC 2008. 14th International Workshop on Thermal Inveatigation of ICs and Systems. - Rome, 24-26 Sept. 2008. - P. 208-212.

C1956. Perlaky G. Thermal transient characterisation of complex circuits. / Perlaky G., Farkas G. // 2008. THERMINIC 2008. 14th International Workshop on Thermal Inveatigation of ICs and Systems. - Rome, 24-26 Sept. 2008. - P. 106-111.

C1957. Molnar G. A novel procedure and device to allow comprehensive characterization of power leds over a

wide range of temperature. / Molnar G., Nagy G., Szocs Z. // 2008. THERMINIC 2008. 14th International Workshop on Thermal Inveatigation of ICs and Systems. - Rome, 24-26 Sept. 2008. - P. 89-92.

C1958. Takatsuka Y. Preparation and evaluation of phthalocyanine/vanadium oxide field-effect transistors. / Takatsuka Y., Kitamura S., Akazawa T., Takahashi T., Minagawa M., Ohdaira Y., Baba A., Shinbo K., Kato K., Kaneko F. // 2008. (ISEIM 2008). International Symposium on Electrical Insulating Materials. - Mie, 7-11 Sept. 2008. - P. 215-218.

C1959. Fujita K. Film morphology of dibenzochrysene. / Fujita K., Kimura M., Yoshokawa H., Mori T. // 2008. (ISEIM 2008). International Symposium on Electrical Insulating Materials. - Mie, 7-11 Sept. 2008. - P. 67-70.

C1960. Lida Y. Stabilization of hole transport layer by alternate deposition for organic light-emitting diodes. / Lida Y., Mori T. // 2008. (ISEIM 2008). International Symposium on Electrical Insulating Materials. - Mie, 7-11 Sept. 2008. - P. 601-604.

C1961. Jing Zhang. A low complexity method for real-time gaze tracking. / Jing Zhang, Mengkai Zhao, Li Zhuo, Lansun Shen. // 2008 IEEE 10th Workshop on Multimedia Signal Processing. - Cairns, Qld, 8-10 Oct. 2008. - P. 883-886.

C1962. Park S.-H. Optical properties of strain-compensated hybrid InGaN/InGaN/ZnO quantum well light-emitting diodes. / Park S.-H., Ryu S.-W., Kim J.-J., Hong W.-P., Kim H.-M., Park J., Lee Y.-T. // 2008. NUSOD '08. International Conference on Numerical Simulation of Optoelectronic Devices. - Nottingham, 1-4 Sept. 2008. - P. 3-4.

C1963. {no data available}. 2008 International conference on numerical simulation of optoelectronic devices NUSOD '08. 2008. NUSOD '08. International Conference on Numerical Simulation of Optoelectronic Devices. - Nottingham, 1-4 Sept. 2008. - P. i.

C1964. Yi-Hua Fan. Optimal Design of LED Backlight Unit with Double-Triangular Structure Using a Genetic Algorithm. / Yi-Hua Fan, Yi-Lin Liao, Rong-Jhe Chen, Chang S.-K., Hsieh J.C.-T. // 2008. ICNC '08. Fourth International Conference on Natural Computation. - Jinan, 18-20 Oct. 2008. - Vol. 1. - P. 625-629.

C1965. Feng Bo. Intelligent controller for LEDs lighting systems supplied by batteries. / Feng Bo, Zhao Zhengming, Zhang Yingchao, Zhou Dejia, Yuan Liqiang. // 2008. VPPC '08. IEEE Vehicle Power and Propulsion Conference. - Harbin, 3-5 Sept. 2008. - P. 1-5.

C1966. Lopez C. FPGA-based improved high brightness RGB LED matrix automation. / Lopez C., Costas-Perez L., Doval-Gandoy J. // 2008. ISIE 2008. IEEE International Symposium on Industrial Electronics. - Cambridge, June 30 2008-July 2 2008. - P. 1902-1907.

C1967. Yablonskii G.P. AlInGaN/GaN heterostructures with 2D electron gas and quantum wells for transistors and light emitting diodes. / Yablonskii G.P., Lutsenko E.V., Kalish H., Heuken M. // 2008. CriMiCo 2008. 2008 18th International Crimean Conference Microwave & Telecommunication Technology. - Sevastopol, Crimea, 8-12 Sept. 2008. - P. 584-585.

C1968. Cheng Shu. Study on the Government Department Integration Decision Based on Synergetics. / Cheng Shu, Bai Qing-Hua. // 2008. WiCOM '08. 4th International Conference on Wireless Communications, Networking and Mobile Computing. - Dalian, 12-14 Oct. 2008. - P. 1-5.

C1969. Wing Yan Leung. A high-power-LED driver with power-efficient LED-current sensing circuit. / Wing Yan Leung, Tsz Yin Man, Mansun Chan. // 2008. ESSCIRC 2008. 34th European Solid-State Circuits Conference. - Edinburgh, 15-19 Sept. 2008. - P. 354-357.

C1970. Romanjek K. High performance 70nm gate length Germanium-On-Insulator pMOSFET with high-/metal gate. / Romanjek K., Hutin L., Le Royer C., Pouydebasque A., Jaud M.-A., Tabone C., Augendre E., Sanchez L., Hartmann J.-M., Grampeix H., Mazzocchi V., Soliveres S., Truche R., Clavelier L., Scheiblin P., Garros X., Reimbold G., Vinet M., Boulanger F., Deleonibus S. // 2008. ESSDERC 2008. 38th European Solid-State Device Research Conference. - Edinburgh, 15-19 Sept. 2008. - P. 75-78.

C1971. Xin Lin. Bidirectional optical wireless communications module for portable information terminal. / Xin Lin, Itoh H. // 2008 and the 2008 7th IEEE Conference on Polymers and Adhesives in Microelectronics and Photonics. PORTABLE-POLYTRONIC 2008. 2nd IEEE International Interdisciplinary Conference on Portable

Information Devices. - Garmish-Partenkirchen, 17-20 Aug. 2008. - P. 1-4.

C1972. Buliev I. A practical approach for reading hole code. / Buliev I., Kolev J. // 2008. IS '08. 4th International IEEE Conference Intelligent Systems. - Varna, 6-8 Sept. 2008. - Vol. 2. - P. 14-16-14-19-16.

C1973. Pohl L. Electro-thermal investigation of OLEDs. / Pohl L., Kollar E., Kohari Z., Poppe A. // 2008. THERMINIC 2008. 14th International Workshop on Thermal Inveatigation of ICs and Systems. - Rome, 24-26 Sept. 2008. - P. 235-240.

C1974. Poppe A. On the standardisation of thermal characterisation of LEDs Part II: Problem definition and potential solutions. / Poppe A., Lasance C.J.M. // 2008. THERMINIC 2008. 14th International Workshop on Thermal Inveatigation of ICs and Systems. - Rome, 24-26 Sept. 2008. - P. 213-219.

C1975. Ching-Te Chiu. A 100MHz real-time tone mapping processor with integrated photographic and gradient compression in 0.13 μm technology. / Ching-Te Chiu, Tsun-Hsien Wang, Wei-Ming Ke, Chen-Yu Chuang, Jhih-Siao Huang, Wei-Su Wong, Ren-Song Tsay. // 2008. SiPS 2008. IEEE Workshop on Signal Processing Systems. - Washington, DC, 8-10 Oct. 2008. - P. 25-30.

C1976. Elwardi S. Coherence modulation of light for mathematical operations. / Elwardi S., Zghal M., Benkelfat B.-E. // 2008. ICECS 2008. 15th IEEE International Conference on Electronics, Circuits and Systems. - St. Julien's, Aug. 31 2008-Sept. 3 2008. - P. 878-881.

C1977. Arbat A. Architecture of the integrated electronics for a wireless endoscopic capsule with locomotive and sensing and actuating capabilities. / Arbat A., Samitier J., Dieguez A., Valdastri P. // 2008. ICECS 2008. 15th IEEE International Conference on Electronics, Circuits and Systems. - St. Julien's, Aug. 31 2008-Sept. 3 2008. - P. 510-513.

C1978. Kononenko V.K. Nonlinear gain and output power characteristics of quantum-well sources. 2008. CAOL 2008. 4th International Conference on Advanced Optoelectronics and Lasers. - Crimea, Sept. 29 2008-Oct. 4 2008. - P. 239-241.

C1979. Tanaka Toshikatsu. Digest report of investigation committee on polymer nanocomposites and their applications as dielectrics and electrical insulation. / Tanaka Toshikatsu, Mizutani Yoshinobu, Imai Takahiro, Fuse Norikazu. // 2008. (ISEIM 2008). International Symposium on Electrical Insulating Materials. - Yokkaichi, 7-11 Sept. 2008. - P. i.

C1980. Hirafuji M. Trial to develop extreme environmental field server. / Hirafuji M., Hu Haoming, Yoichi H., Fukatsu T., Kiura T., Wang Xuefeng, Ninomiya S. // 2008 SICE Annual Conference. - Tokyo, 20-22 Aug. 2008. - P. 2574-2577.

C1981. Zabulis X. Lumen detection for capsule endoscopy. / Zabulis X., Argyros A.A., Tsakiris D.P. // 2008. IROS 2008. IEEE/RSJ International Conference on Intelligent Robots and Systems. - Nice, 22-26 Sept. 2008. - P. 3921-3926.

C1982. Xiaomin Jin. Design and implementation of mobile free space optical communication system. / Xiaomin Jin, Xian Wang, Chi Yeh Hsu. // 2008 IEEE Avionics, Fiber-Optics and Photonics Technology Conference. - San Diego, CA, Sept. 30 2008-Oct. 2 2008. - P. 37-38.

C1983. Qadeer M.A. Application Remote Control using Bluetooth (ARC). / Qadeer M.A., Umar M.S., Agrawal R., Singhal A. // 2008. ICI 2008. 4th IEEE/IFIP International Conference on Internet. - Tashkent, 23-25 Sept. 2008. - P. 1-5.

C1984. Gacio D. Suitable Switching Converter Topologies for Automotive Signal Lamps and Headlamps Using Power LEDs. / Gacio D., Calleja A.J., Garcia J., Ribas J., Rico-Secades M. // 2008. IAS 08. IEEE Industry Applications Society Annual Meeting. - Edmonton, Alta., 5-9 Oct. 2008. - P. 1-7.

C1985. Latt W. T. Design and implementation of a two degree-of-freedom micromanipulation assessment system. / Latt W. T., Ananda E. S., Ong S. C. L., Veluvolu K. C., Shee C. Y., Ang W. T. // 2008. EMBS 2008. 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Vancouver, BC, 20-25 Aug. 2008. - P. 5640-5643.

C1986. Christensen A.L. Synchronization and fault detection in autonomous robots. / Christensen A.L.,

O'Grady R., Dorigo M. // 2008. IROS 2008. IEEE/RSJ International Conference on Intelligent Robots and Systems. - Nice, 22-26 Sept. 2008. - P. 4139-4140.

C1987. Kitamura S. A distinction method for fruit of sweet pepper using reflection of LED light. / Kitamura S., Oka K., Ikutomo K., Kimura Y., Taniguchi Y. // 2008 SICE Annual Conference. - Tokyo, 20-22 Aug. 2008. - P. 491-494.

C1988. Shih-Jen Cheng. Current and white-balance controls of an RGB LED backlight power supply system. / Shih-Jen Cheng, Huang-Jen Chiu, Chun-Jen Yao, Tai-Hung Wang, Yu-Kang Lo, Shann-Chyi Mou. // 2008 SICE Annual Conference. - Tokyo, 20-22 Aug. 2008. - P. 233-236.

C1989. Little T.D.C. Using LED Lighting for Ubiquitous Indoor Wireless Networking. / Little T.D.C., Dib P., Shah K., Barraford N., Gallagher B. // Networking and Communications, 2008. WIMOB '08. IEEE International Conference on Wireless and Mobile Computing. - Avignon, 12-14 Oct. 2008. - P. 373-378.

C1990. Sasaki S. Batteryless optical wireless audio receiver uses 1-bit ∑Δ-modulated visible light and spherical Si solar cells. / Sasaki S., Douseki T., Matsuya Y. // 2008 SICE Annual Conference. - Tokyo, 20-22 Aug. 2008. - P. 1264-1268.

C1991. Chan E. Low cost, high data rate white LED (WLED) transceiver demonstration. / Chan E., Koshinz D., Krug W., Hager H. // 2008 IEEE Avionics, Fiber-Optics and Photonics Technology Conference. - San Diego, CA, Sept. 30 2008-Oct. 2 2008. - P. 61-62.

C1992. Nuchter A. Evaluating a 3D camera for RoboCup Rescue. / Nuchter A., Lingemann K., Hertzberg J. // 2008 SICE Annual Conference. - Tokyo, 20-22 Aug. 2008. - P. 2070-2075.

C1993. Kitayama I. Research on flashlights intended to aid the visually impaired when walking at night. / Kitayama I., Omori K., Sugimoto Y. // 2008 SICE Annual Conference. - Tokyo, 20-22 Aug. 2008. - P. 1281-1285.

C1994. Yaghmazadeh O. Organic thin-film transistors modeling; simulation and design of a fully organic AMOLED pixel circuit. / Yaghmazadeh O., Bonnassieux Y., Saboundji A., Horowitz G., Geffroy B., Tondelier D. // 2008. SISPAD 2008. International Conference on Simulation of Semiconductor Processes and Devices. - Hakone, 9-11 Sept. 2008. - P. 189-192.

C1995. Rehman M. A simple capacitive security card system. / Rehman M., Abu_Al_Aish A., Lee Bee Koon. // 2008. ISMA 2008. 5th International Symposium on Mechatronics and Its Applications. - Amman, 27-29 May 2008. - P. 1-4.

C1996. Becker Brian C. Autoregressive modeling of physiological tremor under microsurgical conditions. / Becker Brian C., Tummala Harsha, Riviere Cameron N. // 2008. EMBS 2008. 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Vancouver, BC, 20-25 Aug. 2008. - P. 1948-1951.

C1997. Sammarco J.J. Technological Aspects of Solid-State and Incandescent Sources for Miner Cap Lamps. / Sammarco J.J., Reyes M.A., Freyssinier J.P., Bullough J.D., Zhang X. // 2008. IAS 08. IEEE Industry Applications Society Annual Meeting. - Edmonton, Alta., 5-9 Oct. 2008. - P. 1-7.

C1998. Brazinski M. A novel device for fault isolation at aircraft. / Brazinski M., Hernandez A., Shannon R., Quiter J., LaCross L. // 2008 IEEE AUTOTESTCON. - Salt Lake Cirty, UT, 8-11 Sept. 2008. - P. 324-329.

C1999. Hilliges O. Creating malleable interactive surfaces using liquid displacement sensing. / Hilliges O., Kim D., Izadi S. // 2008. TABLETOP 2008. 3rd IEEE International Workshop on Horizontal Interactive Human Computer Systems. - Amsterdam, 1-3 Oct. 2008. - P. 157-160.

C2000. Yuan Chao. Improved Algorithm for Fault Location in Distribution Network with Distributed Generations. / Yuan Chao, Zeng Xiangjun, Xia Yunfeng. // 2008 International Conference on Intelligent Computation Technology and Automation (ICICTA). - Hunan, 20-22 Oct. 2008. - Vol. 2. - P. 893-896.

C2001. Jacobs J. Dynamic Control Point Simulation of OLEDs. / Jacobs J., Singer C., Hente D., Loebl H.-P. // 2008. IAS 08. IEEE Industry Applications Society Annual Meeting. - Edmonton, Alta., 5-9 Oct. 2008. - P. 1-5.

C2002. Pinto R.A. Compact Lamp Using High-Brightness LEDs. / Pinto R.A., Cosetin M.R., Marchesan T.B.,

Cervi M., Campos A., do Prado R.N. // 2008. IAS 08. IEEE Industry Applications Society Annual Meeting. - Edmonton, Alta., 5-9 Oct. 2008. - P. 1-5.

C2003. Gacio D. Comparison Among Power LEDs for Automotive Lighting Applications. / Gacio D., Cardesin J., Corominas E.L., Alonso J.M., Dalla-Costa M., Calleja A.J. // 2008. IAS 08. IEEE Industry Applications Society Annual Meeting. - Edmonton, Alta., 5-9 Oct. 2008. - P. 1-5.

C2004. Sammarco J.J. Evaluation of Peripheral Visual Performance When Using Incandescent and LED Miner Cap Lamps. / Sammarco J.J., Reyes M.A., Bartels J., Gallagher S. // 2008. IAS 08. IEEE Industry Applications Society Annual Meeting. - Edmonton, Alta., 5-9 Oct. 2008. - P. 1-8.

C2005. Nadeau Valerie J. Laser-pumped endoscopic illumination source. / Nadeau Valerie J., Elson Daniel S., Neil Mark A. A., Hanna George B. // 2008. EMBS 2008. 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Vancouver, BC, 20-25 Aug. 2008. - P. 2059-2062.

C2006. Kuwana K. Implantable telemetry capsule for monitoring arterial oxygen saturation and heartbeat. / Kuwana K., Dohi T., Hashimoto Y., Matsumoto K., Shimoyama I. // 2008. EMBS 2008. 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Vancouver, BC, 20-25 Aug. 2008. - P. 3204-3207.

C2007. Guangyu Bin. The SSVEP topographic scalp maps by Canonical correlation analysis. / Guangyu Bin, Zhonglin Lin, Xiaorong Gao, Bo Hong, Shangkai Gao. // 2008. EMBS 2008. 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Vancouver, BC, 20-25 Aug. 2008. - P. 3759-3762.

C2008. Tsai C.C. Decay of radiation pattern and spectrum of high-power LED modules in aging test. / Tsai C.C., Hsu Y.C., Chen M.H., Lo Y.T., Lin Y.J., Kuang J.H., Hu H.L., Huang S.B., Lee C.W., Su Y.I., Cheng W.H. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 658-659.

C2009. Shimomura Y. Three-fiber-based diffuse reflectance spectroscopy with LEDs for nondestructive measurement of chemical component in a turbid medium. / Shimomura Y., Tanaka S., Tateishi K. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 652-653.

C2010. Jung T. Improving extraction efficiency of III-nitride LEDs using in situ silane treatment. / Jung T., Lee L., Ku P.C. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 709-710.

C2011. Shi J.-W. High-speed and high-power GaN-based cascade green Light-Emitting-Diode arrays for in-car data communication. / Shi J.-W., Chen P.-Y., Chen C.-C., Guo S.-H., Sheu J.-K., Lai W.-C. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 888-889.

C2012. Nizamoglu S. Multi-layered CdSe/ZnS/CdSe heteronanocrystals to generate and tune white light. / Nizamoglu S., Mutlugun E., Ozel T., Demir H.V., Sapra S., Gaponik N., Eychmuller A. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 757-758.

C2013. Kwangmin Song. Selective lateral anodic etching of n-doped GaN without photo-assistance for lift-off application. / Kwangmin Song, Joonmo Park, Hyung-A Do, Sang-Wan Ryu. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 636-637.

C2014. Sugihara O. Simple evaluation of multi-mode polymer optical waveguide parameters. / Sugihara O., Kaino T. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 583-584.

C2015. Jung T. Semi-polar green LEDs on c-plane sapphire substrates. / Jung T., Lee L., Ku P.C. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 571-572.

C2016. Nizamoglu S. Enhanced spontaneous emission in semiconductor nanocrystal solids using resonant energy transfer for integrated devices. / Nizamoglu S., Demir H.V. // 2008. LEOS 2008. 21st Annual Meeting of

the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 587-588.

C2017. Wu M. Controlled micro-patterning of highly-fluorescent truxene-oligofluorene nanostructured blends. / Wu M., Elfstrom D., Gong Z., Guilhabert B., Zarowna A., Gu E., Dawson M.D., Kanibolotsky A.L., Skabara P.J., Kuehne A.J.C., Mackintosh A.R., Pethrick R.A., Edwards P.R., Martin R.W., Rolinski O.J., Birch D.J.S., Perepichka I.F. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 634-635.

C2018. Shi-Hao Guol. GaAs-based bipolar cascade light-emitting-diodes and superluminescent-diodes at the 1.04-μm wavelength regime. / Shi-Hao Guol, Jr-Hung Wang, Hu-Huei Wu, Wei Lin, Ying-Jay Yang, Chi-Kuang Sun, Ci-Ling Pan, Jin-Wei Shi. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 589-590.

C2019. Jung-ho Kim. Construction of integrated simulator for developing head/eye tracking system. / Jung-ho Kim, Dae-woo Lee, Park C.G., Hyo-choong Bang, Jong-hun Kim, Sun-young Cho, Young-il Kim, Kwang-yul Baek. // 2008. ICCAS 2008. International Conference on Control, Automation and Systems. - Seoul, 14-17 Oct. 2008. - P. 2485-2488.

C2020. O'Brien D.C. Home access networks using optical wireless transmission. / O'Brien D.C., Faulkner G., Hoa Le Minh, Bouchet O., El Tabach M., Wolf M., Walewski J.W., Randel S., Nerreter S., Franke M., Langer K.-D., Grubor J., Kamalakis T. // 2008. PIMRC 2008. IEEE 19th International Symposium on Personal, Indoor and Mobile Radio Communications. - Cannes, 15-18 Sept. 2008. - P. 1-5.

C2021. Wheeler F.W. Stand-off Iris Recognition System. / Wheeler F.W., Perera A.G.A., Abramovich G., Bing Yu, Tu P.H. // 2008. BTAS 2008. 2nd IEEE International Conference on Biometrics: Theory, Applications and Systems. - Arlington, VA, Sept. 29 2008-Oct. 1 2008. - P. 1-7.

C2022. O'Brien D.C. Visible light communications: Challenges and possibilities. / O'Brien D.C., Zeng L., Le-Minh H., Faulkner G., Walewski J.W., Randel S. // 2008. PIMRC 2008. IEEE 19th International Symposium on Personal, Indoor and Mobile Radio Communications. - Cannes, 15-18 Sept. 2008. - P. 1-5.

C2023. Chien-Chun Wang. Modifying the improved light-output intensity of AlGaInP-based LEDs by nanoporous alimina. / Chien-Chun Wang, Chien-Chih Liu, Kwok-Keung Chong, Chen-I Hung, Yeong-Her Wang, Mau-Phon Houng. // 2008. IPRM 2008. 20th International Conference on Indium Phosphide and Related Materials. - Versailles, 25-29 May 2008. - P. 1-4.

C2024. Nielsen J. RoboMusicKids – Music Education with Robotic Building Blocks. / Nielsen J., Brendsen N.K., Jessen C. // 2008 Second IEEE International Conference on Digital Games and Intelligent Toys Based Education. - Banff, BC, 17-19 Nov. 2008. - P. 149-156.

C2025. Xingming Long. An intelligent driver for Light Emitting Diode Street Lighting. / Xingming Long, Jing Zhou. // 2008. WAC 2008. World Automation Congress. - Hawaii, HI, Sept. 28 2008-Oct. 2 2008. - P. 1-5.

C2026. Katsumata T. Fluorescence thermometer based on photoluminescence imaging of Ti doped sapphire. / Katsumata T., Honda T., Watabiki M., Aizawa H., Otsubo K., Komuro S. // 2008. ICCAS 2008. International Conference on Control, Automation and Systems. - Seoul, 14-17 Oct. 2008. - P. 954-957.

C2027. Dong-Hyun Jeong. Development of KNU hand with infrared LED-based tactile fingertip sensor. / Dong-Hyun Jeong, Jun-Uk Chu, Yun-Jung Lee. // 2008. ICCAS 2008. International Conference on Control, Automation and Systems. - Seoul, 14-17 Oct. 2008. - P. 1156-1161.

C2028. Hagiwara T. Photoluminescence imaging of spinel for thermometer application. / Hagiwara T., Kunieda H., Kasai H., Ishikawa D., Katsumata T., Aizawa H., Shibasaki M., Komuro S. // 2008. ICCAS 2008. International Conference on Control, Automation and Systems. - Seoul, 14-17 Oct. 2008. - P. 1000-1003.

C2029. Dong Han. Multispectral palmprint recognition using wavelet-based image fusion. / Dong Han, Zhenhua Guo, Zhang D. // 2008. ICSP 2008. 9th International Conference on Signal Processing. - Beijing, 26-29 Oct. 2008. - P. 2074-2077.

C2030. Miyazaki Y. Low temperature measurement using fluorescence thermometry. / Miyazaki Y., Aizawa H., Katsumata T., Komuro S. // 2008. ICCAS 2008. International Conference on Control, Automation and Systems. - Seoul, 14-17 Oct. 2008. - P. 1004-1007.

C2031. Xin Xu. Hemispherical focal plane detector arrays. / Xin Xu, Davanco M., Forrest S.R. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 356-357.

C2032. Demir H.V. Warm white light generating nanocrystal hybridized LEDs with high color rendering index. / Demir H.V., Nizamoglu S., Zengin G. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 200-201.

C2033. Nakamura S. GaN-based solid state lighting. 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 1.

C2034. Jae Kyeong Jeong. The current status and issue of oxide TFT for large-size AMOLED applications. / Jae Kyeong Jeong, Yeon-Gon Mo, Hye Dong Kim, Ho Kyoon Chung. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 63-64.

C2035. Suemune I. Superconducting photonics and development of light emitting diodes based on new concept. / Suemune I., Hayashi Y., Tanaka K., Akazaki T., Sasakura H., Kumano H. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 567-568.

C2036. Sekitani T. Stretchable, printable organic transistor integrated circuits for large-area sensors and displays. / Sekitani T., Someya T. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 198-199.

C2037. Xuan Liu. Fiber-optic Fourier-Domain Common-Path OCT. / Xuan Liu, Do-Hyun Kim, Ilko Ilev, Kang J.U. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 101-102.

C2038. Yu Wang. An LED-based miniature illumination subsystem for fluorescence sensing of neuron membrane potentials. / Yu Wang, Yaohua Sun, Qiaoqiang Gan, Perry S., Tatic-Lucic S., Bartoli F. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 171-172.

C2039. Levola T. Illumination of LCOS micro displays using planar lightguides. / Levola T., Ayras P. // 2008. ESTC 2008. 2nd Electronics System-Integration Technology Conference. - Greenwich, 1-4 Sept. 2008. - P. 815-818.

C2040. Elfstrom D. Quantum dot nano-composites as colour-converters for micro-pixellated gallium nitride light-emitting diodes. / Elfstrom D., Guilhabert B., Griffin C., Massoubre D., Zhang H.X., McKendry J., Gong Z., Gu E., Dawson M.D. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 505-506.

C2041. Yan Zhang. Effect of encapsulation on OLED characteristics with anisotropic conductive adhesive. / Yan Zhang, Andreasson M., Liu J., Andersson T., Hsuan-Yi Liao, Watanabe I. // 2008. ESTC 2008. 2nd Electronics System-Integration Technology Conference. - Greenwich, 1-4 Sept. 2008. - P. 613-616.

C2042. Luetzelschwab M. MicroLens/UV-LED array packaging for dynamic and static alignment. / Luetzelschwab M., Desmulliez M.P.Y., Weiland D. // 2008. ESTC 2008. 2nd Electronics System-Integration Technology Conference. - Greenwich, 1-4 Sept. 2008. - P. 1121-1126.

C2043. Chun-Yu Hsieh. Boost DC-DC converter with charge-recycling (CR) and fast reference tracking (FRT) techniques for high-efficiency and low-cost LED driver. / Chun-Yu Hsieh, Ke-Horng Chen. // 2008. ESSCIRC 2008. 34th European Solid-State Circuits Conference. - Edinburgh, 15-19 Sept. 2008. - P. 358-361.

C2044. Huyal I.O. Increased quantum efficiency and reduced red-shift in polymer nanoparticle luminophors. / Huyal I.O., Ozel T., Tuncel D., Demir H.V. // 2008. LEOS 2008. 21st Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Acapulco, 9-13 Nov. 2008. - P. 507-508.

C2045. Wipiejewski T. Gigabits in the home with plugless plastic optical fiber (POF) interconnects. / Wipiejewski T., Moriarty T., Hung V., Doyle P., Duggan G., Barrow D., McGarvey B., O'Gorman M., Calvert T., Maute M., Gerhardt V., Lambkin J.D. // 2008. ESTC 2008. 2nd Electronics System-Integration Technology Conference. - Greenwich, 1-4 Sept. 2008. - P. 1263-1266.

C2046. Gasulla I. Transmission of high-frequency radio over fibre signals through short and middle reach Multimode Fibre links using a low-linewidth laser. / Gasulla I., Capmany J. // 2007 IEEE International Topical Meeting on Microwave Photonics. - Victoria, BC, 3-5 Oct. 2007. - P. 116-119.

C2047. Smith R.B. SPOTWorld and the Sun SPOT. 2007. IPSN 2007. 6th International Symposium on Information Processing in Sensor Networks. - Cambridge, MA, 25-27 April 2007. - P. 565-566.

C2048. Sayinta M. Scanning LED Array Based Volumetric Display. / Sayinta M., Urey H. // 2007 3DTV Conference. - Kos Island, 7-9 May 2007. - P. 1-4.

C2049. Sung Kyu Kim. See through HMD type MF 3D display for AR. / Sung Kyu Kim, Dong Wook Kim, Min Chul Park, Jung Young Son. // 2007 3DTV Conference. - Kos Island, 7-9 May 2007. - P. 1-4.

C2050. Tharian J. Degradation- and Failure Mode Analysis of III-V Nitride Devices. 2007. IPFA 2007. 14th International Symposium on the Physical and Failure Analysis of Integrated Circuits. - Bangalore, 11-13 July 2007. - P. 284-287.

C2051. Lopez C. DMX512 Controller for High Brightness RGB LED Matrix. / Lopez C., Doval J., Pereira M., Perez S., Dios J., Lopez O. // 2007. ISIE 2007. IEEE International Symposium on Industrial Electronics. - Vigo, 4-7 June 2007. - P. 3025-3029.

C2052. Sa E.M. Junction Temperature Estimation for High Power Light-Emitting Diodes. / Sa E.M., Antunes F.L.M., Perin A.J. // 2007. ISIE 2007. IEEE International Symposium on Industrial Electronics. - Vigo, 4-7 June 2007. - P. 3030-3035.

C2053. Matsuo K. Optical Evaluation System for a Seaweed-Water Mixture in a Seaweed Processing Plant. / Matsuo K., Noro Y., Takeo T., Ito H. // 2007. ISIE 2007. IEEE International Symposium on Industrial Electronics. - Vigo, 4-7 June 2007. - P. 1911-1915.

C2054. Rico-Secades M. Pitfalls in Low Voltage LED Drivers Design using Tapped-Inductor Converters. / Rico-Secades M., Garcia J., Torres A., Cardesin J., Calleja A. // 2007. ISIE 2007. IEEE International Symposium on Industrial Electronics. - Vigo, 4-7 June 2007. - P. 2990-2995.

C2055. Chunbao Shen. Intellectualized Orientating and Calibrating Method for Temperature and Humidity Meter. / Chunbao Shen, Changchun Bao, Shiguang Liu, Panfeng Chen. // 2007. ICCA 2007. IEEE International Conference on Control and Automation. - Guangzhou, May 30 2007-June 1 2007. - P. 980-983.

C2056. Pugatschow A. EBIC Investigations on Active Polymer Devices. / Pugatschow A., Heiderhoff R., Forster M., Scherf U., Balk L.J. // 2007. IPFA 2007. 14th International Symposium on the Physical and Failure Analysis of Integrated Circuits. - Bangalore, 11-13 July 2007. - P. 218-222.

C2057. Garcia J. Evaluation of a Synchronous Flyback Driving Parallelized High Efficiency LEDs. / Garcia J., Ramos J.M., Lamar D.G., Dalla-Costa M.A., Cardesin J. // 2007. ISIE 2007. IEEE International Symposium on Industrial Electronics. - Vigo, 4-7 June 2007. - P. 3036-3040.

C2058. Torres A. Advancing Towards Digital Control for Low Cost High Power LED Drivers. / Torres A., Garcia J., Secades M.R., Calleja A.J., Ribas J. // 2007. ISIE 2007. IEEE International Symposium on Industrial Electronics. - Vigo, 4-7 June 2007. - P. 3053-3056.

C2059. Purahong B. Implementation of facial visualization for robotic indicator by using fuzzy emotion system. / Purahong B., Archevapanich T. // 2007. ICCAS '07. International Conference on Control, Automation and Systems. - Seoul, 17-20 Oct. 2007. - P. 762-766.

C2060. Nespola A. Equalization Techniques for 100Mb/s Data Rates on SI-POF for Optical Short Reach Applications. / Nespola A., Camatel S., Abrate S., Cardenas D., Gaudino R. // 2007. OFC/NFOEC 2007. Conference on Optical Fiber Communication and the National Fiber Optic Engineers Conference. - Anaheim, CA, 25-29 March 2007. - P. 1-3.

C2061. Hyonyoung Han. Development of real-time motion artifact reduction algorithm for a wearable photoplethysmography. / Hyonyoung Han, Min-Joon Kim, Jung Kim. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 1538-1541.

C2062. Takahashi Y. Joy stick operation speed of intelligent robotic wheelchair. / Takahashi Y., Takagi H. // 2007. ICCAS '07. International Conference on Control, Automation and Systems. - Seoul, 17-20 Oct. 2007. - P. 2735-2739.

C2063. Chih-Jen Yang. Microcavity Top-Emitting OLEDs Integrated with Microlens Arrays for Simultaneous Enhancement of Efficiencies, Color Performances and Reduction of Pixel Blurring. / Chih-Jen Yang, Hsing-Hung Hsieh, Chih-Che Liu, Su Hao Liu, Ting-Yi Cho, Chung-Chih Wu. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 63-64.

C2064. Hyoun-Joong Kong. Development of Cold Light Indirect Ophthalmoscopic Video System for Sharing Stereopsis. / Hyoun-Joong Kong, Jae Pyeong Cha, Jong Mo Seo, Jeong Min Hwang, Hum Chung, Hee Chan Kim. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 2219-2222.

C2065. Choudhury K.R. Enhanced electron injection and transport with LiF doping. / Choudhury K.R., Jong Hyuk Yoon, So F. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 62.

C2066. Bin Hu. Spin Injection and Magnetoresistance in Organic Semiconductor Devices. 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 61.

C2067. Marin-Perianu Raluca. Service oriented wireless sensor networks-a cluster-based approach. / Marin-Perianu Raluca, Scholten Hans, Havinga Paul. // 2007 2nd IEEE Workshop on Networking Technologies for Software Define Radio Networks. - San Diego, CA, USA, 18-21 June 2007. - P. 68-69.

C2068. Goss L.P. Lifetime Based Pressure Sensitive Paint Systems: Issues and Solutions. / Goss L.P., Crafton J.W., Jones E.G., Forlines R.A. // 2007. ICIASF 2007. 22nd International Congress on Instrumentation in Aerospace Simulation Facilities. - Pacific Grove, CA, 10-14 June 2007. - P. 1-12.

C2069. Goss L.P. Velocity Measurements Near Walls, Cavities, and Model Surfaces Using Particle Shadow Velocimetry (PSV). / Goss L.P., Estevadeordal J., Crafton J.W. // 2007. ICIASF 2007. 22nd International Congress on Instrumentation in Aerospace Simulation Facilities. - Pacific Grove, CA, 10-14 June 2007. - P. 1-8.

C2070. Guowei Di. A Reflectance Pulse Oximeter Design Using the MSP430F149. / Guowei Di, Xiaoying Tang, Weifeng Liu. // 2007. CME 2007. IEEE/ICME International Conference on Complex Medical Engineering. - Beijing, 23-27 May 2007. - P. 1081-1084.

C2071. D'Andrade B.W. White PHOLED for Lighting. 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 59-60.

C2072. Friend R. Electro-optical Devices using Organic Semiconductors. 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 3.

C2073. Kressel H. Thirty Revolutionary Years: How Photonic Innovations have Changed the World. 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 1-2.

C2074. Li Zhang. A 3-dimensional vision system for dental applications. / Li Zhang, Alemzadeh K. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 3369-3372.

C2075. Locci S. Woven Electronics: a new perspective for wearable technology. / Locci S., Maccioni M., Orgiu E., Bonfiglio A. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 3970-3973.

C2076. Jay G.D. Point-of-Care Noninvasive Hemoglobin Determination Using Fiber Optic Reflectance Spectroscopy. / Jay G.D., Racht J., McMurdy J., Mathews Z., Hughes A., Suner S., Crawford G. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 2932-2935.

C2077. Jongwoon Park. White Organic Light-Emitting Diodes Based on Dual Partial Dye Doping. / Jongwoon Park, Seounghwan Park, Bumho Choi, Jongho Lee. // 2007. NUSOD '07. International Conference on Numerical Simulation of Optoelectronic Devices. - Newark, DE, 24-28 Sept. 2007. - P. 35-36.

C2078. Bogdanov M.V. Coupled Modeling of Current Spreading, Thermal Effects, and Light Extraction in III-Nitride Light-Emitting Diodes. / Bogdanov M.V., Bulashevich K.A., Evstratov I.Yu., Karpov S.Yu. // 2007. NUSOD '07. International Conference on Numerical Simulation of Optoelectronic Devices. - Newark, DE, 24-28 Sept. 2007. - P. 23-24.

C2079. Alacam B. Characterization of Breast Tumors with NIR Methods using Optical Indices. / Alacam B., Yazici B., Chance B., Nioka S. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 5186-5189.

C2080. Wen-Tyng Li. Effects of Low Level Red-light Irradiation on the Proliferation of Mesenchymal Stem Cells Derived from Rat Bone Marrow. / Wen-Tyng Li, Yao-Chu Leu. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 5829-5832.

C2081. In Duk Hwang. Fat thickness measurement using optical technique with miniaturized chip LEDs: A preliminary human study. / In Duk Hwang, Kunsoo Shin. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 4548-4551.

C2082. Anderer P. Automatic sleep classification according to Rechtschaffen and Kales. / Anderer P., Gruber G., Parapatics S., Dorffner G. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 3994-3997.

C2083. Scarmagnani S. Beads-Based System for Optical Sensing Using Spiropyran Photoswitches. / Scarmagnani S., Walsh Z., Alhashimy N., Radu A., Paull B., Macka M., Diamond D. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 4096-4097.

C2084. Venkatachalam A. Nitride Band-Structure Model in a Quantum Well Laser Simulator. / Venkatachalam A., Yoder P.D., Klein B., Kulkarni A. // 2007. NUSOD '07. International Conference on Numerical Simulation of Optoelectronic Devices. - Newark, DE, 24-28 Sept. 2007. - P. 51-52.

C2085. Arai S. Experimental on Hierarchical Transmission Scheme for Visible Light Communication using LED Traffic Light and High-Speed Camera. / Arai S., Mase S., Yamazato T., Endo T., Fujii T., Tanimoto M., Kidono K., Kimura Y., Ninomiya Y. // 2007. VTC-2007 Fall. 2007 IEEE 66th Vehicular Technology Conference. - Baltimore, MD, Sept. 30 2007-Oct. 3 2007. - P. 2174-2178.

C2086. Pelaez E.A. LED power reduction trade-offs for ambulatory pulse oximetry. / Pelaez E.A., Villegas E.R. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 2296-2299.

C2087. Zhao Liefeng. Optical Inspection System for the Inner Surface of a Pipe. / Zhao Liefeng, Feng Huajun, Li Qi, Ye Tingfeng. // 2007. ICEMI '07. 8th International Conference on Electronic Measurement and Instruments. - Xi'an, Aug. 16 2007-July 18 2007. - P. 1-584-1-587-584.

C2088. Ding Deqiang. An Optimal Lights Layout Scheme for Visible-Light Communication System. / Ding Deqiang, Ke Xizheng, Xu Linpeng. // 2007. ICEMI '07. 8th International Conference on Electronic Measurement and Instruments. - Xi'an, Aug. 16 2007-July 18 2007. - P. 2-189-2-194-189.

C2089. Ying Yun. A Duplex Wireless Audio Communication System. / Ying Yun, Shuguang Dai, Ping'an Mu, Tianfa Su. // 2007. ICEMI '07. 8th International Conference on Electronic Measurement and Instruments. - Xi'an, Aug. 16 2007-July 18 2007. - P. 2-150-2-153-150.

C2090. Pan TianFu. An Improved Single-Stage Flyback PFC Converter for High-Luminance Lighting LED Lamps. / Pan TianFu, Chiu HuangJen, Cheng ShihJen, Chyng ShihYen. // 2007. ICEMI '07. 8th International Conference on Electronic Measurement and Instruments. - Xi'an, Aug. 16 2007-July 18 2007. - P. 4-212-4-215-212.

C2091. Hongping Zhao. Optical Gain Analysis of Strain Compensated InGaN-AlGaN Quantum Well Active

Regions for Lasers Emitting at 420-500 nm. / Hongping Zhao, Arif R.A., Yik-Khoon Ee, Tansu N. // 2007. NUSOD '07. International Conference on Numerical Simulation of Optoelectronic Devices. - Newark, DE, 24-28 Sept. 2007. - P. 69-70.

C2092. Jing Qi. Micro Photo-electricity Ion Concentration Detecting System for Environmental Monitoring. / Jing Qi, You Xueyi. // 2007. ICEMI '07. 8th International Conference on Electronic Measurement and Instruments. - Xi'an, Aug. 16 2007-July 18 2007. - P. 3-469-3-472-469.

C2093. Haahr R.G. A Novel Photodiode for Reflectance Pulse Oximetry in low-power applications. / Haahr R.G., Duun S., Birkelund K., Raahauge P., Petersen P., Dam H., Norgaard L., Thomsen E.V. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 2350-2353.

C2094. Cvetkovic D. Inter and Intra-Hemispheric EEG Coherence Responses to Visual Stimulations. / Cvetkovic D., Cosic I. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 2839-2842.

C2095. Sangho Kim. Hexagonal Prism Blue Laser Diode with Low Threshold Power using Whispering Gallery Mode (WGM) Resonances. / Sangho Kim, Sands T.D. // 2007 65th Annual Device Research Conference. - Notre Dame, IN, 18-20 June 2007. - P. 101-102.

C2096. Hekmatshoar B. Analytical Model of Apparent Threshold Voltage Lowering Induced by Contact Resistance in Amorphous Silicon Thin Film Transistors. / Hekmatshoar B., Ke Long, Wagner S., Sturm J.C. // 2007 65th Annual Device Research Conference. - Notre Dame, IN, 18-20 June 2007. - P. 131-132.

C2097. Hekmatshoar B. Novel Amorphous-Si AMOLED Pixels with OLED-independent Turn-on Voltage and Driving Current. / Hekmatshoar B., Kattamis A.Z., Cherenack K., Wagner S., Sturm J.C. // 2007 65th Annual Device Research Conference. - Notre Dame, IN, 18-20 June 2007. - P. 95-96.

C2098. Nelson S.F. Uniform ZnO Thin-Film Transistors by an Ambient Process. / Nelson S.F., Levy D., Freeman D., Cowdery-Corvan P., Tutt L., Burberry M., Irving L. // 2007 65th Annual Device Research Conference. - Notre Dame, IN, 18-20 June 2007. - P. 13-14.

C2099. Tron-Min Chen. High Power Vertical-structure GaN-based LEDs with Improved Current Spreading and Blocking Designs. / Tron-Min Chen, Shui-Jinn Wang, Kai-Ming Uang, Shiue-Lung Chen, Ching-Chung Tsai, Hon-Yi Kou, Wei-Chi Lee, Hon Kuan. // 2007 65th Annual Device Research Conference. - Notre Dame, IN, 18-20 June 2007. - P. 83-84.

C2100. Dong-Ming Yeh. Surface Plasmon Leakage in Its Coupling with an InGaN/GaN Quantum Well through an Ohmic Contact. / Dong-Ming Yeh, Chi-Feng Huang, Yen-Cheng Lu, Cheng-Yen Chen, Tsung-Yi Tang, Jeng-Jie Huang, Kun-Ching Shen, Ying-Jay Yang, Yang C.C. // 2007 IEEE/LEOS International Conference on Optical MEMS and Nanophotonics. - Hualien, Aug. 12 2007-July 16 2007. - P. 125-126.

C2101. Sang-Yun Lee. New Design of Integrated Power and Integrated Driver with LED Module (IP-IDLM) Driving System for LED Backlight in LCD. / Sang-Yun Lee, Hyung-Suk Kim, Jae-Wook Kwon, Choul-Ho Lee, Myoung-Soo Choi, Bang-Won Oh. // 2007. ISIE 2007. IEEE International Symposium on Industrial Electronics. - Vigo, 4-7 June 2007. - P. 584-587.

C2102. Wohlgenannt M. Characterization and Application of Large Magnetoresistance in Organic Semiconductors. / Wohlgenannt M., Veeraraghavan G., Yugang Sheng, Mermer O., Nguyen T.D. // 2007 65th Annual Device Research Conference. - Notre Dame, IN, 18-20 June 2007. - P. 251-252.

C2103. Bakkers E.P.A. Towards vertical III-V nanowire devices on silicon. / Bakkers E.P.A., Borgstrom M.T., van den Einden W., van Weert M., Minot E.D., Kelkensberg F., van Kouwen M., van Dam J.A., Kouwenhoven L.P., Zwiller V., Helman A., Wunnicke O., Verheijen M.A. // 2007 65th Annual Device Research Conference. - Notre Dame, IN, 18-20 June 2007. - P. 163-164.

C2104. Motayed A. Gallium Nitride Nanowire Devices-Fabrication, Characterization, and Simulation. / Motayed A., Davydov A.V., Maoqi He, Mohammad S.N. // 2007 65th Annual Device Research Conference. - Notre Dame, IN, 18-20 June 2007. - P. 167-168.

C2105. Sola J. On the reliability of pulse oximetry at the sternum. / Sola J., Chetelat O., Krauss J. // 2007.

EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 1537.

C2106. Adibi P. Joint Entropy Maximization in the Kernel-Based Linear Manifold Topographic Map. / Adibi P., Safabakhsh R. // 2007. IJCNN 2007. International Joint Conference on Neural Networks. - Orlando, FL, 12-17 Aug. 2007. - P. 1133-1138.

C2107. Michel S. Computer-Based Training Increases Efficiency in X-Ray Image Interpretation by Aviation Security Screeners. / Michel S., Koller S.M., de Ruiter J.C., Moerland R., Hogervorst M., Schwaninger A. // 2007 41st Annual IEEE International Carnahan Conference on Security Technology. - Ottawa, Ont., 8-11 Oct. 2007. - P. 201-206.

C2108. Nikolic K. A Non-Invasive Retinal Prosthesis-Testing the Concept. / Nikolic K., Grossman N., Yan H., Drakakis E., Toumazou C., Degenaar P. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 6364-6367.

C2109. Chun-Yi Chiu. Effect of Ultrasound Doses on the Amyloid-ГґВµ 25-35 Induced PC12 Apoptosis. / Chun-Yi Chiu, Show-Huie Chen, Shyh-Hau Wang. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 5837-5840.

C2110. Yagi N. Sterilization Using 365 nm UV-LED. / Yagi N., Mori M., Hamamoto A., Nakano M., Akutagawa M., Tachibana S., Takahashi A., Ikehara T., Kinouchi Y. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 5841-5844.

C2111. Sandoval R. Positioning Accuracy of Neurosurgeons. / Sandoval R., MacLachlan R.A., Oh M.Y., Riviere C.N. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 206-209.

C2112. Pilt K. Analogue Step-by-Step DC Component Eliminator for 24-Hour PPG Signal Monitoring. / Pilt K., Meigas K., Lass J., Rosmann M., Kaik J. // 2007. EMBS 2007. 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - Lyon, 22-26 Aug. 2007. - P. 1006-1009.

C2113. Sabathil M. Quantitative modelling of resonant PL in InGaN SQW-LED structure. / Sabathil M., Laubsch A., Linder N. // 2007. NUSOD '07. International Conference on Numerical Simulation of Optoelectronic Devices. - Newark, DE, 24-28 Sept. 2007. - P. 21-22.

C2114. Xi Liu. Detection of Terrorist Threats in Air Passenger Luggage: Expertise Development. / Xi Liu, Gale A., Tao Song. // 2007 41st Annual IEEE International Carnahan Conference on Security Technology. - Ottawa, Ont., 8-11 Oct. 2007. - P. 301-306.

C2115. Zhang Yurong. Application of LED Light Source in NO2 Concentration Measurement. / Zhang Yurong, Tao Chenli, Song Weidong. // 2007. ICEMI '07. 8th International Conference on Electronic Measurement and Instruments. - Xi'an, Aug. 16 2007-July 18 2007. - P. 4-452-4-454-452.

C2116. Kajii H. New fabrication of organic light-emitting devices by thermal printing method. / Kajii H., Kasama D., Hirose Y., Ohmori Y. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 129-130.

C2117. Chin-An Tseng. Degradation Induced Recombination-zone Shift in Mixed-host Organic Light-emitting Device. / Chin-An Tseng, Chih-Hung Hsiao, Jiun-Haw Lee. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2118. Feezell D.F. Recent Performance of Nonpolar and Semipolar GaN-Based Light Emitting Diodes and Laser Diodes. / Feezell D.F., DenBaars S.P., Speck J.S., Nakamura S. // 2007. CSIC 2007. IEEE Compound Semiconductor Integrated Circuit Symposium. - Portland, OR, 14-17 Oct. 2007. - P. 1-4.

C2119. Demir H.V. Tunable white light generating nanocyrstal-hybridized LEDs. / Demir H.V., Nizamoglu S. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2120. Su Y. K. Novel Package Technology of Ultra High Power Light-Emitting Diodes by Electroplating. / Su Y. K., Chen K. C., Lin C. L., Chuang Ricky W., Huang J. Q., Hsu Hsiao Chiu. // 2007. CSIC 2007. IEEE

Compound Semiconductor Integrated Circuit Symposium. - Portland, OR, USA, 14-17 Oct. 2007. - P. 1-4.

C2121. Fujikake H. Flexible Color Moving-Image Displays Using Ferroelectric Liquid Crystal with Polymer Dispersion. / Fujikake H., Sato H. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2122. Schmidt M.C. High Power and High External Efficiency m-Plane InGaN LEDs. / Schmidt M.C., Kim K.C., Sato H., Fellows N., Masui H., Nakamura S., DenBaars S.P., Speck J.S. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2123. Gartner C. Reducing the impact of charge carrier induced absorption in organic double heterostructure laser diodes. / Gartner C., Karnutsch C., Lemmer U. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2124. Jiun-Haw Lee. Recombination Zone Distribution and Current Enhancement in Amibipolar Organic Light-emitting Material. / Jiun-Haw Lee, Chih-Hung Hsiao, Chin-An Tseng, Chi-Feng Lin, Yan-Hau Chen, Tien-Chun Lin, Chia-Chiang Hsiao. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2125. Gioannini M. Numerical modelling of Quantum Dot Superluminescent diodes. 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2126. Dae-Gyu Moon. Top Emission Organic Light Emitting Diodes Using Novel Transparent Cathodes. / Dae-Gyu Moon, Chan-Jae Lee, Jeong-In Han. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2127. Kim Y.C. Dense low threshold PQR lasers can outdo LEDs (Blue Quest). / Kim Y.C., Lee Y.J., Kim S.S., O'Dae Kwon, Bei Zhang, Kang X.N., Zhang G.Y. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2128. Yang H.-P.D. P-Substrate Small-Aperture Holey Light-Emitting Diodes for Fiber-Optic Applications. / Yang H.-P.D., Jui-Nung Liu, Fang-I Lai, Hao-Chung Kuo, Rong Xuan, Chi J.Y. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2129. Hyunsung Kim. A new method for measurement of the fundamental device parameters in a GaN-based light emitting diode. / Hyunsung Kim, Shim J. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2130. Kirmani S.A.M. A Wavelength Reusable Metro WDM Star Network with a Hybrid MAC Protocol. / Kirmani S.A.M., Hyo-Sik Yang, Seoyong Shin. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2131. Jun-Rong Chen. Theoretical and Experimental Analysis of Temperature-Insensitive 655-nm Resonant-Cavity LEDs. / Jun-Rong Chen, Yi-An Chang, Hao-Chung Kuo, Tien-Chang Lu, Yen-Kuang Kuo, Shing-Chung Wang. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2132. Hsueh H.T. Azimuthal Anisotropy of Light Extraction from Photonic Crystal Light-emitting Diodes. / Hsueh H.T., Wang J.-F.T., Chao C.H., Yeh W.Y., Chi J.Y., Lai C.F., Kuo H.C., Lu T.C., Wang S.C. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2133. Sang Soo Kim. LCD: Future Prospects and Impact on Human Lifestyle. 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1.

C2134. Takahashi N. Observation of Micro-Bubbles Generated by Laser-Induced Breakdown in Water. / Takahashi N., Yasuda T., Tei K., Yamaguchi S., Fujioka T. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2135. Ji-Hun Kang. Narrowed Edge Emission spectra from Leaky Modes of Multi-Layer Dielectric Waveguides. / Ji-Hun Kang, Q-Han Park, Yun Tian, Zhengqing Gan, Zhaoqun Zhou, Lynch D.W., Shinar J. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2136. Yeong Hee Cho. Characterization of Novel Holographic Gratings Formed with Hyper-branched Silsesquioxane Systems. / Yeong Hee Cho, Hoque A., Kim N., Kawakami Y. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2137. Weichmann U. GaN-diode pumped Pr3+ :ZBLAN fiber-lasers for the visible wavelength range. / Weichmann U., Baier J., Bengoechea J., Moench H. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2138. Andersson M. Flexible lock-in detection system based on synchronized computer plug-in boards applied in sensitive diode-laser gas spectroscopy. / Andersson M., Persson L., Svensson T., Cassel-Engquist M., Svanberg S. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2139. Hetterich J. Nanostructured metallic electrodes for optoelectronic devices. / Hetterich J., Bastian G., Geyer U., Huska K., Gippius N.A., Tikhodeev S.G., von Plessen G., Lemmer U. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2140. Amano K. Analysis of fractal dimension of light scattering in polyhedral mirror-ball structures. / Amano K., Narimatsu D., Sotome S., Tashiro S., Uchida A., Yoshimori S. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2141. Hwang J. Strong Light Extinction by a Single Molecule. / Hwang J., Wrigge G., Gerhardt I., Sandoghdar V. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2142. Das N.C. Techniques to Improve MWIR Light Emitting Diode Emission Power. / Das N.C., Chang W. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2143. Pan J.L. High-efficiency light-emission from novel GaAs deep-centers for high-speed 1.5 μm fiber-optics. 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2144. Penn S.T. The Site Selectivity of the E-beam Excitation of Eu ion in GaN. / Penn S.T., Fleischman Z., Dierolf V. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2145. Monguzzi A. Non-radiative decay processes in Er3+ organic complexes. / Monguzzi A., Meinardi F., Tubino R. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2146. Boudeile J. 68-fs passively mode-locked diode-pumped Yb3+ :CaGdAlO4 laser with an average power of 520 mW. / Boudeile J., Druon F., Hanna M., Georges P., Zouter Y., Petit J., Goldner P., Viana B. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2147. Dongxia Qu. Modeling and Design of a Highly Compact Chaotic Cavity for Optical Gas Sensing Applications. / Dongxia Qu, Gmachl C. // 2007 IEEE Sensors. - Atlanta, GA, 28-31 Oct. 2007. - P. 1349-1352.

C2148. Cleary J. Field-deployable microfluidic sensor for phosphate in natural waters. / Cleary J., Slater C., Diamond D. // 2007 IEEE Sensors. - Atlanta, GA, 28-31 Oct. 2007. - P. 1001-1004.

C2149. Tessler Nir. Are organic LEDs and Lasers similar to inorganic devices?. 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. -

Munich, 17-22 June 2007. - P. 1.

C2150. Kuna L. Emission characteristics of high power LEDs studied by confocal microscopy. / Kuna L., Sommer C., Zinterl E., Wenzl F.P., Pachler P., Hartmann P., Tasch S., Leising G. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2151. Weyerman W. Black-Box Identification of a Grating-Stabilized External-Cavity Diode Laser. / Weyerman W., Neyenhuis B., Archibald J., Washburn M., Durfee D., Warnick S. // 2007. CCA 2007. IEEE International Conference on Control Applications. - Singapore, 1-3 Oct. 2007. - P. 515-520.

C2152. Duligall J.L. Low Cost Quantum Secret Key Growing for Consumer Transactions. / Duligall J.L., Godfrey M.S., Lynch A.M., Munro W.J., Harrison K.J., Rarity J.G. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2153. Zhang Z. A simple, extremely large bandwidth, modulator-free QKD system. / Zhang Z., Locquet A., Voss P.L., Gallion P. // 2007 and the International Quantum Electronics Conference. CLEOE-IQEC 2007. European Conference on Lasers and Electro-Optics. - Munich, 17-22 June 2007. - P. 1.

C2154. Zimmermann R. Photo-ionization mass spectrometry for on-line analysis of organic compounds in human breath and in tobacco smoke upon inhalation. / Zimmermann R., Mocker C., Adam T., Miihlberger F., Mitschke S. // 2007 IEEE Sensors. - Atlanta, GA, 28-31 Oct. 2007. - P. 14-15.

C2155. Kagawa Y. Compact SPR Gas Sensor for Mobile Robot Olfaction Using Metal Nanostructure and LED Light Source. / Kagawa Y., Satoh M., Numata T., Ishida H., Umeda N. // 2007 IEEE Sensors. - Atlanta, GA, 28-31 Oct. 2007. - P. 628-631.

C2156. Duun S. A Novel Ring Shaped Photodiode for Reflectance Pulse Oximetry in Wireless Applications. / Duun S., Haahr R.G., Birkelund K., Raahauge P., Petersen P., Dam H., Noergaard L., Thomsen E.V. // 2007 IEEE Sensors. - Atlanta, GA, 28-31 Oct. 2007. - P. 596-599.

C2157. Wen-Gong Chen. The layout design of LEDs in an LED-based reading light system using a Genetic Algorithm. / Wen-Gong Chen, Chii-Maw Uang. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-3.

C2158. Katsumata T. Characteristics of Ti-doped sapphire for fluorescence thermo-sensor. / Katsumata T., Nakayama A., Kano Y., Aizawa H., Komuro S. // 2007. ICCAS '07. International Conference on Control, Automation and Systems. - Seoul, 17-20 Oct. 2007. - P. 2331-2334.

C2159. Griffin C. CMOS-integrated flip-chip, micro-pixel InGaN LED arrays for on-chip microfluorimetry. / Griffin C., McKendry J., Zhang H.X., Gu E., Rae B.R., Henderson R., Renshaw D., Girkin J.M., Dawson M.D. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 588-589.

C2160. Shi-Hao Guo. Flatten and invariant broadband spectra of transverse junction light- emitting diodes under a large range of bias current at 1.06 μm wavelengths. / Shi-Hao Guo, Jin-Wei Shib, Yueh-Yi Chen, Jr-Hung Wang, Wei Lin, Ying-Jay Yang, Chi-Kuang Sun. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 586-587.

C2161. Massoubre D. Micro-pixel flip-chip AlInGaN LED arrays with high CW and nanosecond output power. / Massoubre D., Zhang H.X., McKendry J., Griffin C., Guilhabert B., Gong Z., Gu E., Dawson M.D. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 582-583.

C2162. Shi J.-W. Phosphor-Free GaN-Based Cascade Transverse Junction Light Emitting Diode Arrays for the High-Power Generation of White-Light. / Shi J.-W., Shi-Hao Guol, Sheu J.-K., Lai W.-C., Wang C.-K., Chen C.-H., Cheng-Huang Kuo, Chyi J.-I. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 584-585.

C2163. Ng D.C. Integration of CMOS and MEMS Technologies in the Development of a Neural Imaging and Interface Device: Showcase of an Emerging Bioimaging Technique. / Ng D.C., Mizuno T., Tokuda T., Nunoshita

M., Tamura H., Ishikawa Y., Shiosaka S., Ohta J. // 2007. CICC '07. IEEE Custom Integrated Circuits Conference. - San Jose, CA, 16-19 Sept. 2007. - P. 837-840.

C2164. Oliveira S.C. Optical system for flashover prediction in high voltage transmission lines. / Oliveira S.C., Fontana E. // 2007. IMOC 2007. SBMO/IEEE MTT-S International Microwave and Optoelectronics Conference. - Brazil, Oct. 29 2007-Nov. 1 2007. - P. 224-228.

C2165. Nhat Nguyen-Dinh. A study on GOOSE communication based on IEC 61850 using MMS ease lite. / Nhat Nguyen-Dinh, Gwan-Su Kim, Hong-Hee Lee. // 2007. ICCAS '07. International Conference on Control, Automation and Systems. - Seoul, 17-20 Oct. 2007. - P. 1873-1877.

C2166. Nizamoglu S. White CdS Nanoluminophore based Tunable Hybrid Light Emitting Diodes. / Nizamoglu S., Mutlugun E., Akyuz O., Perkgoz N.K., Demir H.V., Liebscher L., Sapra S., Gaponik N., Eychmuller A. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 602-603.

C2167. Yongbo Wan. Design of a photoplethysmographic sensor for biometric identification. / Yongbo Wan, Xiaodong Sun, Jianchu Yao. // 2007. ICCAS '07. International Conference on Control, Automation and Systems. - Seoul, 17-20 Oct. 2007. - P. 1897-1900.

C2168. Ganesh N. Wavelength detection using narrowband reflectance filters. / Ganesh N., Xiang A., Beltran N.B., Dobbs D.W., Cunningham B.T. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 347-348.

C2169. Chih-Fu Hsu. An Experimental Platform for Evaluating Color Breakup Phenomenon. / Chih-Fu Hsu, Chin-Nan Wu, Wei-Chung Cheng. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 358-359.

C2170. Pieper S.B. Optical Properties of Ru(dpp)3 for Phosphorescence Biosensors. / Pieper S.B., Zhong Zhong, Reardon K.F., Lear K.L. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 300-301.

C2171. Nizamoglu S. High-Quality White Light Generation using Dually Hybridized Nanocrystals and Conjugated Polymers. / Nizamoglu S., Ozel T., Mutlugun E., Huyal I.O., Sari E., Nan Tian, Holder E., Demir H.V. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 137-138.

C2172. Aschwanden M. Polymeric, Electrically Tunable Optical Elements based on Artificial Muscles. / Aschwanden M., Friedlos R., Stemmer A. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 204-205.

C2173. Hsu Y.C. Failure Mechanisms Associated with Lens Shape of High-Power LED Modules in Aging Test. / Hsu Y.C., Lin Y.K., Tsai C.C., Kuang J.H., Huang S.B., Hu H.L., Su Y.I., Cheng W.H. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 570-571.

C2174. Xin Xu. Organic Photodetector Focal Plane Arrays Fabricated on Hemispherical Substrates by Three-Dimensional Stamping. / Xin Xu, Xiangfei Qi, Davanco M., Forrest S.R. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 578-579.

C2175. Xue-Wen Chen. Simulation of light emission from a semiconductor nanowire/nanotube. / Xue-Wen Chen, Choy W.C.H., Sailing He. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 411-412.

C2176. Hongping Zhao. Optical Gain Analysis of Staggered InGaN Quantum Well Active Regions for Lasers Emitting at 420-500 nm. / Hongping Zhao, Arif R.A., Yik-Khoon Ee, Tansu N. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 376-377.

C2177. Amano H. Nitride-Based UV Lasers. / Amano H., Kato N., Okada N., Kawashima T., Iida K., Nagamatsu K., Imura M., Balakrishnan K., Iwaya M., Kamiyama S., Akasaki I., Bandoh A. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct.

2007. - P. 380-381.

C2178. Heume-Il Baek. Multilayer white organic light emitting diode with optimum emitting layer sequence. / Heume-Il Baek, Hyunduck Cho, Changhee Lee. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2179. Yik-Khoon Ee. Improved Photoluminescence of InGaN Quantum Wells Grown on Nano-Patterned AGOG Sapphire Substrate by Metalorganic Vapor Phase Epitaxy. / Yik-Khoon Ee, Arif R.A., Tansu N., Hongwei Li, Chan H.M., Vinci R.P., Capek P., Jha N.K., Dierolf V. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 902-903.

C2180. Nakamura S. Recent Performance of Nonpolar/Semipolar GaN-based Blue LEDs/LDs. / Nakamura S., DenBaars S.P., Speck J.S., Schmidt M.C., Kim K.-C., Farrell R.M., Feezell D.F., Cohen D.A., Saito M., Sato H., Asamizu H., Tyagi A., Zhong H., Masui H., Fellows N.N., Iza M., Hashimoto T., Fujito K. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 898-899.

C2181. Poonawalla B.J. Human factors studies evaluating synthetic and peripheral vision displays in general aviation. / Poonawalla B.J., Braasch M.S. // 2007. DASC '07. IEEE/AIAA 26th Digital Avionics Systems Conference. - Dallas, TX, 21-25 Oct. 2007. - P. 6.A.4-1-6.A.4-9-1.

C2182. Seung-Kju Choi. Formation of InGaN self-assembled quantum dots on GaN by metal-organic chemical vapor deposition with NH3 periodic interruption growth. / Seung-Kju Choi, Jae-Min Jang, Sung-Hak Yi, Jung-A Kim, Woo-Gwang Jung. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2183. Wang Y.N. Influence of strong reverse-bias on the leakage behavior of light-emitting diodes. / Wang Y.N., Tseng C.Y., Chen Y.C., Chen N.C. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2184. Yang Y.K. Junction temperature measurement of light-emitting diodes by voltage-temperature relation method. / Yang Y.K., Lien W.C., Huang Y.C., Chen N.C. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2185. Shih-Chun Ling. Characteristics of ultraviolet nonpolar InGaN/GaN light-emitting diodes using trench epitaxial lateral overgrowth technology. / Shih-Chun Ling, Te-Chung Wang, Tsung-Shine Ko, Tien-Chang Lu, Hao-Chung Kuo, Shing-Chung Wang. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2186. Liann-Be Chang. The Reflectivity enhancement of Ni/Ag/(Ti or Mo)/Au Ohmic Contact for Flip-Chip Light-Emitting Diode Applications. / Liann-Be Chang, Ching-Chuan Shiue, Ming-Jer Jeng. // 2007. RTP 2007. 15th International Conference on Advanced Thermal Processing of Semiconductors. - Catania, Sicily, 2-5 Oct. 2007. - P. 177-180.

C2187. Dong-wook Chang. Carrier dynamics in ZnO nanorods revealed by pump-probe and the time-resolved photoluminescence. / Dong-wook Chang, Ji-hee Kim, Kang-jeon Han, Yee K.J., Byoung-Hwa Kwon, Gyu-chul Yi. // 2007. CLEO/Pacific Rim 2007. Conference on Lasers and Electro-Optics-Pacific Rim. - Seoul, 26-31 Aug. 2007. - P. 1-2.

C2188. O'Grady R. Self-sssembly and morphology control in a swarm-bot. / O'Grady R., Christensen A.L., Dorigo M. // 2007. IROS 2007. IEEE/RSJ International Conference on Intelligent Robots and Systems. - San Diego, CA, Oct. 29 2007-Nov. 2 2007. - P. 2551-2552.

C2189. Fang Qian. Semiconductor Nanowire Lasers. / Fang Qian, Lieber C.M. // 2007. LEOS 2007. The 20th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Lake Buena Vista, FL, 21-25 Oct. 2007. - P. 831.

C2190. Yim M. Robustness and self-repair in modular robots. / Yim M., Shirmohammadi B., Sastra J., Park M., Dugan M., Taylor C.J. // 2007. IROS 2007. IEEE/RSJ International Conference on Intelligent Robots and Systems. - San Diego, CA, Oct. 29 2007-Nov. 2 2007. - P. 2553-2554.

C2191. Bhatia K. Layout guidelines for optimized ESD protection diodes. / Bhatia K., Rosenbaum E. // 2007.

EOS/ESD 29th Electrical Overstress/Electrostatic Discharge Symposium. - Anaheim, CA, 16-21 Sept. 2007. - P. 1A.3-1-1A.3-9-1.

C2192. Sooyong Lee. Use of coded infrared light as artificial landmarks for mobile robot localization. / Sooyong Lee, Jae-Bok Song. // 2007. IROS 2007. IEEE/RSJ International Conference on Intelligent Robots and Systems. - San Diego, CA, Oct. 29 2007-Nov. 2 2007. - P. 1731-1736.

C2193. Sato K. Metamaterials for automotive applications. / Sato K., Yonak S.H., Nomura T., Matsuzawa S.-i., Iizuka H. // 2007 IEEE Antennas and Propagation Society International Symposium. - Honolulu, HI, 9-15 June 2007. - P. 1144-1147.

C2194. Salesa F. The Optical Beacon Calibration System of the ANTARES Neutrino Telescope. 2007. SensorComm 2007. International Conference on Sensor Technologies and Applications. - Valencia, 14-20 Oct. 2007. - P. 198-203.

C2195. Kafaratzis A. Investigation of soliton generation in nonlinear left handed transmission lines. / Kafaratzis A., Zhirun Hu. // 2007 IEEE Antennas and Propagation Society International Symposium. - Honolulu, HI, 9-15 June 2007. - P. 2885-2888.

C2196. Tie Hu. In-vivo pan/tilt endoscope with integrated light source. / Tie Hu, Allen P.K., Fowler D.L. // 2007. IROS 2007. IEEE/RSJ International Conference on Intelligent Robots and Systems. - San Diego, CA, Oct. 29 2007-Nov. 2 2007. - P. 1284-1289.

C2197. Iizuka K. Divergence-Ratio Axi-Vision Camera (Divcam) a distance mapping camera. 2007 IEEE Antennas and Propagation Society International Symposium. - Honolulu, HI, 9-15 June 2007. - P. 3984-3987.

C2198. Perez A. Evaluation of the performance of SCM-based access networks using the spectrally-sliced ASE from a semiconductor optical amplifier. / Perez A., Morthier G., Sales S., Temprado J.M., Vague J. // 2007. OFC/NFOEC 2007. Conference on Optical Fiber Communication and the National Fiber Optic Engineers Conference. - Anaheim, CA, 25-29 March 2007. - P. 1-3.

C2199. McDowall I.E. Multi-Use Light Engine-Fast Projection. 2007. CVPR '07. IEEE Conference on Computer Vision and Pattern Recognition. - Minneapolis, MN, 17-22 June 2007. - P. 1.

C2200. Oyamada Y. Focal Pre-Correction of Projected Image for Deblurring Screen Image. / Oyamada Y., Saito H. // 2007. CVPR '07. IEEE Conference on Computer Vision and Pattern Recognition. - Minneapolis, MN, 17-22 June 2007. - P. 1-8.

C2201. Nomoto E. 703-nm InGaAsP Quantum-Well Ridge-Waveguide Lasers. / Nomoto E., Taniguchi T., Sasaki S., Kasai J., Ohtoshi T., Aoki M. // 2007. IPRM 07. IEEE 19th International Conference on Indium Phosphide & Related Materials. - Matsue, 14-18 May 2007. - P. 426-429.

C2202. Yonezu H. Epitaxial Growth of (In)GaPN Systems for Monolithic Optoelectronic Integrated Circuits on Si Substrates. / Yonezu H., Furukawa Y., Wakahara A. // 2007. IPRM 07. IEEE 19th International Conference on Indium Phosphide & Related Materials. - Matsue, 14-18 May 2007. - P. 451-453.

C2203. Sivalertporn K. Hopping and Drift--Diffusion Currents in Organic Devices. / Sivalertporn K., Osotchan T. // 2007. NEMS '07. 2nd IEEE International Conference on Nano/Micro Engineered and Molecular Systems. - Bangkok, 16-19 Jan. 2007. - P. 830-833.

C2204. Navaphun Kayunkid. Blue Emission Mechanism of NPB/ZnSe Hybrid Structure. / Navaphun Kayunkid, Anusit Keawprajak, Anuchit Jaruwanawat, Jiti Nukeaw. // 2007. NEMS '07. 2nd IEEE International Conference on Nano/Micro Engineered and Molecular Systems. - Bangkok, 16-19 Jan. 2007. - P. 643-646.

C2205. Shin Aram. A New Organic Thin-Film Transistor Based Current-Driving Pixel Circuit for Active-Matrix Organic Light-Emitting Displays. / Shin Aram, Hwang Sang Jun, Yu Seung Woo, Sung Man Young. // 2007. ISQED '07. 8th International Symposium on Quality Electronic Design. - San Jose, CA, 26-28 March 2007. - P. 59-66.

C2206. Kaewket D. Visible Photoluminescence from InGaPN/GaP Lattice-Matched Single Quantum Well Structures Grown by MOVPE. / Kaewket D., Tungasmita S., Sanorpim S., Katayama R., Onabe K. // 2007. NEMS '07. 2nd IEEE International Conference on Nano/Micro Engineered and Molecular Systems. - Bangkok,

16-19 Jan. 2007. - P. 695-700.

C2207. Diallo D. Design and Control of A Low Power DC-DC Converter fed by a Photovoltaic array. / Diallo D., Belkacem F., Berthelot E. // 2007. IEMDC '07. IEEE International Electric Machines & Drives Conference. - Antalya, 3-5 May 2007. - Vol. 2. - P. 1288-1293.

C2208. Matsuoka T. Mysterious Material InN in Nitride Semiconductors-What's the Bandgap Energy and its Application?. / Matsuoka T., Nakao M. // 2007. IPRM 07. IEEE 19th International Conference on Indium Phosphide & Related Materials. - Matsue, 14-18 May 2007. - P. 372-375.

C2209. Budaszewski D. Novel bandwidth measurement method for partially coherent light sources. / Budaszewski D., Domanski A.W., Wolinski T.R. // 2007. IMTC 2007. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Warsaw, 1-3 May 2007. - P. 1-4.

C2210. Yeary M. Next-Generation Digital High-Bandwidth Spectroscopy Sensor Systems. / Yeary M., Kelley R., Meier J., Snyder A., Arul A., Hicks T., McCann P., Roller C., Guidry D. // 2007. IMTC 2007. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Warsaw, 1-3 May 2007. - P. 1-4.

C2211. Matsushita Y. Photocatalytic Oxidation and Alkylation Processes in Microreactors. / Matsushita Y., Iwasawa M., Ohba N., Kumada S., Suzuki T., Ichimura T. // 2007. NEMS '07. 2nd IEEE International Conference on Nano/Micro Engineered and Molecular Systems. - Bangkok, 16-19 Jan. 2007. - P. 851-854.

C2212. Solignac P.A. Designing and Making a Scintillometer. Atmospheric Measures and Signal Processing. / Solignac P.A., Selves J.L., Beteille J.P., Gastellu-Etchegory J.P. // 2007. IMTC 2007. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Warsaw, 1-3 May 2007. - P. 1-4.

C2213. Vincenzi D. Tailoring freeform lenses for barcode lighting. / Vincenzi D., Oliva G. // 2007 IEEE Workshop on Automatic Identification Advanced Technologies. - Alghero, 7-8 June 2007. - P. 134-139.

C2214. Choi T.L. Quantum Dot Superluminescent Diodes-Bandwidth Engineering and Epitaxy for High Powers. / Choi T.L., Ray S.K., Zhang Z., Childs D., Groom K.M., Stevens B.J., Liu H., Hopkinson M., Hogg R.A. // 2007. IPRM 07. IEEE 19th International Conference on Indium Phosphide & Related Materials. - Matsue, 14-18 May 2007. - P. 289-292.

C2215. Krishnamurthy D. Quinary TlGaInNAs DQW Structures: Effect of Growth Temperature and Growth Rate on Tl Incorporation. / Krishnamurthy D., Fujiwara A., Hasegawa S., Asahi H. // 2007. IPRM 07. IEEE 19th International Conference on Indium Phosphide & Related Materials. - Matsue, 14-18 May 2007. - P. 327-330.

C2216. Tzeng T.E. Wide Emission Spectra from Multi-stack InGaAs Quantum Dots. / Tzeng T.E., Feng D.J.Y., Lay T.S., Chang T.Y. // 2007. IPRM 07. IEEE 19th International Conference on Indium Phosphide & Related Materials. - Matsue, 14-18 May 2007. - P. 194-196.

C2217. Mulot M. Nine-fold photoluminescence enhancement using photonic crystals with graphite lattice. / Mulot M., Sihvonen O., Raineri F., Sagnes I., Vecchi G., Raj R., Lipsanen H. // 2007. IPRM 07. IEEE 19th International Conference on Indium Phosphide & Related Materials. - Matsue, 14-18 May 2007. - P. 201-202.

C2218. Arredondo B. Novel lithographic technology for OLED-based display manufacturing. / Arredondo B., Romero B., Quintana X., Gutierrez-Llorente A., Alvarez A.L., Mallavia R., Oton J.M. // 2007 Spanish Conference on Electron Devices. - Madrid, Jan. 31 2007-Feb. 2 2007. - P. 307-310.

C2219. Svilainis L. Considerations of the Driving Electronics of LED Video Display. 2007. ITI 2007. 29th International Conference on Information Technology Interfaces. - Cavtat, 25-28 June 2007. - P. 431-436.

C2220. Svilainis L. LED Far Field Pattern Approximation Performance Study. / Svilainis L., Dumbrava V. // 2007. ITI 2007. 29th International Conference on Information Technology Interfaces. - Cavtat, 25-28 June 2007. - P. 645-649.

C2221. Iyer S.S.K. Tutorial T2: Organic Electronics: Technology, Devices, Circuits, and Applications. / Iyer S.S.K., Subramanian V. // 20th International Conference on VLSI Design, 2007. Held jointly with 6th International Conference on Embedded Systems. - Bangalore, 6-10 Jan. 2007. - P. 4.

C2222. Li-min Yan. Research on the Models of OLED-On-Silicon Pixel Circuits. / Li-min Yan, Hao Wang. //

2007. HDP '07. International Symposium on High Density packaging and Microsystem Integration. - Shanghai, 26-28 June 2007. - P. 1-4.

C2223. Banaszczyk J. Application of Advanced Thermal Analysis Method for Investigation of Internal Package Structure. / Banaszczyk J., Janicki M., Vermeersch B., De Mey G., Napieralski A. // 2007. MIXDES '07. 14th International Conference on Mixed Design of Integrated Circuits and Systems. - Ciechocinek, 21-23 June 2007. - P. 553-558.

C2224. Reboud V. Nanoimprinted photonic crystals enhanced light emitters via surface plasmon. / Reboud V., Kehagias N., Zelsmann M., Schuster C., Fink M., Reuther F., Gruetzner G., Torres C.M.S. // 2007 Digest of the IEEE/LEOS Summer Topical Meetings. - Portland, OR, 23-25 July 2007. - P. 80-81.

C2225. Jackson W.B. Electronics Produced by Roll-to-roll Self-Aligned Imprint Lithography. / Jackson W.B., Perlov C., Amanza-Workman M., Braymen S., Chaiken A., Jeffrey F., Hauschildt J., Jeans A., Kwon O., Luo H., Mei P., Taussig C. // 2007 Digest of the IEEE/LEOS Summer Topical Meetings. - Portland, OR, 23-25 July 2007. - P. 125-126.

C2226. Del Croce P. Configurable High Side Power Switch in Smart Power Technology. / Del Croce P., Hadzi-Vukovic J., Meldt B., Ladurner M. // 2007. MIXDES '07. 14th International Conference on Mixed Design of Integrated Circuits and Systems. - Ciechocinek, 21-23 June 2007. - P. 570-573.

C2227. Qureshi W.A. An Efficient Approach for Target Tracking and Error Minimization by Kalman Filtering Technique. / Qureshi W.A., Khan R.A.J., Ahmed M., Bashir A. // 2007. ICEE '07. International Conference on Electrical Engineering. - Lahore, 11-12 April 2007. - P. 1-6.

C2228. Sugiyama H. Brightness Control Methods for Illumination and Visible-Light Communication Systems. / Sugiyama H., Haruyama S., Nakagawa M. // 2007. ICWMC '07. Third International Conference on Wireless and Mobile Communications. - Guadeloupe, 4-9 March 2007. - P. 78.

C2229. DOI Shigeki. Chatterer Ping-pong Table. / DOI Shigeki, KAWADA Yasuhiro, FUJII Satoshi. // 2007. DIGITEL '07. The First IEEE International Workshop on Digital Game and Intelligent Toy Enhanced Learning. - Jhongli City, 26-28 March 2007. - P. 167-169.

C2230. Khizar M. Optical-output power degradation of AlGaN-based deep-UV light emitting diodes by plasma treatment. / Khizar M., Akhtar Raja Y.M. // 2007. Proceedings. IEEE SoutheastCon. - Richmond, VA, 22-25 March 2007. - P. 584-589.

C2231. Peralvarez M. Light emitting devices in the visible obtained by PECVD and ion implantation. / Peralvarez M., Barreto J., Jambois O., Carreras J., Dominguez C., Rodriguez J.A., Garrido B. // 2007 Spanish Conference on Electron Devices. - Madrid, Jan. 31 2007-Feb. 2 2007. - P. 315-317.

C2232. Sheng Su. Context Information based Cyber Security Defense of Protection System. / Sheng Su, Xianzhong Duan, Xiangjun Zeng, Chan W.L., Li K.K. // 2007. IEEE Power Engineering Society General Meeting. - Tampa, FL, 24-28 June 2007. - P. 1.

C2233. Hua Si. A Context-aware Reminding System for Daily Activities of Dementia Patients. / Hua Si, Seung Jin Kim, Kawanishi N., Morikawa H. // 2007. ICDCSW 07. 27th International Conference on Distributed Computing Systems Workshops. - Toronto, Ont., 22-29 June 2007. - P. 50.

C2234. Yoshida H. Ultra Small HD Video Camera Using MPEG4 Codec with SD Memory Card as Storage. / Yoshida H., Okada S., Murata H., Kurokawa M., Okada H. // 2007. ICCE 2007. Digest of Technical Papers. International Conference on Consumer Electronics. - Las Vegas, NV, 10-14 Jan. 2007. - P. 1-2.

C2235. Yan Zhang. Encapsulation of OLED device by Using Anisotropic Conductive Adhesive. / Yan Zhang, Andreasson M., Hua Zhou, Liu J., Andersson T., Jing-yu Fan. // 2007. HDP '07. International Symposium on High Density packaging and Microsystem Integration. - Shanghai, 26-28 June 2007. - P. 1-4.

C2236. Wu H.-H.P. Automatic measurement and grading of LED dies on wafer by machine vision. / Wu H.-H.P., Jing-Guang Yang, Ming-Mao Hsu, Chia-Ju Wu. // ICM2007 4th IEEE International Conference on Mechatronics. - Kumamoto, 8-10 May 2007. - P. 1-6.

C2237. Yi-Cheng Huang. Fabrication Study of a LED Thermosonic Flip Chip Bonding Apparatus. / Yi-Cheng

Huang, Li K.-Y., Hsiao F.-S., Chen C.-H. // ICM2007 4th IEEE International Conference on Mechatronics. - Kumamoto, 8-10 May 2007. - P. 1-4.

C2238. Elgala H. OFDM Visible Light Wireless Communication Based on White LEDs. / Elgala H., Mesleh R., Haas H., Pricope B. // 2007. VTC2007-Spring. IEEE 65th Vehicular Technology Conference. - Dublin, 22-25 April 2007. - P. 2185-2189.

C2239. Lin X. Portable Bidirectional Optical Wireless Terminal with Organic Light Emitting Diode Display. / Lin X., Itoh H. // 2007. PORTABLE07. IEEE International Conference on Portable Information Devices. - Orlando, FL, 25-29 May 2007. - P. 1-3.

C2240. Si Hua. An Guidance System Based on Q-Learning for Supporting Dementia Patient's Activities of Daily Living. / Si Hua, Kim Seung Jin, Kawanishi Nao, Morikawa Hiroyuki. // 2007. CCNC 2007. 4th IEEE Consumer Communications and Networking Conference. - Las Vegas, NV, 11-13 Jan. 2007. - P. 1199-1200.

C2241. Tomizawa T. Property Modifiable Discreet Active Landmarks. / Tomizawa T., Saiki Y.M., Ohya A., Yuya S. // 2007 IEEE International Conference on Robotics and Automation. - Roma, 10-14 April 2007. - P. 3420-3426.

C2242. Itoh H. Aimulet: Stoic Information Terminal for Location-Based User Supporting Systems. / Itoh H., Lin X., Kaji R., Niwa T., Hashida K., Kosugi K., Takizawa K. // 2007. PORTABLE07. IEEE International Conference on Portable Information Devices. - Orlando, FL, 25-29 May 2007. - P. 1-4.

C2243. Xia S.C. OLED Device Operational Lifetime: Insights and Challenges. / Xia S.C., Kwong R.C., Adamovich V.I., Weaver M.S., Brown J.J. // 2007. proceedings. 45th annual. ieee international Reliability physics symposium. - Phoenix, AZ, 15-19 April 2007. - P. 253-257.

C2244. Meneghini M. Reversible Degradation of GaN LEDs Related to Passivation. / Meneghini M., Trevisanello L.-R., Penzo R., Benedetti M., Zehnder U., Strauss U., Meneghesso G., Zanoni E. // 2007. proceedings. 45th annual. ieee international Reliability physics symposium. - Phoenix, AZ, 15-19 April 2007. - P. 457-461.

C2245. Lupu V. Real Case Study of a Neuro-Fuzzy Intelligent Car. / Lupu V., Lupu C. // 2007. ISCIII '07. International Symposium on Computational Intelligence and Intelligent Informatics. - Agadir, 28-30 March 2007. - P. 247-254.

C2246. Shaheen S.E. Mechanisms of Operation and Degradation in Solution-Processable Organic Photovoltaics. 2007. proceedings. 45th annual. ieee international Reliability physics symposium. - Phoenix, AZ, 15-19 April 2007. - P. 248-252.

C2247. Kohoutek M. Image Processing Method Based on Subpixel Analysis for Accurate Measurement of Dimensions. / Kohoutek M., Vrba K. // 2007. ICN '07. Sixth International Conference on Networking. - Martinique, 22-28 April 2007. - P. 70.

C2248. Kim S.S. Self-Assembled Heterogeneous Integrated Fluorescence Detection System. / Kim S.S., Saeedi E., Meldrum D.R., Parviz B.A. // 2007. NEMS '07. 2nd IEEE International Conference on Nano/Micro Engineered and Molecular Systems. - Bangkok, 16-19 Jan. 2007. - P. 927-931.

C2249. Dal-Hwan Yoon. Convergence System for Home Information Control based on the Web and Mobile. / Dal-Hwan Yoon, Dong-Joo Bae, Young-Hyun Ko, Jae-Hoon Shin. // The 9th International Conference on Advanced Communication Technology. - Gangwon-Do, 12-14 Feb. 2007. - Vol. 3. - P. 1868-1871.

C2250. Bielecki J. Thermal Considerations for LED Components in an Automotive Lamp. / Bielecki J., Jwania A.S., El Khatib F., Poorman T. // 2007. SEMI-THERM 2007. Twenty Third Annual IEEE Semiconductor Thermal Measurement and Management Symposium. - San Jose, CA, 18-22 March 2007. - P. 37-43.

C2251. Senthil Kumar Obuliraj. Nitrogen Doped ZnO Nanomaterials for UV-LED Applications. / Senthil Kumar Obuliraj, Yamauchi K., Hanada Y., Miyamoto M., Ohba T., Morito S., Fujita Y. // 2007. NEMS '07. 2nd IEEE International Conference on Nano/Micro Engineered and Molecular Systems. - Bangkok, 16-19 Jan. 2007. - P. 159-162.

C2252. Zhou K. Quasi-Active Power Factor Correction Circuit for HB LED Driver. / Zhou K., Yuvarajan S.,

Zhang J.G., Weng D. // APEC 2007-Twenty Second Annual IEEE Applied Power Electronics Conference. - Anaheim, CA, USA, Feb. 25 2007-March 1 2007. - P. 193-197.

C2253. Carraro Giovanni. Solving high-voltage off-line HB-LED constantcurrent contro-circuit issues. APEC 2007-Twenty Second Annual IEEE Applied Power Electronics Conference. - Anaheim, CA, USA, Feb. 25 2007-March 1 2007. - P. 1316-1318.

C2254. van der Broeck Heinz. Power driver topologies and control schemes for LEDs. / van der Broeck Heinz, Sauerlander Georg, Wendt Matthias. // APEC 2007-Twenty Second Annual IEEE Applied Power Electronics Conference. - Anaheim, CA, USA, Feb. 25 2007-March 1 2007. - P. 1319-1325.

C2255. Doshi Montu. Digital Architecture for Driving Large LED Arrays with Dynamic Bus Voltage Regulation and Phase Shifted PWM. / Doshi Montu, Zane Regan. // APEC 2007-Twenty Second Annual IEEE Applied Power Electronics Conference. - Anaheim, CA, USA, Feb. 25 2007-March 1 2007. - P. 287-293.

C2256. Wong Kent. Energy-Efficient Peak-Current Controlled Power Conversion IC Family Delivers 3 to 28 Watts in Universal-Input Flyback Power Supplies. / Wong Kent, Jovalusky John. // APEC 2007-Twenty Second Annual IEEE Applied Power Electronics Conference. - Anaheim, CA, USA, Feb. 25 2007-March 1 2007. - P. 325-331.

C2257. Dams W. Open Hardware Platform Helps Students Getting Started in Analog and Digital Design. / Dams W., Roggemans M., Pelgrims P., Tierens T., Pauwels D. // 2007. MSE '07. IEEE International Conference on Microelectronic Systems Education. - San Diego, CA, 3-4 June 2007. - P. 133-134.

C2258. Lee C.C. A New Carrier Transport Model for Light Emitting Devices with Quantum Well. 2007. ECTC 07. Proceedings. 57th Electronic Components and Technology Conference. - Reno, NV, May 29 2007-June 1 2007. - P. 1986-1988.

C2259. Morandini Y. Differential P+/Nwell varactor High Frequency Characterization. / Morandini Y., Rapisarda D., Larchanche J.-F., Gaquiere C. // 2007. ICMTS '07. IEEE International Conference on Microelectronic Test Structures. - Tokyo, 19-22 March 2007. - P. 187-191.

C2260. Kuan Chun Chen. High Thermal Dissipation of Ultra High Power Light-Emitting Diodes by Copper Electroplating. / Kuan Chun Chen, Chuang R.W., Su Y.K., Lin C.L., Hsiao Chiu Hsu, Huang J.Q., Yang K.F. // 2007. ECTC 07. Proceedings. 57th Electronic Components and Technology Conference. - Reno, NV, May 29 2007-June 1 2007. - P. 734-736.

C2261. Guang-Feng Wang. Highly Conductive Flexible Transparent Polymeric Anode and its Application in OLEDs. / Guang-Feng Wang, Xiao-Ming Tao, Rong-Xin Wang. // 2007. ECTC 07. Proceedings. 57th Electronic Components and Technology Conference. - Reno, NV, May 29 2007-June 1 2007. - P. 1536-1539.

C2262. Dayong Li. Fault Tolerance Circuit for AM-OLED. / Dayong Li, Ming Liu, Wei Wang. // 2007. ISCAS 2007. IEEE International Symposium on Circuits and Systems. - New Orleans, LA, 27-30 May 2007. - P. 2272-2274.

C2263. Hobson D.M. Characterisation and Identification of Rice Grains through Digital Image Analysis. / Hobson D.M., Carter R.M., Yan Y. // 2007. IMTC 2007. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Warsaw, 1-3 May 2007. - P. 1-5.

C2264. Perez M.A. Optical fiber turbidimeter for full range measurement in wine industrial processes. / Perez M.A., Garcia A., Baro J.A. // 2007. IMTC 2007. IEEE Instrumentation and Measurement Technology Conference Proceedings. - Warsaw, 1-3 May 2007. - P. 1-5.

C2265. Xin-Kai Chen. A Low Power Digital Baseband for Wireless Endoscope Capsule. / Xin-Kai Chen, Guolin Li, Xiang Xie, Xiao Wen Li, Zhihua Wang, Hong Chen. // 2007. ISCAS 2007. IEEE International Symposium on Circuits and Systems. - New Orleans, LA, 27-30 May 2007. - P. 2355-2358.

C2266. Joseph C. High-speed front end for LED-Photodiode based fluorescence lifetime measurement system. / Joseph C., Boukadoum M., Charlson J., Starikov D., Bensaoula A. // 2007. ISCAS 2007. IEEE International Symposium on Circuits and Systems. - New Orleans, LA, 27-30 May 2007. - P. 3578-3581.

C2267. Won Kyu Jeung. Silicon-Based, Multi-Chip LED Package. / Won Kyu Jeung, Sang Hyun Shin, Suk

Youn Hong, Seog Moon Choi, Sung Yi, Young Bok Yoon, Hyun Jun Kim, Sung Jun Lee, Ki Yeol Park. // 2007. ECTC 07. Proceedings. 57th Electronic Components and Technology Conference. - Reno, NV, May 29 2007-June 1 2007. - P. 722-727.

C2268. Ayzenshtat G.I. The Undestroying Quality Monitoring Method for the GaAs Detector Structures. / Ayzenshtat G.I., Lelekov M.A., Tolbanov O.P., Shapoval L.G. // 2007. SIBCON '07. Siberian Conference on Control and Communications. - Tomsk, 20-21 April 2007. - P. 219-222.

C2269. Prudaev L. Subnanosecond Optoelectronic Switch. / Prudaev L., Skakunov M.S., Tolbanov O.P. // 2007. SIBCON '07. Siberian Conference on Control and Communications. - Tomsk, 20-21 April 2007. - P. 228-230.

C2270. Yu F. A New Driving Assistant for Automobiles. / Yu F., Kaminska B., Gburzynski P. // 2007. CCECE 2007. Canadian Conference on Electrical and Computer Engineering. - Vancouver, BC, 22-26 April 2007. - P. 1199-1202.

C2271. Kalygina V.M. Current-Voltage Characteristics of Detector Structures Based on Epitaxial Gallium Arsenide. / Kalygina V.M., Ponomarev I.V., Slunko E.S. // 2007. SIBCON '07. Siberian Conference on Control and Communications. - Tomsk, 20-21 April 2007. - P. 207-210.

C2272. Nadreev I.I. Registration of Short Impulses of X-Ray Radiation Using the Detecting Block Based on GaAs Detectors. / Nadreev I.I., Nam I.F., Rozhnev M.A., Ryabkov S.A., Tolbanov O.P., Tyazhev A.V., Rybka D.V., Tarasenko V.F. // 2007. SIBCON '07. Siberian Conference on Control and Communications. - Tomsk, 20-21 April 2007. - P. 231-233.

C2273. Yong-Sung Park. An 8b Source Driver for 2.0 inch Full-Color Active-Matrix OLEDs Made with LTPS TFTs. / Yong-Sung Park, Do-Youb Kim, Keum-Nam Kim, Matsueda Y., Jong-Hyun Choi, Chul-Kyu Kang, Hye-Dong Kim, Ho Kyoon Chung, Oh-Kyong Kwon. // 2007. ISSCC 2007. Digest of Technical Papers. IEEE International Solid-State Circuits Conference. - San Francisco, CA, 11-15 Feb. 2007. - P. 130-592.

C2274. Chang-Seok Chae. A Single-Inductor Step-Up DC-DC Switching Converter with Bipolar Outputs for Active Matrix OLED Mobile Display Panels. / Chang-Seok Chae, Hanh-Phuc Le, Kwang-Chan Lee, Min-Chul Lee, Gyu-Hyeong Cho, Gyu-Ha Cho. // 2007. ISSCC 2007. Digest of Technical Papers. IEEE International Solid-State Circuits Conference. - San Francisco, CA, 11-15 Feb. 2007. - P. 136-592.

C2275. Akrestina A.S. Spectral Dependence of Absorption Coefficient in Bi12TiO20:Cd Crystal. / Akrestina A.S., Vishnev A.S., Kiselyov R.V., Surtsev A.S., Kljajm V.V., Kisteneva M.G. // 2007. SIBCON '07. Siberian Conference on Control and Communications. - Tomsk, 20-21 April 2007. - P. 243-247.

C2276. Hirashima Hiroyuki. Display Electronics. / Hirashima Hiroyuki, Kwon Oh-Kyong. // 2007. ISSCC 2007. Digest of Technical Papers. IEEE International Solid-State Circuits Conference. - San Francisco, CA, USA, 11-15 Feb. 2007. - P. 128-129.

C2277. Fan Minghao. A Novel Design of Data Driver for Passive Matrix OLED Displays. / Fan Minghao, Chen Zhiliang. // 2007. EDST 2007. Proceeding of 2007 International Workshop on Electron Devices and Semiconductor Technology. - Tsinghua University, 3-4 June 2007. - P. 168-171.

C2278. Tseng S.-Y. Buck-Boost Combined with Active Clamp Flyback Converter for PV Power System. / Tseng S.-Y., Kuo J.-S., Wang S.-W., Hsieh C.-T. // 2007. PESC 2007. IEEE Power Electronics Specialists Conference. - Orlando, FL, 17-21 June 2007. - P. 138-144.

C2279. Shu Wang. Design and Implementation of a High Switching Frequency Digital Controlled SMPS. / Shu Wang, Lembeye Y., Ferrieux J.-P. // 2007. PESC 2007. IEEE Power Electronics Specialists Conference. - Orlando, FL, 17-21 June 2007. - P. 219-223.

C2280. He Shu-guang. Study on the Continuous Quality Improvement Systems of LED Packaging Based on Data Mining. / He Shu-guang, Li Li, Qi Er-shi. // 2007. WiCom 2007. International Conference on Wireless Communications, Networking and Mobile Computing. - Shanghai, 21-25 Sept. 2007. - P. 5625-5628.

C2281. He Shu-guang. Study on the Quality Improvement of Injection Molding in LED Packaging Processes Based on DOE and Data Mining. / He Shu-guang, Li Li, Qi Er-shi. // 2007. WiCom 2007. International Conference on Wireless Communications, Networking and Mobile Computing. - Shanghai, 21-25 Sept. 2007. -

P. 6625-6628.

C2282. Rand D. Issues, Models and Solutions for Triac Modulated Phase Dimming of LED Lamps. / Rand D., Lehman B., Shteynberg A. // 2007. PESC 2007. IEEE Power Electronics Specialists Conference. - Orlando, FL, 17-21 June 2007. - P. 1398-1404.

C2283. Wu T.-F. Sequential Color LED Backlight Driving System for LCD Panels with Area Control. / Wu T.-F., Chen C.-C., Wu C.-Y., Lu P.-C., Chen Y.-R. // 2007. PESC 2007. IEEE Power Electronics Specialists Conference. - Orlando, FL, 17-21 June 2007. - P. 2947-2952.

C2284. Someya T. Ambient electronics with organic transistors. 2007 IEEE Symposium on VLSI Circuits. - Kyoto, 14-16 June 2007. - P. 116-119.

C2285. Bhattacharya A. A Probabilistic Approach of Designing Driving Circuits for Strings of High-Brightness Light Emitting Diodes. / Bhattacharya A., Lehman B., Shteynberg A., Rodriguez H. // 2007. PESC 2007. IEEE Power Electronics Specialists Conference. - Orlando, FL, 17-21 June 2007. - P. 1429-1435.

C2286. Jianmin Zhou. Experimental investigation on the performance characteristics of white LEDs used in illumination application. / Jianmin Zhou, Wei Yan. // 2007. PESC 2007. IEEE Power Electronics Specialists Conference. - Orlando, FL, 17-21 June 2007. - P. 1436-1440.

C2287. Xifeng Liu. Evaluation of Underwater Wireless Optical Communication Link with Pspice Simulator. / Xifeng Liu, Xinsheng Yu, Meihong Sui. // 2007. WiCom 2007. International Conference on Wireless Communications, Networking and Mobile Computing. - Shanghai, 21-25 Sept. 2007. - P. 1004-1007.

C2288. Wong A.K.Y. A low power CMOS front-end for photoplethysmongraphic signal acquisition with robust DC Photocurrent Rejection. / Wong A.K.Y., Kong-Pang Pun, Yuan-Ting Zhang, Ka Nang Leung. // 2007. ISSS-MDBS 2007. 4th IEEE/EMBS International Summer School and Symposium on Medical Devices and Biosensors. - Cambridge, 19-22 Aug. 2007. - P. 53-56.

C2289. Someya T. Printed Organic Transistors for Large-Area Electronics. / Someya T., Sakurai T., Sekitani T., Noguchi Y. // 2007. Polytronic 2007. 6th International Conference on Polymers and Adhesives in Microelectronics and Photonics. - Odaiba, Tokyo, Jan. 16 2007-Yearly 18 2007. - P. 6-11.

C2290. Wenlong Song. Novel Semiconductor Illumination Technique Based on Color Complementation. / Wenlong Song, Wei Wei, Yaqiu Liu. // 2007. ICIEA 2007. 2nd IEEE Conference on Industrial Electronics and Applications. - Harbin, 23-25 May 2007. - P. 2036-2039.

C2291. Chih-Chiang Hua. Design and Implementation of a Digital High-Performance Photovoltaic Lighting System. / Chih-Chiang Hua, Chih-Wei Chuang, Chun-Wei Wu, Deng-Jie Chuang. // 2007. ICIEA 2007. 2nd IEEE Conference on Industrial Electronics and Applications. - Harbin, 23-25 May 2007. - P. 2583-2588.

C2292. Kido J. Recent Progress in Organic Light-Emitting Devices. 2007. Polytronic 2007. 6th International Conference on Polymers and Adhesives in Microelectronics and Photonics. - Odaiba, Tokyo, Jan. 16 2007-Yearly 18 2007. - P. 18-19.

C2293. Endoh H. High Performance Vertical-Type Organic Transistors And Organic Light Emitting Transistors. / Endoh H., Toguchi S., Kudo K. // 2007. Polytronic 2007. 6th International Conference on Polymers and Adhesives in Microelectronics and Photonics. - Odaiba, Tokyo, Jan. 16 2007-Yearly 18 2007. - P. 139-142.

C2294. Fukuda T. Fast Response Blue and Green Organic Light Sources with Different Fluorescence Lifetime Materials for the Wavelength Division Multiplexing Optical Interconnect Application. / Fukuda T., Okada T., Wei B., Ichikawa M., Ohashi M., Taniguch Y. // 2007. Polytronic 2007. 6th International Conference on Polymers and Adhesives in Microelectronics and Photonics. - Odaiba, Tokyo, Jan. 16 2007-Yearly 18 2007. - P. 183-188.

C2295. Suganuma K. Conductive Adhesives: Alternative to High Temperature Solders and The Future. 2007. Polytronic 2007. 6th International Conference on Polymers and Adhesives in Microelectronics and Photonics. - Odaiba, Tokyo, Jan. 16 2007-Yearly 18 2007. - P. 30-35.

C2296. Miyawaki Y. Unique Transparent Resin and Vacuum Printing Encapsulation Systems (VPES) Packaging Method for New White LED. / Miyawaki Y., Dongxu Wang, Tanaka O., Ooyama N., Okuno A. // 2007. Polytronic 2007. 6th International Conference on Polymers and Adhesives in Microelectronics and Photonics. -

Odaiba, Tokyo, Jan. 16 2007-Yearly 18 2007. - P. 81-86.

C2297. Landstorfer J. SocialButton-Mobile Technology Enhancing Social Interaction. / Landstorfer J., Pschetz L., Kloes M., Wettach R. // 2007. NGMAST '07. The 2007 International Conference on Next Generation Mobile Applications, Services and Technologies. - Cardiff, 12-14 Sept. 2007. - P. 14-18.

C2298. Hsi Chang. Novel AC Driver and Protection Circuits with Dimming Control for Light Emitting Diodes. / Hsi Chang, Yen-Shin Lai. // 2007. 42nd IAS Annual Meeting. Conference Record of the 2007 IEEE Industry Applications Conference. - New Orleans, LA, 23-27 Sept. 2007. - P. 696-700.

C2299. Voss S. New IGBT Concepts for Consumer Power Applications. / Voss S., Hellmund O., Frank W. // 2007. 42nd IAS Annual Meeting. Conference Record of the 2007 IEEE Industry Applications Conference. - New Orleans, LA, 23-27 Sept. 2007. - P. 1038-1043.

C2300. Chul Huh. Recent Advances in Si Nanocrystal LEDs by Employing Transparent SiCN Electron Injection Layer. / Chul Huh, Jae-Heon Shin, Kyung-Hyun Kim, Jongcheol Hong, Gun Yong Sung. // 2007 4th IEEE International Conference on Group IV Photonics. - Tokyo, 19-21 Sept. 2007. - P. 1-3.

C2301. Iwamoto S. Resonant photoluminescence from crystalline Si with photonic crystal nanocavity structures. / Iwamoto S., Gomyo A., Arakavva Y. // 2007 4th IEEE International Conference on Group IV Photonics. - Tokyo, 19-21 Sept. 2007. - P. 1-3.

C2302. Calleja A.J. Evaluation of Power LEDs Drivers with Supercapacitors and Digital Control. / Calleja A.J., Torres A., Garcia J., Secades M.R., Ribas J., Martinez J.A. // 2007. 42nd IAS Annual Meeting. Conference Record of the 2007 IEEE Industry Applications Conference. - New Orleans, LA, 23-27 Sept. 2007. - P. 1129-1134.

C2303. Jacobs J. Drivers for OLEDs. / Jacobs J., Hente D., Waffenschmidt E. // 2007. 42nd IAS Annual Meeting. Conference Record of the 2007 IEEE Industry Applications Conference. - New Orleans, LA, 23-27 Sept. 2007. - P. 1147-1152.

C2304. Sammarco J.J. Visual Performance for Incandescent and Solid-State Cap Lamps in an Underground Mining Environment. / Sammarco J.J., Lutz T. // 2007. 42nd IAS Annual Meeting. Conference Record of the 2007 IEEE Industry Applications Conference. - New Orleans, LA, 23-27 Sept. 2007. - P. 2090-2095.

C2305. Schmid M. Evaluation on the Efficiency of Power LEDs Driven with Currents Typical to Switch Mode Power Supplies. / Schmid M., Kuebrich D., Weiland M., Duerbaum T. // 2007. 42nd IAS Annual Meeting. Conference Record of the 2007 IEEE Industry Applications Conference. - New Orleans, LA, 23-27 Sept. 2007. - P. 1135-1140.

C2306. Oliveira A.A.M. Distributed Emergency Lighting System LEDs Driven by Two Integrated Flyback Converters. / Oliveira A.A.M., Marchesan T.B., Prado R.N., Campos A. // 2007. 42nd IAS Annual Meeting. Conference Record of the 2007 IEEE Industry Applications Conference. - New Orleans, LA, 23-27 Sept. 2007. - P. 1141-1146.

C2307. Murase S. Luminescence characterization and room-temperature 1.6 μm electroluminescence in si/β-fesi2 /si double heterostructures on si(001) by molecular beam epitaxy. / Murase S., Ugajin Y., Suzuno M., Suemasu T. // 2007 4th IEEE International Conference on Group IV Photonics. - Tokyo, 19-21 Sept. 2007. - P. 1-3.

C2308. Young June Hong. Influence of insulator length on the electron temperature in the coaxial electrode of Plasma focus device. / Young June Hong, Min Wug Moon, Ki Baek Song, Phil Yong Oh, Byoung Hee Hong, Hee Myung Shin, Eun Ha Choi, Won Ju Yi. // 2007. ICOPS 2007. IEEE 34th International Conference on Plasma Science. - Albuquerque, NM, 17-22 June 2007. - P. 974.

C2309. Masaki H. Automatic Parking Benchmark Problem: Experimental Comparison of Nonholonomic Control Methods. / Masaki H., Liu Kangzhi. // 2007. CCC 2007. Chinese Control Conference. - Hunan, July 26 2007-June 31 2007. - P. 608-612.

C2310. Khadijah S. Investigating Intensities of Very High Voltage Rise dv/dt Pulsed Power Source in Atmospheric Microplasma. / Khadijah S., Akitsu T., Otagawa T., Yamazaki S., Sakurai T. // 2007. ICOPS 2007. IEEE 34th International Conference on Plasma Science. - Albuquerque, NM, 17-22 June 2007. - P. 215.

C2311. Chung M. UV LED Triggered Spark Gap. 2007. ICOPS 2007. IEEE 34th International Conference on Plasma Science. - Albuquerque, NM, 17-22 June 2007. - P. 344.

C2312. Li Mingwei. On Precise Photoelectric Measurement Device for Dimension. / Li Mingwei, Yang Guangwei. // 2007. CCC 2007. Chinese Control Conference. - Hunan, July 26 2007-June 31 2007. - P. 435-437.

C2313. Sabnis V.A. Towards a monolithically-integrated electrically-pumped Si light emitter technology using epitaxial erbium oxide. / Sabnis V.A., Yuen H.B., Jamora A., Semans S., Atanackovic P., Weldon J. // 2007 4th IEEE International Conference on Group IV Photonics. - Tokyo, 19-21 Sept. 2007. - P. 1-3.

C2314. Pi X. Full Spectrum Emission and Hybrid OLEDs from Silicon Nanoparticles. / Pi X., Liptak R., Ligman R., Kortshagen U., Campbell S.A. // 2007 4th IEEE International Conference on Group IV Photonics. - Tokyo, 19-21 Sept. 2007. - P. 1-3.

C2315. Hippo D. Optical Properties of Silicon Three-Dimensional Photonic Crystal Fabricated by Self-Aligned Two-Directional Electrochemical Etching Method. / Hippo D., Tsudiiya Y., Mizuta H., Urakawa K., Koshida N., Oda S. // 2007 4th IEEE International Conference on Group IV Photonics. - Tokyo, 19-21 Sept. 2007. - P. 1-3.

C2316. Anopchenko A. Charge Transport and Electroluminescence in PECVD Grown Silicon-Nanocrystals-Based LEDs. / Anopchenko A., Prezioso S., Gaburro Z., Ferraioli L., Pucker G., Bellutti P., Pavesi L. // 2007 4th IEEE International Conference on Group IV Photonics. - Tokyo, 19-21 Sept. 2007. - P. 1-3.

C2317. Dabi Wei. Novel sensor and algorithm for motion tracking in indoor and outdoor environments. / Dabi Wei, Masurel P., Ando S. // 2007. INSS '07. Fourth International Conference on Networked Sensing Systems. - Braunschweig, 6-8 June 2007. - P. 102-105.

C2318. Lysak V.V. Highly efficient resonant-cavity light-emitting diodes for compact color projectors. / Lysak V.V., Lee Y.-T. // 2007. OPT '07. International Workshop on Optoelectronic Physics and Technology. - Kharkov, 20-22 June 2007. - P. 3-4.

C2319. Muhan Choi. Two Mode Interactions in Quasi-Stadium Laser Diodes. / Muhan Choi, Fukushima T., Harayama T. // 2007. ICTON '07. 9th International Conference on Transparent Optical Networks. - Rome, 1-5 July 2007. - Vol. 4. - P. 166-169.

C2320. Shi Zhao. Extracting Hand Vein Patterns from Low-Quality Images: A New Biometric Technique Using Low-Cost Devices. / Shi Zhao, Yiding Wang, Yunhong Wang. // 2007. ICIG 2007. Fourth International Conference on Image and Graphics. - Sichuan, 22-24 Aug. 2007. - P. 667-671.

C2321. Babalik A. Recognition of Sun-pest Infected Wheat Kernels Using Artificial Neural Networks. / Babalik A., Baykan O.K., Botsali F.M. // 2007. SIU 2007. IEEE 15th Signal Processing and Communications Applications. - Eskisehir, 11-13 June 2007. - P. 1-4.

C2322. Aljasem K. Pneumatically-Actuated Tunable Microlens for Endoscopic Optical Coherence Tomography. / Aljasem K., Werber A., Reichelt S., Mader D., Zappe H. // 2007. TRANSDUCERS 2007. International Solid-State Sensors, Actuators and Microsystems Conference. - Lyon, 10-14 June 2007. - P. 2557-2560.

C2323. Weisbuch C. High efficiency LEDs by Microcavity and Photonic Crystal Extraction. 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 4-5.

C2324. Hyouk Kwon. Microlens Array Film with Full Fill Factor for Enhancing Outcoupling Efficiency from OLED Lighting. / Hyouk Kwon, Youngjoo Yee, Chi-Hwan Jeong, Hyo-Jin Nam, Ki-Won Park, Gun-Woo Lee, Jong-Uk Bu. // 2007. TRANSDUCERS 2007. International Solid-State Sensors, Actuators and Microsystems Conference. - Lyon, 10-14 June 2007. - P. 1091-1094.

C2325. Laukhina E. High Piezoresistive Organic Film for Plastic Pressure Sensors. / Laukhina E., Laukhin V., Mas-Torrent M., Creely C.M., Petrov D.V., Veciana J., Rovira C. // 2007. TRANSDUCERS 2007. International Solid-State Sensors, Actuators and Microsystems Conference. - Lyon, 10-14 June 2007. - P. 2247-2249.

C2326. Kotake H. BER Characteristic of Ground-to-Train Communication System Using Free-Space Optics Technology. / Kotake H., Haruyama S., Nakagawa M., Seki K. // 2007. ICTON '07. 9th International Conference

on Transparent Optical Networks. - Rome, 1-5 July 2007. - Vol. 3. - P. 165-169.

C2327. Lewis T J. A Model for Nano-composite Polymer Dielectrics under Electrical Stress. 2007. ICSD '07. IEEE International Conference on Solid Dielectrics. - Winchester, UK, 8-13 July 2007. - P. 11-14.

C2328. Hopkins A.B.T. Ensuring data integrity via ICmetrics based security infrastructure. / Hopkins A.B.T., McDonald-Maier K.D., Papoutsis E., Howells W.G.J. // 2007. AHS 2007. Second NASA/ESA Conference on Adaptive Hardware and Systems. - Edinburgh, 5-8 Aug. 2007. - P. 75-81.

C2329. Iwasaki S. Basic Experiments on Paralle Wireless Optical Communication for ITS. / Iwasaki S., Wada M., Endo T., Fujii T., Tanimoto M. // 2007 IEEE Intelligent Vehicles Symposium. - Istanbul, 13-15 June 2007. - P. 321-326.

C2330. Hara T. A New Receiving System of Visible Light Communication for ITS. / Hara T., Iwasaki S., Yendo T., Fujii T., Tanimoto M. // 2007 IEEE Intelligent Vehicles Symposium. - Istanbul, 13-15 June 2007. - P. 474-479.

C2331. Guomundsson S.A. Environmental Effects on Measurement Uncertainties of Time-of-Flight Cameras. / Guomundsson S.A., Aanaes H., Larsen R. // 2007. ISSCS 2007. International Symposium on Signals, Circuits and Systems. - Iasi, 13-14 July 2007. - Vol. 1. - P. 1-4.

C2332. Penna S. Novel Infrared Emitter for Low Cost Optical Devices. / Penna S., Reale A., Pizzoferrato R., Musella D., Beleffi G.M.T., Gillin W.P. // 2007. ICTON '07. 9th International Conference on Transparent Optical Networks. - Rome, 1-5 July 2007. - Vol. 1. - P. 208-211.

C2333. Kononenko V.K. Nonlinear Gain and Related Effects in Quantum-Well Heterostructures. 2007. ICTON '07. 9th International Conference on Transparent Optical Networks. - Rome, 1-5 July 2007. - Vol. 2. - P. 257-259.

C2334. Pavlov A.N. Wireless System Of Loading Of The Advertising Information In Light-emitting Diode Panels in Trais. / Pavlov A.N., Skuratov A.U., Kolpakov V.V., Povernov E.S., Sypin E.V. // 2007. EDM 07. 8th Siberian Russian Workshop and Tutorial on Electron Devices and Materials. - Erlagol, Altai, June 1 2007-July 5 2007. - P. 217-219.

C2335. Ronghuai Qi. A New Vehicle Intelligent Navigation Alarm System Based on SB5227 Microprocessor. / Ronghuai Qi, Guichi Hu, Kai Jiang, Tao Mei. // 2007. ICIA '07. International Conference on Information Acquisition. - Seogwipo-si, 8-11 July 2007. - P. 408-414.

C2336. Yi Luo. Key technologies for solid state lighting. / Yi Luo, Yanjun Han, Keyuan Qian. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 42-43.

C2337. Chenglong Wang. Soft imprint lithography for pixel array manufacturing in OLED. / Chenglong Wang, Duowang Fan, Hongzhong Liu. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 288-289.

C2338. Youzhi Wu. Influence of Copper Phthalocyanine on the Performance of Distyrylarylene Blue Organic Light Emitting Diode. / Youzhi Wu, Xijing Wang, Shengyong Chai, Dingjun Zhang. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 294-295.

C2339. Changbo Zhou. Thermal management of a passively cooled LED-based large area direct backlight for LCDs. / Changbo Zhou, Keyuan Qian, Yi Luo. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 252-253.

C2340. Shuo Sun. A novel white OLED with a doping of rubrene into ZnL. / Shuo Sun, Ke-xu Tu, You-yu Wu, Fu-jia Zhang. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 284-285.

C2341. Yuling Zhao. Luminescent properties of a ternary gallium complex with a noncyclic crown Schiff base and 8-hydroxyquinoline. / Yuling Zhao, Tianzhi Yu, Peng Zhang, Duowang Fan. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 302-303.

C2342. Kelly D. Classification of Human Poses using a Vision based Technique. / Kelly D., Olivo P., Markham C., McDonald J., Caulfield B., Fitzgerald D. // 2007. IMVIP 2007. International Machine Vision and Image

Processing Conference. - Kildare, 5-7 Sept. 2007. - P. 209.

C2343. Lupu V. Real Case Study of a Neuro-Fuzzy Intelligent Car. / Lupu V., Lupu C. // 2007. SOFA 2007. 2nd International Workshop on Soft Computing Applications. - Oradea, 21-23 Aug. 2007. - P. 109-116.

C2344. Peng Zhang. Crystal Structure, UV-vis Absorption and Fluorescent Properties of a Novel Coumarin Derivative. / Peng Zhang, Tianzhi Yu, Yuling Zhao, Duowang Fan. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 306-307.

C2345. Jangwoon Kim. HCI(Human Computer Interaction) Using Multi-touch Tabletop Display. / Jangwoon Kim, Jaewan Park, HyungKwan Kim, Chilwoo Lee. // 2007. PacRim 2007. IEEE Pacific Rim Conference on Communications, Computers and Signal Processing. - Victoria, BC, 22-24 Aug. 2007. - P. 391-394.

C2346. Wei Zhao. Study of temperature-dependent electroluminescence in the high-power blue InGaN/GaN multiple quantum wells light-emitting diodes. / Wei Zhao, Xiang Fei, Jun Ma, Yi Luo. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 238-239.

C2347. Lai Wang. Effect of Mg-doping adjacent to active region on the efficiency of InGaN blue MQW LED. / Lai Wang, Yi Luo, Jiaxing Wang, Hongtao Li, Guangyi Xi, Yang Jiang, Changzheng Sun, Yanjun Han. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 130-131.

C2348. Chih-Feng Lu. Phosphor-free White-light Light-emitting Diodes Based on Prestrained InGaN/GaN Quantum Wells. / Chih-Feng Lu, Chi-Feng Huang, Dong-Ming Yeh, Yung-Sheng Chen, Wen-Yu Shiao, Yang C.C. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 154-155.

C2349. Yang C.C. Combination of Nitride Semiconductor Nanostructures and Nano-photonics for Efficient Solid-state Lighting. / Yang C.C., Chi-Feng Huang, Cheng-Yen Chen, Dong-Ming Yeh, Tsung-Yi Tang, Yen-Cheng Lu, Chin-Feng Lu, Yung-Sheng Chen, Wen-Yu Shiao, Kun-Ching Shen, Jeng-Jie Huang. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 68-69.

C2350. Yanjun Han. The Effect of p-InGaN layer on ITO based ohmic contacts to p-GaN. / Yanjun Han, Zhongtao Liu, Yi Luo, Hongxia Ma, Xianpeng zhang, Lai Wang. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 90-91.

C2351. Yen-Cheng Lu. Surface Plasmon Coupling with an InGaN/GaN Quantum Well for Enhancing Light Emission Efficiency. / Yen-Cheng Lu, Cheng-Yen Chen, Dong-Ming Yeh, Kun-Ching Shen, Chi-Feng Huang, Yang C.C. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 164-165.

C2352. Hongxia Ma. ITO/AIN/Al Ohmic contact for p-GaN with high reliability and optical reflectivity. / Hongxia Ma, Yanjun Han, Yi Luo. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 224-225.

C2353. Fan Ren. Time-resolved Photoluminescence Characterization of InGaN/GaN Quantum Wells. / Fan Ren, Changzheng Sun, Yanjun Han, Zhibiao Hao, Yi Luo. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 234-235.

C2354. Wei Wei. High-efficiency AlGaInP LED with low thermal resistance fabricated by electroplating. / Wei Wei, Yan-Jun Han, Yi Luo. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 184-185.

C2355. Xian-Peng Zhang. The design and fabrication of nanostructure on p-type GaN surface for GaN-based LEDs with high light extraction efficiency. / Xian-Peng Zhang, Yan-Jun Han, Yi Luo, Xiao-Lin Xue, Jin Huang. // 2007. i-NOW '07. International Nano-Optoelectronics Workshop. - Beijing, July 29 2007-Aug. 11 2007. - P. 194-195.

C2356. Ji-Hyuck Yang. Actuator and sensor modeling for magnetic levitation system. / Ji-Hyuck Yang, Tae-Shin Kim, Su-Yong Shim, Young-Sam Lee, Oh-Kyu Kwon. // 2007. ICCAS '07. International Conference on Control, Automation and Systems. - Seoul, 17-20 Oct. 2007. - P. 917-922.

C2357. Hongbo Yu. Multiple Wavelength Emission From Semipolar InGaN/GaN Quantum Wells Selectively

Grown by MOCVD. / Hongbo Yu, Taeil Jung, Lee L.K., Ku P.C. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2358. Liao M.P. Carrier Concentration and Junction Temperature Dependencies of Illumination Efficiency of GaN Power Light-Emitting Diodes. 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2359. Do-Hyun Kim. An All-Fiber-Optic Confocal Interference Microscope Using Low-Coherence Near-Infrared Light Source. / Do-Hyun Kim, Waynant R.W., Ilev I.K., Kang J.U. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2360. Chang-Chi Pan. Emission Intensity Improvement of InGaN Ultraviolet Light-Emitting Diodes Grown on Wet-Etched Sapphire Substrates. / Chang-Chi Pan, Chi-Hsun Hsieh, Jen-Inn Chyi. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2361. Guilhabert B. Patterning and integration of polyfluorene polymers on micropixellated UV AlInGaN light emitting diodes. / Guilhabert B., Gong Z., Belton C., Mackintosh A., Gu E., Stavrinou P., Bradley D.D.C., Pethrick R.A., Dawson M.D. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2362. Boucherif A. Mid-infrared optical upconversion by integrating an InAsSb photodetector with a GaAs light emitting diode. / Boucherif A., Dayan Ban, Hui Luo, Dupont E., Liu H.C., Wasilewski Z.R., Paltiel Y. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2363. Jiming Bao. Efficient point defect engineered si light-emitting diode at 1.218 μm. / Jiming Bao, Tabbal M., Taegon Kim, Charnvanichborikarn S., Williams J.S., Aziz M.J., Capasso F. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2364. Hea-Jeong Cheong. Light emission from size reduced nanocrystal silicon quantum dots. / Hea-Jeong Cheong, Tanaka A., Hippo D., Usami K., Tsuchiya Y., Mizuta H., Oda S. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2365. Yik-Khoon Ee. Enhancement of Light Extraction Efficiency of InGaN Quantum Wells LEDs Using SiO2 Microspheres. / Yik-Khoon Ee, Kumnorkaew P., Arif R.A., Gilchrist J.F., Tansu N. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2366. Lee Y.J. High Light-Extraction GaN-based Vertical LEDs With Double Diffuse Surfaces. / Lee Y.J., Kuo H.C., Lu T.C., Wang S.C. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2367. Jong Kyu Kim. Enhancement of Light Extraction in GaInN Light-Emitting Diodes with Graded-Index Indium Tin Oxide Layer. / Jong Kyu Kim, Schubert M.F., Xi J.-Q., Mont F., Schubert E.F. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2368. Fischer A.J. Enhanced light-extraction from InGaN quantum wells using refractive-index-matched TiO2. / Fischer A.J., Mont F., Jong Kyu Kim, Fred Schubert E., Koleske D.D., Crawford M.H. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2369. Hyunjin Kim. Gallium Nitride LEDs Incorporating Organic Semiconductor Heterojunctions. / Hyunjin Kim, Cuong Dang, Yoon-Kyu Song, Qiang Zhang, Davitt K., Nurmikko A.V., Kwon S.-Y., Kim K.-K., Jung Han. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2370. Sharikova A.V. Continuous Long-Term Observations of UV Laser- and LED-Induced Fluorescence of Processed Drinking Water. / Sharikova A.V., Killinger D.K. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2371. Nakagawa M. CLEO 07 Invited Paper Visible Light Communications. 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2372. Pan J.L. High-Efficiency Light Emitters using Gallium-Arsenide Deep-Centers for Long-Distance Fiber-Optics. 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2373. Yu S.-Q. Light Emitting Diodes with Extremely High Extraction-Efficiency for Electroluminescence Refrigeration. / Yu S.-Q., Rider N., Ding D., Wang J.-B., Johnson S.R., Zhang Y.-H. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2374. Xiaohui Qu. Color Control System for RGB LED Light Sources Using Junction Temperature Measurement. / Xiaohui Qu, Siu Chung Wong, Tse C.K. // 2007. IECON 2007. 33rd Annual Conference of the IEEE Industrial Electronics Society. - Taipei, 5-8 Nov. 2007. - P. 1363-1368.

C2375. D'hulst R. Energy Scavengers: Modeling and Behavior with Different Load Circuits. / D'hulst R., Sterken T., Fiorini P., Puers R., Driesen J. // 2007. IECON 2007. 33rd Annual Conference of the IEEE Industrial Electronics Society. - Taipei, 5-8 Nov. 2007. - P. 2169-2174.

C2376. Khatri O.P. Spatially Controlled Functionalization and Chemical Manipulation to Fabricate 2D Arrays of Gold Nanoparticles onto ITO. / Khatri O.P., Murase K., Sugimura H. // 2007 Digest of papers Microprocesses and Nanotechnology. - Kyoto, 5-8 Nov. 2007. - P. 532-533.

C2377. Siegal B. Practical Considerations in High Power LED Junction Temperature Measurements. 31st International Conference on Electronics Manufacturing and Technology. - Petaling Jaya, 8-10 Nov. 2007. - P. 62-66.

C2378. Nelson N. A Handheld Fluorometer for UV Excitable Fluorescence Assays. / Nelson N., Prakash S., Sander D., Dandin M., Sarje A., Honghao Ji, Abshire P. // 2007. BIOCAS 2007. IEEE Biomedical Circuits and Systems Conference. - Montreal, Que., 27-30 Nov. 2007. - P. 111-114.

C2379. Nathan S. The future of high-power conventional semiconductor based Light Emitting Diodes (LEDS) against Organic Light Emitting Diodes (OLEDS). / Nathan S., Shammas N., Grainger S. // 2007. UPEC 2007. 42nd International Universities Power Engineering Conference. - Brighton, 4-6 Sept. 2007. - P. 697-700.

C2380. Chau S.W. Study on the Cooling Enhancement of LED Heat Sources via an Electrohydrodynamic Approach. / Chau S.W., Lin C.H., Yeh C.H., Yang C. // 2007. IECON 2007. 33rd Annual Conference of the IEEE Industrial Electronics Society. - Taipei, 5-8 Nov. 2007. - P. 2934-2937.

C2381. Chenier F. A New Brain Imaging Device Based on fNIRS. / Chenier F., Sawan M. // 2007. BIOCAS 2007. IEEE Biomedical Circuits and Systems Conference. - Montreal, Que., 27-30 Nov. 2007. - P. 1-4.

C2382. Wetzel C. Development of High Efficiency Green and Deep Green Light Emitters in Piezoelectric Group-III Nitrides. 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1.

C2383. Jung Hoon Ham. Memory effects of nonvolatile polymer memory devices with an active layer consisting of poly(N-vinylcarbazole) and C60 nanocomposites. / Jung Hoon Ham, Jae Hun Jung, Hyuk Joo Kim, Dea Uk Lee, Tae Whan Kima. // 2007 Digest of papers Microprocesses and Nanotechnology. - Kyoto, 5-8 Nov. 2007. - P. 128-129.

C2384. Mai T.A. High precision and high speed cutting of 4th generation OLED masks with LaserMicroJetГ,B®. / Mai T.A., Richerzhagen B. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1.

C2385. Yang C.C. Can we fabricate efficient white-light InGaN/GaN quantum-well light-emitting diode without using phosphors?. / Yang C.C., Chi-Feng Huang, Dong-Ming Yeh, Cheng-Yen Chen, Chih-Feng Lu, Tsung-Yi Tang, Jeng-Jie Huang, Yen-Cheng Lu, Yung-Shen Chen, Wen-Yu Shiao, Kun-Ching Shen, Yun-Li Li, Huang J.J. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1.

C2386. Reboud V. Nanoimprinted photonic component for light extraction applications. / Reboud V., Kehagias N., Zelsmann M., Striccoli M., Tamborra M., Curri M.L., Agostiano A., Reuther F., Gruetzner G., Alducin J.A., Mecerreyes D., Torres C.M.S. // 2007 Digest of papers Microprocesses and Nanotechnology. - Kyoto, 5-8 Nov. 2007. - P. 412-413.

C2387. Makela T. Continuous 2-Sided Roll to Roll Nanopatterning of a Polymer Film. / Makela T., Lambertini V., Haatainen T., Majander P., Ahopelto J. // 2007 Digest of papers Microprocesses and Nanotechnology. - Kyoto, 5-8 Nov. 2007. - P. 426-427.

C2388. Tae Hee Lee. Electrical Characterization of Nano-Floating Gate Capacitor with Silicon Carbide Nano-Particles. / Tae Hee Lee, Dong Uk Lee, Seon Pil Kim, Eun Kyu Kim. // 2007 Digest of papers Microprocesses and Nanotechnology. - Kyoto, 5-8 Nov. 2007. - P. 132-133.

C2389. Kyeong-Jae Byeon. Fabrication of photonic crystal-patterned light emitting diodes using nanoimprint lithography. / Kyeong-Jae Byeon, Seon-Yong Hwang, Heon Lee. // 2007 Digest of papers Microprocesses and Nanotechnology. - Kyoto, 5-8 Nov. 2007. - P. 316-317.

C2390. Huang J.S. Analytical Study of DC Characteristics of p-Si/ΓґВµ-FeSi2 /n-Si Double-Heterostructure Light-Emitting Diode. / Huang J.S., Lee K.W., Wang C.B., Huang Y.S., Shiu S.F., Liu Y.J. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 701-704.

C2391. Huang J.S. Calculation of Bimolecular Recombination Coefficient and Internal Quantum Efficiency of ΓґВµ-FeSi2 DH LED. / Huang J.S., Huang Y.S., Song T.W., Lee K.W., Tsai W.C., Chang H.J. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 705-708.

C2392. Yong-Sheng Ding. Structure and Luminescent Properties of SrSi2 N2 O2 Co-Doped Yb2+ and Nd3+ Phosphor by Hydrothermal Synthesis Process. / Yong-Sheng Ding, Ching-Wu Wang, Chun-Han Lin, Ji-Syuag Huang, Chin-Wei Lai, Chih-Liang Chen. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 689-692.

C2393. Ji-Syuag Huang. A study of luminescent and structure properties of α-SiAlON: Yb2+ phosphors prepared by hydrothermal synthesis process. / Ji-Syuag Huang, Ching-Wu Wang, Chun-Han Lin, Chin-Wei Lai, Yong-Sheng Ding, Chih-Liang Chen. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 693-696.

C2394. Viswacheda D.V. Investigations of the Use of PosEye for Position Measurements. / Viswacheda D.V., Surireddy P., Arifianto M.S., Hamid M.Y., Husni E.M., Barukang L. // 2007. SCOReD 2007. 5th Student Conference on Research and Development. - Selangor, Malaysia, 12-11 Dec. 2007. - P. 1-6.

C2395. Ghazali A.H. Control System Development for Goniophotometer. / Ghazali A.H., Rahim N.H.M., Harmin Y.S., Jalal T.S., Sim See Lip. // 2007. SCOReD 2007. 5th Student Conference on Research and Development. - Selangor, Malaysia, 12-11 Dec. 2007. - P. 1-4.

C2396. Chiou Y.Z. Investigation of Electrode Pattern Design for Nitride-based Light Emitting Diodes. / Chiou Y.Z., Lin S.Y. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 713-716.

C2397. Wang F.H. New Current Programmed Pixel Circuit for Active-Matrix Organic Light-Emitting-Diode Displays. / Wang F.H., Lin H.C., Shin P.S., Lin L.Y., Liu H.W. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 1151-1154.

C2398. Su Y.K. Ultra High Power Light-Emitting Diodes with Electroplating Technology. / Su Y.K., Chen K.C., Lin C.L. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 19-22.

C2399. Zhi-Wen Wang. The Fabrication and Characterization of InGaAs Oxide-Confined Resonant-Cavity Light-Emitting Diodes Grown on GaAs Substrate. / Zhi-Wen Wang, Yan-Kuin Su, Chun-Yuan Huang, Wei-Cheng Chen, Hsin-Chieh Yu. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 217-220.

C2400. Hardy K.R. High Brightness Light Emitting Diodes for Ocean Applications. / Hardy K.R., Olsson M.S., Sanderson J.R., Steeves K.A., Lakin B.P., Simmons J.E., Weber P.A. // OCEANS 2007. - Vancouver, BC, Sept. 29 2007-Oct. 4 2007. - P. 1-4.

C2401. Jones W.H. NUROV: The Network-controlled Underwater Remote Observation Vehicle. / Jones W.H., Rognstad M.R. // OCEANS 2007. - Vancouver, BC, Sept. 29 2007-Oct. 4 2007. - P. 1-5.

C2402. Chang W.K. High luminance bluish-green organic light-emitting diode based on Coumarin 6 doped into a blue emission layer. / Chang W.K., Yang S.H., Hong B.C., Huang X.B. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 669-672.

C2403. Chun-Han Lin. An investigation of luminescent and structure properties of Ca-α-SiAlON doped Eu2+ phosphors fabricated by hydrothermal synthesis process. / Chun-Han Lin, Ching-Wu Wang, Chin-Wei Lai, Yong-Sheng Ding, Ji-Syuag Huang, Chin-Liang Chen. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 681-684.

C2404. Chih-Lung Lin. A Novel Top Emission Pixel Circuit Compensating for TFT Threshold Voltage Variation and Luminance Degradation of OLED. / Chih-Lung Lin, Kuo-Chao Liao. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 385-388.

C2405. Liu Y.-T. The Thermal Accumulated Improvement of a-Si:H Flexible Electronics for AMOLED Application. / Liu Y.-T., Chang S.T., Syu R.-S., Shen K.-W., Lee M.H. // 2007. EDSSC 2007. IEEE Conference on Electron Devices and Solid-State Circuits. - Tainan, 20-22 Dec. 2007. - P. 523-526.

C2406. Mori T. Estimate of carrier balance and exciton distribution in organic light-emitting diode. / Mori T., Masumoto Y. // 2007. CEIDP 2007. Annual Report-Conference on Electrical Insulation and Dielectric Phenomena. - Vancouver, BC, 14-17 Oct. 2007. - P. 461-464.

C2407. Wood V. Efficient All-Inorganic Colloidal Quantum Dot LEDs. / Wood V., Caruge J.M., Halpert J.E., Bawendi M.G., Bulovic V. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2408. Fang-I Lai. InGaN/GaN MQW Nanorods LED Fabricated by ICP-RIE and PEC Oxidation Processes. / Fang-I Lai, Huang H.W., Ching-Hua Chiu, Lai C.F., Lu T.C., Kuo H.C., Wang S.C. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2409. Chih-Chiang Kao. The Characteristics of a High-Q GaN Micro-cavity Light Emitting Diodes. / Chih-Chiang Kao, Tien-Chang Lu, Tsung-Ting Kao, Li-Fan Lin, Hao-Chung Kuo, Shing-Chung Wang. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2410. Arif R.A. Enhancement of Radiative Efficiency of Nitride-Based LEDs via Staggered InGaN Quantum Wells Emitting at 420-500 nm. / Arif R.A., Yik-Khoon Ee, Tansu N. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2411. Dayan Ban. Inorganic/Organic Hybrid Optical Upconversion Device. / Dayan Ban, Han S., Zhenghong Lu, SpringThorpe A.J., Liu H.C. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2412. Huffaker D.L. Monolithically Integrated III-Sb Superluminescent Light Emitting Diodes on Si (100) Substrates. / Huffaker D.L., Balakrishnan G., Mehta M., Kutty M.N., Rotella P., Krishna S., Dawson L.R. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2413. Adamovich V.I. Recent progress in phosphorescent white organic light-emitting devices for displays and lighting. / Adamovich V.I., D'Andrade B.W., Weaver M.S., Brown J.J. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2414. Huyal I.O. White Light Generation with Azide Functionalized Polyfluorene Hybridized on Near-UV Light Emitting Diode. / Huyal I.O., Ozel T., Nizamoglu S., Koldemir U., Donus Tuncel, Demir H.V. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2415. Zahner T. Thermal management and thermal resistance of high power LEDs. 2007. THERMINIC 2007. 13th International Workshop on Thermal Investigation of ICs and Systems. - Budapest, 17-19 Sept. 2007. - P. 195.

C2416. Johnson S.L. Fabrication of a Multilayer Polymer Light-Emitting Diode by Resonant Infrared Laser Ablation. / Johnson S.L., Bowie C.T., Ivanov B., Park H.K., Haglund R.F. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2417. Szabo P. Short time die attach characterization of semiconductor devices. / Szabo P., Rencz M. // 2007. THERMINIC 2007. 13th International Workshop on Thermal Investigation of ICs and Systems. - Budapest, 17-19 Sept. 2007. - P. 12-17.

C2418. Jianzheng Hu. Thermal and mechanical analysis of high-power light-emitting diodes with ceramic

packages. / Jianzheng Hu, Lianqiao Yang, Moo Whan Shin. // 2007. THERMINIC 2007. 13th International Workshop on Thermal Investigation of ICs and Systems. - Budapest, 17-19 Sept. 2007. - P. 77-81.

C2419. Griffin C. Micro-pixellated flip-chip InGaN and AlInGaN light-emitting diodes. / Griffin C., Zhang H.X., Guilhabert B., Massoubre D., Gu E., Dawson M.D. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2420. Reed M.L. HVPE-grown n-InGaN/p-GaN Single Heterostructure LED With p-side Down. / Reed M.L., Readinger E.D., Sampath A.V., Garrett G.A., Shen H., Wraback M., Syrkin A., Usikov A., Dmitriev V.A. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2421. Yik-Khoon Ee. MOCVD Epitaxy and Optical Properties of Self-Assembled InGaN Quantum Dots via Stranski-Kastranow Growth Mode Emitting at 520-nm. / Yik-Khoon Ee, Arif R.A., Jamil M., Tansu N. // 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2422. Craford M.G. Visible LEDs: Past, Present, and Future. 2007. CLEO 2007. Conference on Lasers and Electro-Optics. - Baltimore, MD, 6-11 May 2007. - P. 1-2.

C2423. Webel S. Identifying differences between CAD and physical mock-ups using AR. / Webel S., Becker M., Strieker D., Wuest H. // 2007. ISMAR 2007. 6th IEEE and ACM International Symposium on Mixed and Augmented Reality. - Nara, 13-16 Nov. 2007. - P. 281-282.

C2424. Heffernan B. LED replacement for fluorescent tube lighting. / Heffernan B., Frater L., Watson N. // 2007. AUPEC 2007. Australasian Universities Power Engineering Conference. - Perth, WA, 9-12 Dec. 2007. - P. 1-6.

C2425. Dimopoulos M.G. Design and development of a versatile testing system for analog and mixed-signal circuits. / Dimopoulos M.G., Papakostas D.K., Hatzopoulos A.A., Konstantinidis E.I., Spyronasios A. // 2007. ECCTD 2007. 18th European Conference on Circuit Theory and Design. - Seville, 27-30 Aug. 2007. - P. 846-849.

C2426. Kurz D. Laser Pointer Tracking in Projector-Augmented Architectural Environments. / Kurz D., Hantsch F., Grosse M., Schiewe A., Bimber O. // 2007. ISMAR 2007. 6th IEEE and ACM International Symposium on Mixed and Augmented Reality. - Nara, 13-16 Nov. 2007. - P. 19-26.

C2427. Zahidi U.A. Spectral Solution for Detecting Isomorphic Graphs with Nondegenerate Eigenvalues. 2007. INMIC 2007. IEEE International Multitopic Conference. - Lahore, 28-30 Dec. 2007. - P. 1-4.

C2428. Arefin A.S. Designing a low cost microcontroller-based device for multipurpose learning. / Arefin A.S., Habib K.M.M., Sultana R., Kabir S.M.L. // 2007. iccit 2007. 10th international conference on Computer and information technology. - Dhaka, 27-29 Dec. 2007. - P. 1-3.

C2429. Young Kee Ryu. RF Signal Synchronized Low Cost Motion Capture Device. / Young Kee Ryu, Choonsuk Oh. // 2007. APMC 2007. Asia-Pacific Microwave Conference. - Bangkok, 11-14 Dec. 2007. - P. 1-4.

C2430. Sun-Mook Hwang. Delay Time and Power Supply Current Characteristics of CMOS Inverter Broken by Intentional High Power Microwave. / Sun-Mook Hwang, Joo-Il Hong, Seung-Moon Han, Chang-Su Huh, Uk-Youl Huh, Jin-Soo Choi. // 2007. APMC 2007. Asia-Pacific Microwave Conference. - Bangkok, 11-14 Dec. 2007. - P. 1-4.

C2431. Faizabadi E. Evaluation of the spectral function for the chain nanostructures TTF-TCNQ. / Faizabadi E., Soleimani M. // 2007 and the 2007 15th International Conference on Terahertz Electronics. IRMMW-THz. Joint 32nd International Conference on Infrared and Millimeter Waves. - Cardiff, 2-9 Sept. 2007. - P. 532-533.

C2432. Hoon-Keun Lee. A low cost WDM-PON using spectrum sliced F-P LDs with Cyclic Arrayed Waveguide Gratings. / Hoon-Keun Lee, Hyuek-Jae Lee, Chang-Hee Lee. // 2007 and the 2007 32nd Australian Conference on Optical Fibre Technology. COIN-ACOFT 2007. Joint International Conference on Optical Internet. - Melbourne, VIC, 24-27 June 2007. - P. 1-3.

C2433. Chun-Yu Hsieh. A Dual Phase Charge Pump with Compact Size. / Chun-Yu Hsieh, Po-Chin Fan, Ke-Horng Chen. // 2007. ICECS 2007. 14th IEEE International Conference on Electronics, Circuits and Systems. -

Marrakech, 11-14 Dec. 2007. - P. 202-205.

C2434. Assaid E.-M. Exact Analytical Expressions of GraГґB«tz Bridge Currents and Voltages Using Lambert W Function. / Assaid E.-M., Feddi E.-M., El Aydi M. // 2007. ICECS 2007. 14th IEEE International Conference on Electronics, Circuits and Systems. - Marrakech, 11-14 Dec. 2007. - P. 278-282.

C2435. Hamciuc E. Aromatic Polyimides Containing Cyano Substituents for High Performance Applications. / Hamciuc E., Bacosca I., Bruma M., Ignat M. // 2007. CAS 2007. International Semiconductor Conference. - Sinaia, Oct. 15 2007-Sept. 17 2007. - Vol. 2. - P. 357-360.

C2436. Ionascu C. Design Aspects for Gate Driver of Power Switch. 2007. CAS 2007. International Semiconductor Conference. - Sinaia, Oct. 15 2007-Sept. 17 2007. - Vol. 2. - P. 505-508.

C2437. Ulieru D. Advanced Laser Microprocessing for Substrates Microprocessing of Microsystems and Optoelectronics Devices Applications. / Ulieru D., Tantau A., Ulieru E., Cernica I., Matei A., Schiopu V., Pistritu F. // 2007. CAS 2007. International Semiconductor Conference. - Sinaia, Oct. 15 2007-Sept. 17 2007. - Vol. 1. - P. 155-158.

C2438. Anopchenko E.O. Silicon Photonics at University of Trento. / Anopchenko E.O., Bettotti P., Cazzanelli M., Daldosso N., Ferraioli L., Gaburro Z., Guider R., Hossain S.M., Navarro-Urrios D., Pitanti A., Prezioso S., Spano R., Wang M., Pavesi L. // 2007. CAS 2007. International Semiconductor Conference. - Sinaia, Oct. 15 2007-Sept. 17 2007. - Vol. 1. - P. 175-179.

C2439. Kettle J. Fabrication of lenses for AlGaInP LEDs using Step and Flash Imprint lithography. / Kettle J., Lalev G., Dimov S., Perks R. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 49-52.

C2440. Young June Hong. Influence of insulator length on the downstream electron temperature and electron density in the coaxial electrode of plasma focus device. / Young June Hong, Min Wug Moon, Ki Baek Song, Phil Yong Oh, Byoung Hee Hong, Hee Myung Shin, Eun Ha Choi. // 2007 16th IEEE International Pulsed Power Conference. - Albuquerque, NM, 17-22 June 2007. - Vol. 2. - P. 1715-1719.

C2441. Rehman M. A low cost capacitive security card system. / Rehman M., Lee Bee Koon. // 2007. ICIAS 2007. International Conference on Intelligent and Advanced Systems. - Kuala Lumpur, 25-28 Nov. 2007. - P. 1289-1292.

C2442. Kuo P.-S. Novel transport mechanism of SiGe dot MOS tunneling diodes. / Kuo P.-S., Lin C.-H., Peng C.-Y., Fu Y.-C., Liu C.W. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 1309-1312.

C2443. Martin P. Initial investigations into the role of the bremsstrahlung conversion target in the self magnetic pinch radiographic diode. / Martin P., Threadgold J., Jones A., Short D., McLean J., Cooper G., Webb K., Jefferies G., Juniper P. // 2007 16th IEEE International Pulsed Power Conference. - Albuquerque, NM, 17-22 June 2007. - Vol. 1. - P. 614-617.

C2444. Cervigon R. Effects of anaesthesia on atrial fibrillation organization during catheter ablation procedures. / Cervigon R., Moreno J., Heneghan C., Mateo J., Sanchez C. // 2007 Computers in Cardiology. - Durham, NC, Sept. 30 2007-Oct. 3 2007. - P. 411-414.

C2445. Zihui Dong. A circuit with good linearity based on standard optocouplers. / Zihui Dong, Zhihao Pan. // 2007. (CCWMSN07). IET Conference on Wireless, Mobile and Sensor Networks. - Shanghai, China, 12-14 Dec. 2007. - P. 1002-1004.

C2446. Won-Sik Oh. A novel adaptive dimming technique with X-Y channels for LED backlight system of LCD TVs. / Won-Sik Oh, Kyu-Min Cho, Daeyoun Cho, Gun-Woo Moon, Byungchoon Yang, Taeseok Jang. // 2007. ICPE '07. 7th Internatonal Conference on Power Electronics. - Daegu, 22-26 Oct. 2007. - P. 710-713.

C2447. Boukadoum M. High-speed, low input current transimpedance amplifier for led-photodiode pair. / Boukadoum M., Obaid A. // 2007. ICSPC 2007. IEEE International Conference on Signal Processing and Communications. - Dubai, 24-27 Nov. 2007. - P. 1119-1122.

C2448. Jan S.-R. Blue electroluminescence from metal/oxide/6H-SiC tunneling diodes. / Jan S.-R., Cheng T.-

H., Liao M.H., Hung T.-A., Deng Y., Liu C.W. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 674-677.

C2449. Kettle J. Electroluminescence response of plasmonic AlGaInP Light Emitting Diodes. / Kettle J., Perks R., Lalev G., Dimov S. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 678-680.

C2450. Wu G.M. InGaN/GaN multiple quantum wells with surface micro hole array structures. / Wu G.M., Yu J.D., Hsieh Y.L. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 498-501.

C2451. Cheng T.-H. Electroluminescence from strained SiGe quantum dot light-emitting diodes. / Cheng T.-H., Liao M.H., Liu C.W. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 670-673.

C2452. Yuen Yung Hui. White light electroluminescence from europium oxide nanocrystal/organic composites. / Yuen Yung Hui, Chun-Yu Lee, Ching-Fuh Lin. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 862-865.

C2453. Korposh S.O. Fabrication of optical gas sensors using porphyrin-based nano-assembled thin films: A comparison with bulk materials. / Korposh S.O., Takahara N., Seung-Woo Lee, Kunitake T. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 1037-1040.

C2454. Tzer-En Nee. The dependence of excitonic characteristics on the interface charge distribution with multiquantum barrier. / Tzer-En Nee, Jen-Cheng Wang, Hui-Tang Shen, Ya-Fen Wu. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 709-713.

C2455. Ching-Fuh Lin. Electroluminescence from nanoparticles/organic composites. / Ching-Fuh Lin, Chun-Yu Lee, Wei-Bo Lu, Wei-Fang Su, Yuen Yung Hui. // 2007. IEEE-NANO 2007. 7th IEEE Conference on Nanotechnology. - Hong Kong, 2-5 Aug. 2007. - P. 858-861.

C2456. de Mello J. The role and use of PEDOT:PSS in organic LEDs and photodiodes. 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 539.

C2457. Sahu S. Photodetectors based on organic semiconductors: Optimization of device architectures. / Sahu S., Pal A.J. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 560-562.

C2458. Deepak. Development of passive matrix full color organic light emitting diode display. 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 528-532.

C2459. Adachi C. Frontier of organic light emitting devices. / Adachi C., Matsushima T., Nakanotani H., Sakanoue T., Yahiro M., Yokoyama D. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 534-538.

C2460. Kumar P. Interface dipole responsible for fermi level pinning in metal/3,4,9,10 perylenetetracarboxylic dianhydride interfaces. / Kumar P., Agrawal R., Ghosh S. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 578-581.

C2461. Singh R. Effect of the bilayer cathode on white and ultraviolet emission in polysilane based light emitting diodes. / Singh R., Sharma A., Deepak, Katiyar M. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 590-592.

C2462. Nayak P.K. Red shifted electroluminescence in OLEDs using organic alloy of hole transport materials. / Nayak P.K., Agarwal N., Periasamy N., Patankar M.P., Narasimhan K.L. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 567-568.

C2463. Thangaraju K. Electroluminescence degradation study of tris-(8-hydroxyquinoline)aluminum-based organic light emitting diode and influence of light. / Thangaraju K., Patankar M.P., Narasimhan K.L., Kumar J. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 573-576.

C2464. Shi P.Z. Thermal Performance Evaluation of Power SSL Module in LTCC. / Shi P.Z., Arulvanan P., Lu A.C.W. // 2007. EPTC 2007. 9th Electronics Packaging Technology Conference. - Singapore, 10-12 Dec. 2007. - P. 285-288.

C2465. Arokiaraj J. High Brightness GaN LEDs with Engineered Sapphire Substrate. / Arokiaraj J., Maung B., Teo Siew, Chum Chan Choy, Chua S.J. // 2007. EPTC 2007. 9th Electronics Packaging Technology Conference. - Singapore, 10-12 Dec. 2007. - P. 343-346.

C2466. Luetzelschwab M. Adaptive Packaging Solution for a Microlens Array Placed over a Micro-UV-LED Array. / Luetzelschwab M., Weiland D., Desmulliez M.P.Y. // 2007. EPTC 2007. 9th Electronics Packaging Technology Conference. - Singapore, 10-12 Dec. 2007. - P. 338-342.

C2467. Szabo P. Studies on the Possibilities of In-Line Die Attach Characterization of Semiconductor Devices. / Szabo P., Poppe A., Rencz M. // 2007. EPTC 2007. 9th Electronics Packaging Technology Conference. - Singapore, 10-12 Dec. 2007. - P. 779-784.

C2468. Mukhopadhyay B. Estimation of external quantum efficiency of Ge rich Si1-x-y Gex Cy on Si photodetectors at 1.3 μm. / Mukhopadhyay B., Ghosh S., Basu P.K. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 285-288.

C2469. Sanjeev. Effect of high carrier injection on the performance of a mid-infrared DH-LED. / Sanjeev, Chakrabarti P. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 369-372.

C2470. Khan A. AlGaN based UV LEDs and high frequency transistors. 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 11-15.

C2471. Forrest S. Electronics on plastic: A solution to the energy challenge, or just a pipe dream?. 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 22.

C2472. Tripathi A.K. Electroluminescence transient of polymer light emitting diodes: field dependence of overshoot and time delay. / Tripathi A.K., Verma R., Biswas A.K., Ashish, Mohapatra Y.N. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 598-601.

C2473. Tseng S.-Y. Buck-Boost Converter Associated with Active Clamp Forward Converter for PV Power System. / Tseng S.-Y., Chen W.-C., Li Y.-J., Kuo J.-S. // 2007. PEDS '07. 7th International Conference on Power Electronics and Drive Systems. - Bangkok, 27-30 Nov. 2007. - P. 209-216.

C2474. Jian-Long Kuo. Opto-Mechatronic System Design of the LED Projector by Using Brushless DC Motor. / Jian-Long Kuo, Tzu-Hsuan Fang. // 2007. PEDS '07. 7th International Conference on Power Electronics and Drive Systems. - Bangkok, 27-30 Nov. 2007. - P. 1568-1572.

C2475. Filip V. Electroluminescence of silicon nanoclusters excited by tunneling carrier injection. / Filip V., Hei Wong, Wong C.K., Nicolaescu D. // 2007. IVNC. IEEE 20th International Vacuum Nanoelectronics Conference. - Chicago, IL, 8-12 July 2007. - P. 155-156.

C2476. Jong Hyuk Yim. Fabrication of transparent single wall carbon nanotube films with low sheet resistance. / Jong Hyuk Yim, Woo Geun Kim, Ken Ha Koh, Soonil Lee. // 2007. IVNC. IEEE 20th International Vacuum Nanoelectronics Conference. - Chicago, IL, 8-12 July 2007. - P. 183-184.

C2477. Chen C.H. Determination of LED die strength. / Chen C.H., Tsai M.Y., Tang J.Y., Tsai W.L., Chen T.J. // 2007. EMAP 2007. International Conference on Electronic Materials and Packaging. - Daejeon, 19-22 Nov. 2007. - P. 1-6.

C2478. Rong Zhang. Wafer level encapsulation process for LED array packaging. / Rong Zhang, Lee S.-W.R. // 2007. EMAP 2007. International Conference on Electronic Materials and Packaging. - Daejeon, 19-22 Nov. 2007. - P. 1-8.

C2479. Chang-Hua Lin. A Balancing Strategy and Implementation of Current Equalizer for High Power LED Backlighting. / Chang-Hua Lin, Tsung-You Hung, Chien-Ming Wang, Kai-Jun Pai. // 2007. PEDS '07. 7th International Conference on Power Electronics and Drive Systems. - Bangkok, 27-30 Nov. 2007. - P. 1613-1617.

C2480. Shin A. A novel current driving method using organic TFT pixel circuit for active-matrix OLED. / Shin A., Bongno Yoon, Man Young Sung. // 2007. ICM 2007. Internatonal Conference on Microelectronics. - Cairo, 29-31 Dec. 2007. - P. 413-416.

C2481. Chand S. Charge trapping levels in vacuum deposited poly (vinylidene fluoridechlorotrifluoroethylene) copolymer thin films. / Chand S., Sharma G.D., Dwivedi S. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 610-612.

C2482. Srivastava R. Improved efficiency of Organic Light Emitting Diodes by doping of hole transport layer. / Srivastava R., Rai V.K., Chauhan G., Kumar P., Chand S., Kamalasanan M.N., Kumar V. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 617-618.

C2483. Banerjee N. Investigation of photoluminescence degradation and OLED device of a new polysilane. / Banerjee N., Ghosh B., Deepak, Shukla S.K. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 602-605.

C2484. Petrosino M. The effect of ITO surface energy on OLED electrical properties. / Petrosino M., Vacca P., Licciardo G.D., Rubino A., Bellone S. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 606-609.

C2485. Srivastava R. Fabrication of WOLED by blue florescent host doped with red phosphorescent dyes. / Srivastava R., Chauhan G., Rai V.K., Saxena K., Bharadvaj R.K., Chand S., Kamalasanan M.N., Kumar V. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 633.

C2486. Ceasor S. The effect of spatially distributed electron and hole blocking layers on the characteristics of OLEDs. / Ceasor S., Prasad R., Anand R.S. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 634-636.

C2487. Mehta D.S. Enhancement of light out-coupling efficiency of organic light-emitting devices by anti-reflection coating technique. / Mehta D.S., Saxena K., Rai V.K., Srivastava R., Kamalasanan M.N. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 628-629.

C2488. Saxena K. Fabrication of organic light-emitting devices by oblique angle deposition technique. / Saxena K., Singh Mehta D., Srivastava R., Kamalasanan M.N. // 2007. IWPSD 2007. International Workshop on Physics of Semiconductor Devices. - Mumbai, 16-20 Dec. 2007. - P. 630-631.

C2489. Strobel O. Optical data bus technologies for automotive applications. 2007. ICTON-MW 2007 ICTON Mediterranean Winter Conference. - Sousse, 6-8 Dec. 2007. - P. 1.

C2490. Wu M.C. Optoelectronic Tweezers for Manipulation of Cells and Nanowires. 2007. IEDM 2007. IEEE International Electron Devices Meeting. - Washington, DC, 10-12 Dec. 2007. - P. 847-850.

C2491. Sun Il Kim. New Approach for Passivation of Ga2 O3 -In2 O3 -ZnO Thin Film Transistors. / Sun Il Kim, Chang Jung Kim, Jae Chul Park, Ihun Song, Dong Hun Kang, Hyuck Lim, Sang Wook Kim, Eunha Lee, Jae Chul Lee, Youngsoo Park. // 2007. IEDM 2007. IEEE International Electron Devices Meeting. - Washington, DC, 10-12 Dec. 2007. - P. 583-586.

C2492. Wagner S. Matching Application-Specific Frontplanes With Generic Backplanes. 2007. IEDM 2007. IEEE International Electron Devices Meeting. - Washington, DC, 10-12 Dec. 2007. - P. 213-216.

C2493. Jung Hoon Ro. Development of a Plural Colorimeter Module for Urinalysis Strip Readers. / Jung Hoon Ro, Yong-uk Jeon, Ah-young Jeon, Jae Hee Jung, In Cheol Kim, Jae-hyung Kim, Soo Young Ye, Gye Rok Jeon. // 2007. International Conference on Convergence Information Technology. - Gyeongju, 21-23 Nov. 2007. - P. 1088-1090.

C2494. Kurozumi R. Development of a postural supporting device using an adaptive and learning balloon actuator-sensor system. / Kurozumi R., Yamamoto T., Fujisawa S., Sueda O. // 2007 Annual Conference SICE. - Takamatsu, 17-20 Sept. 2007. - P. 488-493.

C2495. Sheng-Lin Lu. Optimized design of an AOI illuminator. / Sheng-Lin Lu, Xian-Min Zhang, Yong-Cong Kuang. // 2007. ICWAPR '07. International Conference on Wavelet Analysis and Pattern Recognition. - Beijing, 2-4 Nov. 2007. - Vol. 2. - P. 924-928.

C2496. Jung Hoon Ro. Development of Indwelling Wireless pH Telemetry of Intraoral Acidity. / Jung Hoon Ro, Hyun-jun Kim, Soo Young Ye, Jae Hee Jung, Ali-young Jeon, In Cheol Kim, Chul-han Kim, Gye Rok Jeon, Shin Kim. // 2007. International Conference on Convergence Information Technology. - Gyeongju, 21-23 Nov. 2007. - P. 1097-1101.

C2497. Means J.K. Work in progress-Multidisciplinary laboratory for development, design and consumer testing of marketable residential LED luminaires. / Means J.K., Anneberg L., Snyder C., Jin Feng. // 2007. FIE 07. 37th Annual Frontiers In Education Conference-Global Engineering: Knowledge Without Borders, Opportunities Without Passports. - Milwaukee, WI, 10-13 Oct. 2007. - P. F2C-13-F2C-14-13.

C2498. Petrellis N. Utilising noise effects on infrared pattern reception for position estimation on a grid plane. / Petrellis N., Konofaos N., Alexiou G. // 2007. ETFA. IEEE Conference on Emerging Technologies and Factory Automation. - Patras, 25-28 Sept. 2007. - P. 426-433.

C2499. Dongkyu Lee. Applicatioon of Biological Signal to the Expressions of Robotic Emotions. / Dongkyu Lee, Kwak S.S., Myungsuk Kim. // 2007. RO-MAN 2007. The 16th IEEE International Symposium on Robot and Human interactive Communication. - Jeju, 26-29 Aug. 2007. - P. 1119-1124.

C2500. Cass Woo. Emotional Network Robot (Netoy). 2007. RO-MAN 2007. The 16th IEEE International Symposium on Robot and Human interactive Communication. - Jeju, 26-29 Aug. 2007. - P. 662.

C2501. Baba T. State-of-the-Art Photonic Nanostructure Devices. 2007. IEMT 07. 32nd IEEE/CPMT International Electronic Manufacturing Technology Symposium. - San Jose, CA, 3-5 Oct. 2007. - P. 303-308.

C2502. Demian A.E. Microcontroller-based quadratic buck converter used as led lamp driver. / Demian A.E., Reginaldo de Britto J., de Freitas L.C., Farias V.J., Coelho E.A.A., Vieira J.B. // 2007 European Conference on Power Electronics and Applications. - Aalborg, 2-5 Sept. 2007. - P. 1-6.

C2503. de Britto J.R. Zeta DC/DC converter used as led lamp drive. / de Britto J.R., Junior A.E.D., de Freitas L.C., Farias V.J., Coelho E.A.A., Vieira J.B. // 2007 European Conference on Power Electronics and Applications. - Aalborg, 2-5 Sept. 2007. - P. 1-7.

C2504. Van den Bossche A. Low stand by power, self oscillating power supply. / Van den Bossche A., Nikolov G., Valchev V. // 2007 European Conference on Power Electronics and Applications. - Aalborg, 2-5 Sept. 2007. - P. 1-7.

C2505. Alahmadi N.A. The electrical characteristic of commercial GaN blue light emitting diode. / Alahmadi N.A., Harrison I., Badr K.H. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2506. Chun-Wei Liao. Effect of P-type cladding layer and P++-GaN layer of InGaN/GaN MQWs blue LED. / Chun-Wei Liao, Yung-Hsiang Lin, Cheng-Ying Yen, Pei-Wen Liu, Yuan-Chieh Lu, Ray-Ming Lin. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2507. Ali H. Optical and electrical properties of Al/ZnO-nanocomposite/Si n-p diodes. / Ali H., Iliadis A., Martinez-Miranda L., Sardari S.E., Unchul Lee. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2508. Marwick M.A. Design and characterization of a gain-enhanced floating gate-body tied photodetector in Silicon on Sapphire CMOS. / Marwick M.A., Andreou A.G. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2509. Fallah-Azad B. Light emitting diodes on glass and silicon substrates fabricated using novel low temperature hydrogenation-assisted nano-crystallization of silicon thin films. / Fallah-Azad B., Abdi Y., Mohajerzadeh S., Jamei M., Hashemi P., Robertson M.D. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2510. Motayed A. Gallium nitride nanowire devices-fabrication, characterization, and transport properties. /

Motayed A., Davydov A.V., Mohammad S.N., Melngailis J. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2511. Matsumoto Y. Integrated CMOS photo-transistor array for visual light identification (ID). / Matsumoto Y., Hara T., Kimura Y. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2512. Dilli Z. Relating electrical and computer engineering to the high school classroom. / Dilli Z., Goldsman N. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-3.

C2513. Kang-Zhi Liu. An experimental comparison of nonholonomic control methods: Automatic parking benchmark. / Kang-Zhi Liu, Horii M. // 2007 Annual Conference SICE. - Takamatsu, 17-20 Sept. 2007. - P. 1712-1717.

C2514. Myung-Jin Chung. Development of high precision X-Y stage using for production and inspection equipment of organic electro luminescence display. / Myung-Jin Chung, Yang-Hee Yee, Young-Jung Kim, Sun-Bum Kwak. // 2007 Annual Conference SICE. - Takamatsu, 17-20 Sept. 2007. - P. 1649-1652.

C2515. Nakamura D. Assistance system for designing mirrored surface using projector. / Nakamura D., Hiura S., Sato K. // 2007 Annual Conference SICE. - Takamatsu, 17-20 Sept. 2007. - P. 1489-1492.

C2516. Hyuk-Joong Kwon. An automatic inspection system for hologram with multiple patterns. / Hyuk-Joong Kwon, Tae-Hyoung Park. // 2007 Annual Conference SICE. - Takamatsu, 17-20 Sept. 2007. - P. 2663-2666.

C2517. Shin A. Design of an organic TFT pixel electrode circuit with enhanced current programming method for active-matrix OLED displays. / Shin A., Jong Chan Choi, Man Young Sung. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2518. Joseph C. Integrated solid-state optoelectronic sensor system for biochemical detection and quantification. / Joseph C., Naoum H., Boukadoum M., Starikov D., Bensaoul A. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2519. Sung-Hwan Choi. New bi-directional T-shaped triple gate n-type poly-si TFT by a low-temperature SLS-process for reducing kink effects. / Sung-Hwan Choi, Hee-Sun Shin, Min-Koo Han. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2520. Shou-Yu Nien. Extraction efficiency enhancement of an OLED using surface plasmon resonance. / Shou-Yu Nien, Nan-Fu Chiu, Yao-Chou Tsai, Chii-Wann Lin, Kou-Chen Liu, Jiun-Haw Lee. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 239-241.

C2521. Adachi C. Organic light emitting devices from OLED to organic laser diode. / Adachi C., Matsushima T., Nakanotani H., Yokoyama D., Yahiro M. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 189-191.

C2522. Yu-Jin Na. Wettability patterning technology for organic displays. / Yu-Jin Na, Sung-Jin Kim, Sin-Poo Lee. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 90-92.

C2523. Choy W.C.H. Real-time voltage controlled color tunable OLEDs. / Choy W.C.H., Liang C.J., Zhang H.M. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 242-244.

C2524. Jie Liu. Organic light-emitting devices for solid state lighting. / Jie Liu, Duggal A.R. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 305.

C2525. Liu Y.S. Advances of lighting technologies-From light bulbs to solid state light sources. 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 302-304.

C2526. Terao Y. High-performance passive-matrix OLED display by colour conversion method. / Terao Y., Kobayashi M., Kanai N., Makino R., Li C., Kawamura Y., Kawaguchi K., Saito T., Hashida H., Kimura H. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 245-247.

C2527. Yi-Pai Huang. Advanced technologies for high quality LC display. / Yi-Pai Huang, Fang-Cheng Lin, Cheng-Yumr Liao, Ya-Ting Hsu, Wei-Kai Huang, Cheng-Han Tsao, Lin-Yao Liao, Chun-Ho Chen, Shieh H.-P.D. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 12-14.

C2528. Pingping Jiang. Analysis disadvantage of multimedia education. / Pingping Jiang, Guiying Tong, Chunxiao Jiang. // 2007. ISITAE '07. First IEEE International Symposium on Information Technologies and Applications in Education. - Kunming, 23-25 Nov. 2007. - P. 456-457.

C2529. Bolanakis D.E. A Multidisciplinary Educational Board System for Microcontrollers: Considerations in Design for Technically Accurate Custom-made Platforms. / Bolanakis D.E., Glavas E., Evangelakis G.A. // 2007. ISITAE '07. First IEEE International Symposium on Information Technologies and Applications in Education. - Kunming, 23-25 Nov. 2007. - P. 391-395.

C2530. Dongdong Weng. Study on an Indoor Tracking System Based on Primary and Assistant Infrared Markers. / Dongdong Weng, Yue Liu, Yongtian Wang, Lun Wu. // 2007 10th IEEE International Conference on Computer-Aided Design and Computer Graphics. - Beijing, 15-18 Oct. 2007. - P. 377-382.

C2531. Nakamura K. 8F-5 A Visualization Tool for High Intensity Focused Ultrasonic Field Using LEDs and Piezo-Elements. / Nakamura K., Sugimoto T. // 2007. IEEE Ultrasonics Symposium. - New York, NY, 28-31 Oct. 2007. - P. 733-736.

C2532. Shin-Tson Wu. Advanced liquid crystal displays. 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 10-11.

C2533. {no data available}. Title. 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. i-ii.

C2534. Materka A. A Virtual Keypad Based on Alternate Half-Field Stimulated Visual Evoked Potentials. / Materka A., Byczuk M., Poryzala P. // 2007. ISITC 2007. International Symposium on Information Technology Convergence. - Joenju, 23-24 Nov. 2007. - P. 296-300.

C2535. Jun Park. ID recognition for museum tourists using infrared LED's. / Jun Park, Kyu Hwa Lee, Sang Goog Lee. // Second Workshop on Digital Media and its Application in Museum & Heritages. - Chongqing, 10-12 Dec. 2007. - P. 115-117.

C2536. Hu Fang-xia. Study on the Key Image Processing Technology in the Inspection of Packing Quality for Small-Pack Cigarettes. / Hu Fang-xia, He xin, Niu Tian-gui. // Second Workshop on Digital Media and its Application in Museum & Heritages. - Chongqing, 10-12 Dec. 2007. - P. 67-71.

C2537. Nakazawa N. Control of meal support manipulator based on mouth open/close motions. / Nakazawa N., Itoh T., Yamada K. // 2007. ISIC. IEEE International Conference on Systems, Man and Cybernetics. - Montreal, Que., 7-10 Oct. 2007. - P. 2419-2424.

C2538. Nojima T. The Peripheral Display for Augmented Reality of Self-motion. / Nojima T., Saiga Y., Okano Y., Hashimoto Y., Kajimoto H. // 17th International Conference on Artificial Reality and Telexistence. - Esbjerg, Jylland, 28-30 Nov. 2007. - P. 308-309.

C2539. Hyo-Sung Ahn. Wireless Localization Network for Ubiquitous Robotic Space: Approaches and Experimental Test. / Hyo-Sung Ahn, Wonpil Yu, JaeYeong Lee. // 2007. RO-MAN 2007. The 16th IEEE International Symposium on Robot and Human interactive Communication. - Jeju, 26-29 Aug. 2007. - P. 481-486.

C2540. Ishii K. Collaborative Task Casting for Multi-Task Communication Robots. / Ishii K., Takasuna K., Imai M. // 2007. RO-MAN 2007. The 16th IEEE International Symposium on Robot and Human interactive Communication. - Jeju, 26-29 Aug. 2007. - P. 338-343.

C2541. Jin-Seok Heo. System Design and Evaluation of the Robot Tactile Sensor Using the Microbending Fiber Optic Sensors. / Jin-Seok Heo, Cheol-Hee Han, Jung-Ju Lee. // 2007. RO-MAN 2007. The 16th IEEE International Symposium on Robot and Human interactive Communication. - Jeju, 26-29 Aug. 2007. - P. 14-18.

C2542. Ou-un Lee. A dynamic study of divergence extraocular muscle. / Ou-un Lee, Gayed B., Semmlow J.L., Alvarez T.L. // 2007. NEBC '07. IEEE 33rd Annual Northeast Bioengineering Conference. - Long Island, NY, 10-11 March 2007. - P. 311-312.

C2543. Jae-Wan Choi. Mutual thermal effects of light-emitting diode with wafer-level packages. / Jae-Wan Choi, Jeung-Mo Kang, Jae-Wook Kim, Jeong-Hyeon Choi, Du-Hyun Kim, Geun-Ho Kim, Jeong-Soo Lee. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 357-359.

C2544. Choy W.C.H. Comprehensive investigation of light emission of OLEDs: from absolute optical properties to the purcell effect. / Choy W.C.H., Chen X.W., Fong H.H., He S.L. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 354-356.

C2545. Chi-Feng Huang. Phosphor-free white-light light-emitting diodes based on InGaN/GaN quantum wells. / Chi-Feng Huang, Chin-Feng Lu, Dong-Ming Yeh, Yung-Sheng Chen, Wen-Yu Shiao, Yang C.C. // 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 351-353.

C2546. Ronda C. Challenges in luminescent materials for lighting and medical applications. 2007 Asia Optical Fiber Communication and Optoelectronics Conference. - Shanghai, 17-19 Oct. 2007. - P. 641.

C2547. Wolpert S. A stethoscope-mounted cardiac synchronizer. / Wolpert S., Rager C., Nifong T. // 2007. NEBC '07. IEEE 33rd Annual Northeast Bioengineering Conference. - Long Island, NY, 10-11 March 2007. - P. 118-119.

C2548. Ishikawa T. Analysis of a small generator using flux tube method and MATLAB. / Ishikawa T., Saeki M., Matsunami M., Hashimoto S. // 2007. ICEMS. International Conference on Electrical Machines and Systems. - Seoul, 8-11 Oct. 2007. - P. 1729-1732.

C2549. Imoto M. Development for new power white LED module with multifanctional printed-wiring board. / Imoto M., Usuda S., Mori H., Tsuruta S. // 2007. ICEMS. International Conference on Electrical Machines and Systems. - Seoul, 8-11 Oct. 2007. - P. 1889-1890.

C2550. Meng-Fu Shih. Minor magnesium doping in P-type layer of InGaN/GaN MQW LED to enhance electrical and optical properties. / Meng-Fu Shih, Yung-Hsiang Lin, Chun-Wei Liao, Cheng-Ying Yen, Yi-Lun Chou, Ray-Ming Lin. // 2007 International Semiconductor Device Research Symposium. - College Park, MD, 12-14 Dec. 2007. - P. 1-2.

C2551. Yang C. C. Can we fabricate efficient white-light InGaN/GaN quantum-well light-emitting diode without using phosphors?. / Yang C. C., Chi-Feng Huang, Dong-Ming Yeh, Cheng-Yen Chen, Chih-Feng Lu, Tsung-Yi Tang, Jeng-Me Huang, Yen-Cheng Lu, Yung-Shen Chen, Wen-Yu Shiao, Kun-Cheng Shen, Yun-Li Li, Huang J. J. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1.

C2552. Qian Cheng. Thermal Management of High-power White LED Package. 2007. ICEPT 2007. 8th International Conference on Electronic Packaging Technology. - Shanghai, 14-17 Aug. 2007. - P. 1-5.

C2553. Wetzel C. Development of high efficiency green and deep green light emitters in piezoelectric group-iii nitrides. 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1.

C2554. Yu S.-Q. Light emitting diodes with extremely high extraction-efficiency for electroluminescence refrigeration. / Yu S.-Q., Rider N., Ding D., Wang J.-B., Johnson S. R., Zhang Y.-H. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2555. Mai T. A. High precision and high speed cutting of 4th generation OLED masks with LaserMicroJetГ,В®. / Mai T. A., Richerzhagen B. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1.

C2556. Dehmel A. Direct Copper Bonded Ceramic Substrates for Use with Power LEDS. / Dehmel A., Schulz-Harder J., Roth A., Baumeister I. // 2007. ICEPT 2007. 8th International Conference on Electronic Packaging Technology. - Shanghai, 14-17 Aug. 2007. - P. 1-6.

C2557. Yuxuan Zhang. Performance characteristics of a high resolution oncologic transformable PET in brain/breast and whole-body modes. / Yuxuan Zhang, Wai-Hoi Wong, Hongdi Li, Baghaei H., Uribe J., Yu Wang, Soonseok Kim, Ramirez R., Jiguo Liu, Shitao Liu. // 2007. NSS 07. IEEE Nuclear Science Symposium Conference Record. - Honolulu, HI, Oct. 26 2007-Nov. 3 2007. - Vol. 5. - P. 3684-3687.

C2558. Jianyou Li. Resonant energy transfer due to exciton-exciton interaction in the strong coupling regime in Hybrid InGaN Quantum Wells. / Jianyou Li, Arup Neogi, Teruya Ishihara, Atsushi Tackeuchi. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2559. Onoe H. 3D integration of heterogeneous MEMS structures by stamping transfer. / Onoe H., Iwase E., Matsumoto K., Shimoyama I. // 2007. MEMS. IEEE 20th International Conference on Micro Electro Mechanical Systems. - Hyogo, 21-25 Jan. 2007. - P. 175-178.

C2560. Chaji R. A Sub-μA fast-settling current-programmed pixel circuit for AMOLED displays. / Chaji R., Nathan A. // 2007. ESSCIRC 2007. 33rd European Solid State Circuits Conference. - Munich, 11-13 Sept. 2007. - P. 344-347.

C2561. Yin C. Thermal Analysis of LEDs for Liquid Crystal Display's Backlighting. / Yin C., Lee Y., Bailey C., Riches S., Cartwnght C., Sharpe R., Ott H. // 2007. ICEPT 2007. 8th International Conference on Electronic Packaging Technology. - Shanghai, 14-17 Aug. 2007. - P. 1-5.

C2562. Kwang Hyun Kim. New sandwich type detector module and its characteristics for dual x-ray baggage inspection system. / Kwang Hyun Kim, In Sub Jun, Yoon Seong Eun. // 2007. NSS 07. IEEE Nuclear Science Symposium Conference Record. - Honolulu, HI, Oct. 26 2007-Nov. 3 2007. - Vol. 2. - P. 1191-1194.

C2563. Do-Hyun Kim. An all-fiber-optic confocal interference microscope using low-coherence near-infrared light source. / Do-Hyun Kim, Waynant Ronald W., Ilev Ilko K., Kang Jin U. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2564. Chang-Chi Pan. Emission Intensity Improvement of InGaN Ultraviolet Light-Emitting Diodes Grown on Wet-Etched Sapphire Substrates. / Chang-Chi Pan, Chi-Hsun Hsieh, Jen-Inn Chyi. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2565. Kai Wang. A Sensor Integrated Ultra-long Span LED Street Lamp System. / Kai Wang, Sheng Liu. // 2007. ICEPT 2007. 8th International Conference on Electronic Packaging Technology. - Shanghai, 14-17 Aug. 2007. - P. 1-3.

C2566. {no data available}. CLEO, Monday, May 7. 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. xlvii-lxxiv.

C2567. Yijun Lu. Intelligent spectral design and colorimetric parameter analysis for light-emitting diodes. / Yijun Lu, Yulin Gao, Huanting Chen, Zhong Chen. // 2007. M2VIP 2007. 14th International Conference on Mechatronics and Machine Vision in Practice. - Xiamen, 4-6 Dec. 2007. - P. 118-122.

C2568. Sharikova Anna V. Continuous long-term observations of UV laser- and LED-induced fluorescence of processed drinking water. / Sharikova Anna V., Killinger Dennis K. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2569. Hea-Jeong Cheong. Light emission from size reduced nanocrystal silicon quantum dots. / Hea-Jeong Cheong, Atsushi Tanaka, Daihei Hippo, Kouichi Usami, Yoshishige Tsuchiya, Hiroshi Mizuta, Shunri Oda. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2570. Guilhabert B. Patterning and integration of polyfluorene polymers on micropixellated UV AlInGaN light emitting diodes. / Guilhabert B., Gong Z., Belton C., MackIntosh A., Gu E., Stavrinou P., Bradley D.D.C., Pethrick R.A., Dawson M.D. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2571. Boucherif Abderraouf. Mid-infrared optical upconversion by integrating an InAsSb photodetector with a GaAs light emitting diode. / Boucherif Abderraouf, Ban Dayan, Hui Luo, Dupont Emmanuel, Liu H.C., Wasilewski Z. R., Paltiel Yossi. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2572. Hongbo Yu. Multiple Wavelength Emission From Semipolar InGaN/GaN Quantum Wells Selectively Grown by MOCVD. / Hongbo Yu, Taeil Jung, Lee L. K., Ku P. C. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2573. Liao Michael P. Carrier Concentration and Junction Temperature Dependencies of Illumination Efficiency of GaN Power Light-Emitting Diodes. 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2574. Jiming Bao. Efficient point defect engineered si light-emitting diode at 1.218 μm. / Jiming Bao, Malek Tabbal, Taegon Kim, Supakit Charnvanichborikarn, Williams James S., Aziz Michael. J., Capasso Federico. // 2007. QELS '07 Quantum Electronics and Laser Science Conference. - Baltimore, MD, USA, 6-11 May 2007. - P. 1-2.

C2575. Liuxi Tan. Modeling and Simulation of Laser Lift-off Process for LED's Substrates. / Liuxi Tan, Jia Li, Sheng Liu. // 2007. ICEPT 2007. 8th International Conference on Electronic Packaging Technology. - Shanghai, 14-17 Aug. 2007. - P. 1-5.

C2576. Tran N.T. Simulation and experimental studies of phosphor concentration and thickness for phosphor-based white light-emitting-diodes. / Tran N.T., Shi F.G. // 2007. IMPACT 2007. International Microsystems, Packaging, Assembly and Circuits Technology. - Taipei, 1-3 Oct. 2007. - P. 255-257.

C2577. Chuan-Yu Chang. Learning Vector Quantization Neural Networks for LED Wafer Defect Inspection. / Chuan-Yu Chang, Chin-Huang Chang, Chun-Hsi Li, Mu Der Jeng. // 2007. ICICIC '07. Second International Conference on Innovative Computing, Information and Control. - Kumamoto, 5-7 Sept. 2007. - P. 229.

C2578. Cheng-Li Chuang. Thermosonic flip- chip bonding for stud bumps onto copper electrodes with titanium and silver layers. / Cheng-Li Chuang, Qing-An Liao, Chun-Chieh Hsu, Jong-Ning Aoh, Shi-Jie Liao, Guo-Shing Huang. // 2007. IMPACT 2007. International Microsystems, Packaging, Assembly and Circuits Technology. - Taipei, 1-3 Oct. 2007. - P. 266-269.

C2579. Kyudong Lee. Ambient Lamp Display in the Active Home Ubiquitous Computing Environment for Relaxing and Mediation. / Kyudong Lee, Hyun Sang Cho, Kyoung Shin Park, Minsoo Hahn. // Future Generation Communication and Networking (FGCN 2007). - Jeju, 6-8 Dec. 2007. - Vol. 2. - P. 81-86.

C2580. Chun Kai Liu. High efficiency silicon-based high power LED package integrated with micro-thermoelectric device. / Chun Kai Liu, Ming-Ji Dai, Chih-Kuang Yu, Sheng-Liang Kuo. // 2007. IMPACT 2007. International Microsystems, Packaging, Assembly and Circuits Technology. - Taipei, 1-3 Oct. 2007. - P. 29-33.

C2581. Tran N.T. LED package design for high optical efficiency and low viewing angle. / Tran N.T., Shi F.G. // 2007. IMPACT 2007. International Microsystems, Packaging, Assembly and Circuits Technology. - Taipei, 1-3 Oct. 2007. - P. 10-13.

C2582. Saeedi E. Self-assembled inorganic micro-display on plastic. / Saeedi E., Kim S.S., Parviz B.A. // 2007. MEMS. IEEE 20th International Conference on Micro Electro Mechanical Systems. - Hyogo, 21-25 Jan. 2007. - P. 755-758.

C2583. You J.P. Thermal management of high power LEDs: Impact of die attach materials. / You J.P., He Y., Shi F.G. // 2007. IMPACT 2007. International Microsystems, Packaging, Assembly and Circuits Technology. - Taipei, 1-3 Oct. 2007. - P. 239-242.

C2584. Hsun-Tien Li. The study of thermal properties and thermal resistant behaviors of siloxane-modified LED transparent encapsulant. / Hsun-Tien Li, Chia-Wen Hsu, Kai-Chi Chen. // 2007. IMPACT 2007. International Microsystems, Packaging, Assembly and Circuits Technology. - Taipei, 1-3 Oct. 2007. - P. 246-249.

C2585. Chuan-Yu Chang. Radial Basis Function Neural Networks for LED Wafer Defect Inspection. / Chuan-Yu Chang, Yung-Chi Chang, Chun-Hsi Li, MuDer Jeng. // 2007. ICICIC '07. Second International Conference on Innovative Computing, Information and Control. - Kumamoto, 5-7 Sept. 2007. - P. 230.

C2586. Yoshioka K. Promotion effect of iodization on carbonization for MEMS application. / Yoshioka K., Naka K., Konishi S. // 2007. MEMS. IEEE 20th International Conference on Micro Electro Mechanical Systems. - Hyogo, 21-25 Jan. 2007. - P. 243-246.

C2587. Jian-Long Kuo. Design of the opto-mechatronic system for the LED projector. / Jian-Long Kuo, Tzu-Hsuan Fang. // TENCON 2007-2007 IEEE Region 10 Conference. - Taipei, Oct. 30 2007-Nov. 2 2007. - P. 1-4.

C2588. Shilin Tang. Remotely-sensed estimation of the euphotic depth in the northern South China Sea. / Shilin Tang, Chuqun Chen, Haigang Zhan, Dazhi Xu. // 2007. IGARSS 2007. IEEE International Geoscience and Remote Sensing Symposium. - Barcelona, 23-28 July 2007. - P. 917-920.

C2589. Daraigan S.G. Multispectral absorption algorithm for retrieving TSS concentrations in water. / Daraigan S.G., Hashim S.A., Jafri M.Z.M., Abdullah K., Wong Chow Jeng, Saleh N.M. // 2007. IGARSS 2007. IEEE International Geoscience and Remote Sensing Symposium. - Barcelona, 23-28 July 2007. - P. 2848-2851.

C2590. Bosio C. Silicon photomultiplier light response properties. / Bosio C., Kuznetsova E., Gentile S., Meddi F. // 2007. NSS 07. IEEE Nuclear Science Symposium Conference Record. - Honolulu, HI, Oct. 26 2007-Nov. 3 2007. - Vol. 3. - P. 2097-2098.

C2591. Corsi F. Preliminary results from a current mode CMOS front-end circuit for silicon photomultiplier detectors. / Corsi F., Marzocca C., Foresta M., Matarrese G., Del Guerra A., Marcatili S., Llosa G., Collazuol G., Dalla Betta G.F., Piemonte C. // 2007. NSS 07. IEEE Nuclear Science Symposium Conference Record. - Honolulu, HI, Oct. 26 2007-Nov. 3 2007. - Vol. 1. - P. 360-365.

C2592. Kobayashi S. Study of finding DOI for a Pr:LuAG scintillator with a number of lateral grooves around the axis. / Kobayashi S., Kamada K., Usuki Y., Yanagida T., Ogino H., Yoshikawa A. // 2007. NSS 07. IEEE Nuclear Science Symposium Conference Record. - Honolulu, HI, Oct. 26 2007-Nov. 3 2007. - Vol. 5. - P. 3673-3677.

C2593. Yamamura T. Flexible organic leds with parylene thin films for biological implants. / Yamamura T., Kitamura M., Kuribayashi K., Arakawa Y., Takeuchi S. // 2007. MEMS. IEEE 20th International Conference on Micro Electro Mechanical Systems. - Hyogo, 21-25 Jan. 2007. - P. 739-742.

C2594. Hoshino K. Near-field scanning optical micro probe integrated with a nanometer-sized light emitting diode. / Hoshino K., Rozanski L., Vanden Bout D.A., Xiaojing Zhang. // 2007. MEMS. IEEE 20th International Conference on Micro Electro Mechanical Systems. - Hyogo, 21-25 Jan. 2007. - P. 743-746.

C2595. Chih-Hung Hsiao. White Organic Light-Emitting Devices with Selectively-Doped Emitting Layer. / Chih-Hung Hsiao, Chi-Feng Lin, Jiun-Haw Lee. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 506-507.

C2596. Chin-An Tseng. Red Phosphorescent Material Doped in the Hole- and Electron-Transport Layer of Organic Light-Emitting Device. / Chin-An Tseng, Hsin-Hung Tsai, Jiun-Haw Lee, Chin-Ti Chen, Yi-Hwa Song, Yun Chi. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 504-505.

C2597. Peter Vandersteegen. Increasing light extraction of a substrate emitting OLED using a 2D surface grating. / Peter Vandersteegen, Carl Van Buggenhout, Angel Ullan Nieto, Steven Verstuyft, Peter Bienstman, Kristiaan Neyts, Roel Baets. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 502-503.

C2598. Akiyoshi Mikami. High Efficiency White-Light-Emitting Organic Devices Coupled With Lateral Color Conversion Layer. 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 498-499.

C2599. Chung-Chih Wu. Electromagnetic Modeling of OLEDs and its Applications to High-cd/A OLEDs. / Chung-Chih Wu, Chun-Liang Lin, Ting-Yi Cho, Chih-Jen Yang, Yin-Jui Lu, Hao-Wu Lin. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 500-501.

C2600. L. Dal Negro. Light Emission from Silicon-based Nano-materials. / L. Dal Negro, J. H. Yi, H. Koklu, J. Michel, L.C. Kimerling. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 544.

C2601. Rico-Secades M. Using Tapped-Inductor Converters as LED Drivers. / Rico-Secades M., Garcia J., Cardesin J., Calleja A.J. // 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry

Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 4. - P. 1794-1800.

C2602. Wendt M. LEDs in Real Lighting Applications: from Niche Markets to General Lighting. / Wendt M., Andriesse J.-W. // 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 5. - P. 2601-2603.

C2603. Sato F. Flexible Displays for Digital TV Broadcasting. / Sato F., Kurita T., Tokito S., Fijikake H., Kikuchi H., Inoue Y. // 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 2. - P. 690-693.

C2604. Destruel P. White organic light-emitting diodes (WOLEDs). / Destruel P., Ablart G., Jolinat P., Seguy I., Farenc J. // 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 2. - P. 694-697.

C2605. Lim K. Illumination and Color Management in Solid State Lighting. / Lim K., Joon Chok Lee, Panotopoulos G., Helbing R. // 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 5. - P. 2616-2620.

C2606. Sauerlander G. Driver Electronics for LEDs. / Sauerlander G., Hente D., Radermacher H., Waffenschmidt E., Jacobs J. // 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 5. - P. 2621-2626.

C2607. Bernitz F. Advanced Electronic Driver for Power LEDs with Integrated Colour Management. / Bernitz F., Schallmoser O., Sowa W. // 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 5. - P. 2604-2607.

C2608. Ackermann B. Control of LEDs. / Ackermann B., Schulz V., Martiny C., Hilgers A., Zhu X. // 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 5. - P. 2608-2615.

C2609. Sugiura H. Wide Color Gamut Displays Using LED Backlight-Signal Processing Circuits -. / Sugiura H., Kaneko H., Kagawa S., Someya J., Tanizoe H. // 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 2. - P. 686-689.

C2610. Begovich D.A.G. Visual Stimulation System to Detect Eye Movements. / Begovich D.A.G., Moran C.O.G., Suaste G.E. // 2006 3rd International Conference on Electrical and Electronics Engineering. - Veracruz, 6-8 Sept. 2006. - P. 1-3.

C2611. {no data available}. 17 SEM1 Semiconductor Materials. 2006 3rd International Conference on Electrical and Electronics Engineering. Sept. 2006. - P. 53-54.

C2612. Levada S. High Brightness Ingan Leds Degradation at High Injection Current Bias. / Levada S., Meneghini M., Zanoni E., Buso S., Spiazzi G., Meneghesso G. // IEEE International Reliability Physics Symposium Proceedings, 2006. 44th Annual. - San Jose, CA, 26-30 March 2006. - P. 615-616.

C2613. Sanchez J.C. Characterization of Thin Films of Conjugated Polymer (BEHP-PPV) -co-(MEH-PPV) for OLEDs Aplication. / Sanchez J.C., Escobosa A., Estrada M. // 2006 3rd International Conference on Electrical and Electronics Engineering. - Veracruz, 6-8 Sept. 2006. - P. 1-4.

C2614. Jun Liu. Noise-controlled Technique to Improve Vibration Touch in Humans. / Jun Liu, Jian Wu, Zhengguo Lou. // 2006. ISDA '06. Sixth International Conference on Intelligent Systems Design and Applications. - Jinan, 16-18 Oct. 2006. - Vol. 1. - P. 999-1002.

C2615. {no data available}. Conference Record of the 2006 IEEE Industry Applications Conference Forty-First IAS Annual Meeting. 2006. 41st IAS Annual Meeting. Conference Record of the 2006 IEEE Industry Applications Conference. - Tampa, FL, 8-12 Oct. 2006. - Vol. 1. - P. i.

C2616. Masahiro Nishikawa. An LED Drive Circuit with Constant-Output-Current Control and Constant-Luminance Control. / Masahiro Nishikawa, Yoichi Ishizuka, Hirofumi Matsuo, Koichi Shigematsu. // 2006. INTELEC '06. 28th Annual International Telecommunications Energy Conference. - Providence, RI, Sept. 2006. - P. 1-6.

C2617. Jung-Wook Choi. R-LIM: an Affordable Library Search System Based on RFID. / Jung-Wook Choi, Dong-Ik Oh, Il-Yeol Song. // 2006. ICHIT '06. International Conference on Hybrid Information Technology. - Cheju Island, 9-11 Nov. 2006. - Vol. 1. - P. 103-108.

C2618. Chang-Jung Juan. Controller with an Area Compensated Look-Up-Table for Improving the Luminance Uniformity on Lighting Passive Matrix Organic Light Emitting Diode Panels. / Chang-Jung Juan, Ming-Jong Tsai, Chien-Hui Chou. // Proceedings of the 2006 IEEE International Conference on Mechatronics and Automation. - Luoyang, Henan, 25-28 June 2006. - P. 583-588.

C2619. Maria Makarova. Silicon-based photonic crystal nanocavity light emitters. / Maria Makarova, Jelena Vuckovic, Hiroyuki Sanda, Yoshio Nishi. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 240-241.

C2620. Shizuo Tokito. Flexible Organic Light-emitting Diode Displays. 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 426-427.

C2621. E. Gu. Hybrid inorganic/organic micro-structured light-emitting diodes produced by self-aligned direct writing. / E. Gu, A. MackIntosh, A. Kuhne, R.A. Pethrick, C. Belton, D.D.C. Bradley, H.X. Zhang, M.D. Dawson. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 184-185.

C2622. Philippe M. Fauchet. Silicon LEDs and Lasers. 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 239.

C2623. Ian Underwood. P-OLED Microdisplays. / Ian Underwood, Graeme Kelly, Robin Woodburn. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 438-439.

C2624. Shahin J. Ashtiani. Reducing Charge Injection in Active-Matrix a-Si TFT Pixels. / Shahin J. Ashtiani, Arokia Nathan. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 440-441.

C2625. Yongtaek Hong. Flexible Displays. 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 428-429.

C2626. G. Reza Chaji. An Enhanced and Simplified Optical Feedback Pixel Circuit for AMOLED Displays. / G. Reza Chaji, Arokia Nathan. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 436-437.

C2627. Huffaker D.L. GaSb QW-based `buffer-free' vertical LED monolithically embedded within a GaAs cavity using interfacial misfit arrays. / Huffaker D.L., Mehta M., Balakrishnan G., Huang S., Khoshakhlagh A., Patel P., Kutty M.N., Dawson L.R. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, QC, Canada, Oct. 2006. - P. 180-181.

C2628. Wen-Yaw Chung. The Column Driver Circuit Design for Passive Organic Electroluminescence Display. / Wen-Yaw Chung, Yu-Chien Tseng, Yu-Wen Chen, Chih-Jen Yen. // 2006 International Symposium on VLSI Design, Automation and Test. - Hsinchu, 26-28 April 2006. - P. 1-4.

C2629. Jongman Cho. A Fast Eye-Movement Tracking Using Cross-Division Algorithm. / Jongman Cho, Sungil Kim, Jaehong Lim. // 2006. EMBS '06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - Vol. Supplement. - P. 6482-6484.

C2630. Coutinho F.L. Free head motion eye gaze tracking using a single camera and multiple light sources. / Coutinho F.L., Morimoto C.H. // 2006. SIBGRAPI 06. 19th Brazilian Symposium on Computer Graphics and Image Processing. - Manaus, 8-11 Oct. 2006. - P. 171-178.

C2631. Wang Xiqin. ESD Immunity Test and Several Improvements for Digital Electronic Dictionary. / Wang Xiqin, Huang Jiusheng, Gao Yougang, Liu Suling, Zhou Feng, Wang Langfeng. // The 2006 4th Asia-Pacific Conference on Environmental Electromagnetics. - Dalian, 1-4 Aug. 2006. - P. 71-75.

C2632. Z. Gong. Uniform emission from matrix-addressable micro-pixellated InGaN light-emitting diodes. / Z. Gong, H.X. Zhang, E. Gu, M.D. Dawson. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and

Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 32-33.

C2633. Emre Sari. InGaN/GaN based LEDs with electroluminescence in violet, blue, and green tuned by epitaxial growth temperature. / Emre Sari, Sedat Nizamoglu, Tuncay Ozel, Hilmi Volkan Demir, Ayse Inal, Erkin Ulker, Ekmel Ozbay, Yilmaz Dikme, Micheal Heuken. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 34-35.

C2634. Yi Luo. Key Technologies for Solid State Lighting. / Yi Luo, Yanjun Han, Keyuan Qian. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 11-12.

C2635. M. Asif Khan. Deep Ultraviolet Light Emitting Diodes. 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 30-31.

C2636. Hong-Da Chen. Silicon optical emitter in CMOS technology. / Hong-Da Chen, Hai-Jun Liu, Bei-Ju Huang, Ming Gu, Jin-Bin Liu. // 2006. ICSICT '06. 8th International Conference on Solid-State and Integrated Circuit Technology. - Shanghai, 23-26 Oct. 2006. - P. 278-280.

C2637. Someya T. Large-area Electronics Based on Organic Transistors. / Someya T., Sakurai T., Sekitani T. // 2006 64th Device Research Conference. - State College, PA, USA, June 2006. - P. 209-210.

C2638. Pingree L.S.C. Negative Capacitance in Organic Light-Emitting Diodes: Implications for Display Applications. / Pingree L.S.C., Russell M.T., Marks T.J., Hersam M.C. // 2006 64th Device Research Conference. - State College, PA, USA, June 2006. - P. 143-144.

C2639. Guangcun Shan. Carrier-transport and Light-emission Processes in an Organic Light-emitting Device. / Guangcun Shan, Shuying Baob, Wei Huang. // 2006. ICSICT '06. 8th International Conference on Solid-State and Integrated Circuit Technology. - Shanghai, 23-26 Oct. 2006. - P. 989-991.

C2640. Gaska R. Physics and Applications of Deep UV LEDs. / Gaska R., Shur M.S., Zhang J. // 2006. ICSICT '06. 8th International Conference on Solid-State and Integrated Circuit Technology. - Shanghai, 23-26 Oct. 2006. - P. 842-844.

C2641. Liu E.Z.X. Recent progress of heterogeneous integration for semiconductor materials and microsystems. / Liu E.Z.X., Loryuenyong V., Cheung N.W. // 2006. ICSICT '06. 8th International Conference on Solid-State and Integrated Circuit Technology. - Shanghai, 23-26 Oct. 2006. - P. 520-523.

C2642. Shui-Jinn Wang. Fabrication of High-Power Vertical GaN-Based Light-Emitting Diodes with Selective Nickel Electroplating and Patterned Laser Lift-Off Techniques. / Shui-Jinn Wang, Shiue-Lung Chen, Kai-Ming Uang, Wei-Chi Lee, Tron-Min Chen, Bor-Wen Liou, Su-Hua Yang. // 2006 64th Device Research Conference. - State College, PA, USA, June 2006. - P. 137-138.

C2643. Furukawa Y. Elemental devices for monolithic optoelectronic integrated circuits on lattice-matched Si/III-V-N/Si structure. / Furukawa Y., Yonezu H., Wakahara A., Morisaki Y., Moon S.Y., Ishiji S., Ohtani M. // 2006 64th Device Research Conference. - State College, PA, USA, June 2006. - P. 27-28.

C2644. Bhattacharya A. Digital Sliding Mode Pulsed Current Averaging IC Drivers for High Brightness Light Emitting Diodes. / Bhattacharya A., Lehman B., Shteynberg A., Rodriguez H. // 2006. COMPEL 06. IEEE Workshops on Computers in Power Electronics. - Troy, NY, 16-19 July 2006. - P. 136-141.

C2645. Martinez A. Generation of Highly-Directional Beams from Point Sources using a Negative-Index Photonic-Crystal Slab. / Martinez A., Piqueras M. A., Marti J. // 2006. ECOC 2006. European Conference on Optical Communications. - Cannes, France, 24-28 Sept. 2006. - P. 1-2.

C2646. Mehta M. Demonstration of GaSb QW-based "Buffer-Free" LED on GaAs Substrate. / Mehta M., Balakrishnan G., Huang S., Khoshakhlagh A., Kutty M.N., Dawson L.R., Huffaker D.L. // 2006 64th Device Research Conference. - State College, PA, USA, June 2006. - P. 135-136.

C2647. Xue-Lun Wang. Semiconductor Light-Emitting Diodes with Separated Current-Injection and Light-Emitting Areas. 2006 64th Device Research Conference. - State College, PA, USA, June 2006. - P. 133-134.

C2648. Shui-Jinn Wang. Use of Anisotropic Laser Etching and Transparent Conducting Layer to Alleviate

Current Crowding Effect in Vertical-Structured GaN-Based Light-Emitting Diodes. / Shui-Jinn Wang, Tron-Min Chen, Kai-Ming Uang, Shiue-Lung Chen, Ching-Chung Tsai, Bor-Wen Liou, Su-Hua Yang. // 2006 64th Device Research Conference. - State College, PA, USA, June 2006. - P. 29-30.

C2649. Ng W.-C. Generalized Photon Recycling Theory for 2D and 3D LED Simulation in Sentaurus Device. / Ng W.-C., Pfeiffer M. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, 11-14 Sept. 2006. - P. 127-128.

C2650. Linder N. Advanced Industrial Design Methods for LEDs. 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 125-126.

C2651. Bienstman P. Modeling methods for high-index contrast linear and non-linear nanophotonics. / Bienstman P., Vandersteegen P., Maes B., Baets R. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 105-106.

C2652. Jongwoon Park. Performance Simulation of Organic Light-Emitting Diodes. / Jongwoon Park, Naotoshi Suganuma, Akio Kaneta, Yoichi Kawakami. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 133-134.

C2653. Loeser M. Super-Luminescent LEDs-Modeling of Emission Spectra and LI-Characteristics. / Loeser M., Occhi L., Laino V., Velez C., Rezzonico R., Witzigmann B. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, 11-14 Sept. 2006. - P. 131-132.

C2654. Wiesmann Ch. Diffraction Efficiency of 2D Photonic Crystal Structures on Light Emitting Diodes. / Wiesmann Ch., Wirth R., Linder N., Stanley R., Houdre R. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 129-130.

C2655. Hoang-Yan Lin. Design and Analysis of Microoptical Elements for Display Applications. / Hoang-Yan Lin, Sheng-Chih Hsu, Jiun-Haw Lee, Mao-Kuo Wei. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 103-104.

C2656. C.S. Xia. Simulation of InGaN/GaN multiple quantum well light-emitting diodes with Quantum Dot electrical and optical effects. / C. S. Xia, W. Lu, Z. M. Simon Li, Z. Q. Li. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 15-16.

C2657. S.M. Thahab. Optical Performance of InGaN/AlGaN Double Heterostucture Light Emitting Diodes. / S. M. Thahab, H. Abu Hassan, Z. Hassan. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 13-14.

C2658. {no data available}. 2006 International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. i.

C2659. Lu A.W. Optimization of microcavity OLED by varying the thickness of multi-layered mirror. / Lu A.W., Chan J., Rakic A.D., Ng A.M.C., Djurisic A.B. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 59-60.

C2660. Sheng Y. 3D Simulation of InGaN/GaN Micro-Ring Light-Emitting Diodes. / Sheng Y., Shmatov O., Li Z.M.S. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 19-20.

C2661. Jin-Bock Lee. Analysis of the extraction efficiency in GaN-on-sapphire light emitting diodes. / Jin-Bock Lee, Sang-Ho Yoon, Dong-Woohn Kim, Chang-Hwan Choi. // 2006. NUSOD '06. International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices. - Nanyang Technological University, Nanyang Executive Centre, Singapore, China, Sept. 2006. - P. 17-18.

C2662. Jun Park. LED-Glove Based Interactions in Multi-Modal Displays for Teleconferencing. / Jun Park, Yeo-Lip Yoon. // 2006. ICAT '06. 16th International Conference on Artificial Reality and Telexistence--Workshops. - Hangzhou, Nov. 29 2006-Dec. 1 2006. - P. 395-399.

C2663. Hiroshi Kobayashi. Development of Feeding Support System and Its Quantitative Estimation. / Hiroshi Kobayashi, Kentaro Konishi. // 2006 IEEE/RSJ International Conference on Intelligent Robots and Systems. - Beijing, Oct. 2006. - P. 717-722.

C2664. Nicholson D. Low Cost DC to 6 GHz Electronic Step Attenuator SMT MCMs with Gate Lag Elimination By Use of High Intensity LEDs. 2006. 36th European Microwave Conference. - Manchester, 10-15 Sept. 2006. - P. 1679-1682.

C2665. Nicholson D. Low Cost DC to 6 GHz Electronic Step Attenuator SMT MCMs with Gate Lag Elimination By Use of High Intensity LEDs. 2006. The 9th European Conference on Wireless Technology. - Manchester, 10-12 Sept. 2006. - P. 384-387.

C2666. C. Algora. Strategic Options for a Led-Like Approach in III-V Concentrator Photovoltaics. / C. Algora, I. Rey-Stolle, B. Galiana, J. R. Gonzalez, M. Baudrit, I. Garcia. // Conference Record of the 2006 IEEE 4th World Conference on Photovoltaic Energy Conversion. - Waikoloa, HI, May 2006. - Vol. 1. - P. 741-744.

C2667. Kent Price. Photovoltage Decay in CDTE/CDS Solar Cells. / Kent Price, Chris Lacy, D. Patrick Hunley. // Conference Record of the 2006 IEEE 4th World Conference on Photovoltaic Energy Conversion. - Waikoloa, HI, May 2006. - Vol. 1. - P. 436-437.

C2668. Mayer T. Bulk Sensitization of Inorganic Semiconductors with Organic Guest Molecules: Zink Phthalocyanines Embedded in μc-Si and ZnSe Host Matrices. / Mayer T., Weiler U., Mankel E., Jaegermann W. // Conference Record of the 2006 IEEE 4th World Conference on Photovoltaic Energy Conversion. - Waikoloa, HI, 7-12 May 2006. - Vol. 1. - P. 190-193.

C2669. Aripov Kh.K. The Semi-Conductor Optical Switch on a Base of Field Transistor. / Aripov Kh.K., Yodgorova D.M., Karimov A.V., Yuldashev Sh.Sh., Nurmukhamedov B.Z. // 2006 2nd IEEE/IFIP International Conference in Central Asia on Internet. - Tashkent, 19-21 Sept. 2006. - P. 1-2.

C2670. S. Chakravarty. Electrically Injected Quantum Dot Photonic Crystal Microcavity Light-emitting Arrays with Air-bridge Nano-contacts. / S. Chakravarty, Z. Mi, P. Bhattacharya. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 619-620.

C2671. Yong Kwan Kim. Electrically Injected Photonic Crystal Light Emitters with Spatially Localized Gain. / Yong Kwan Kim, Victor C. Elarde, James J. Coleman, Kent D. Choquette. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 617-618.

C2672. Sun-Kyung Kim. Symmetry Control of Wavelength-scale Light Emitters. / Sun-Kyung Kim, Se-Heon Kim, Yong-Hee Lee. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 615-616.

C2673. Abdukadirov M.A. Highly Effective System Energy-Supply for Mobile Objects of Communication. / Abdukadirov M.A., Akhmedova N.A., Haydarov K.H., Masharipova S.Yu., Ismoilov U.T. // 2006 2nd IEEE/IFIP International Conference in Central Asia on Internet. - Tashkent, 19-21 Sept. 2006. - P. 1-2.

C2674. Yu-Kuo Cheng. High Dynamic Range Display Adopting High Dynamic Range Imaging Technique. / Yu-Kuo Cheng, Yu-Wen Wan, Han-Ping D. Shieh. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 715-716.

C2675. Yu-Hsuan Ho. Luminance Enhancement and Blur Effect of Microlens Array Film Attachment on Organic Light-Emitting Device. / Yu-Hsuan Ho, Kuan-Yu Chen, Jiun-Haw Lee, Hoang-Yan Lin, Chiao-Chi Lin, Mao-Kuo Wei. // 2006. LEOS 2006. 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society. - Montreal, Que., Oct. 2006. - P. 713-714.

C2676. J.J. Jimenez. Proton radiation effects in high power LEDs and IREDs for Optical Wireless Links for intra-Satellite communications (OWLS). / J.J. Jimenez, M.T. Alvarez, R. Tamayo, J.M. Oter, J.A. Dominguez, I. Arruego, J. Sanchez-Paramo, H. Guerrero. // 2006 IEEE Radiation Effects Data Workshop. - Ponte Vedra, FL, July 2006. - P. 77-84.

C2677. Tetsuo F. Miyahira. Measurements of Radiation Effects on Optoelectronics Conducted by the Jet Propulsion Laboratory. / Tetsuo F. Miyahira, Farokh Irom, Allan H. Johnston. // 2006 IEEE Radiation Effects Data Workshop. - Ponte Vedra, FL, July 2006. - P. 72-76.

C2678. M.L. Yee. Performance and Noise Analysis of VCSEL ROF Using Spherical-ended Multimode Fiber Coupling. / M.L. Yee, B. Luo, L. C. Ong, M.T. Zhou, Z. Shao, M. Fujise. // 2006 6th International Conference on ITS Telecommunications Proceedings. - Chengdu, June 2006. - P. 503-506.

C2679. Olwal A. LightSense: enabling spatially aware handheld interaction devices. 2006. ISMAR 2006. IEEE/ACM International Symposium on Mixed and Augmented Reality. - Santa Barbard, CA, 22-25 Oct. 2006. - P. 119-122.

C2680. Clay A. Motion Tracking Music with Mobile-Media Technology in Two Case Studies. / Clay A., Frey T., Gutknecht J., Majoe D. // 2006 1st International Symposium on Pervasive Computing and Applications. - Urumqi, 3-5 Aug. 2006. - P. 358-363.

C2681. Hoffman M. Building Energy Efficiency Technology Roadmaps: A Case of Bonneville Power Administration (BPA). / Hoffman M., Daim T.U. // 2006. PICMET 2006 Technology Management for the Global Future. - Istanbul, 8-13 July 2006. - Vol. 3. - P. 1503-1527.

C2682. Ming Liu. A Single Driver Chip for Gray Scale Passive-Matrix OLED. / Ming Liu, Chen Jia, Zhiliang Chen. // 2006 International Conference on Communications, Circuits and Systems Proceedings. - Guilin, 25-28 June 2006. - Vol. 4. - P. 2193-2196.

C2683. Grzesiak W. Application of PV Powered High Intensity LEDs for Supplementary Irradiation of Horticultural Plants. / Grzesiak W., Ciez M., Nowak S., Zaraska W., Dubert F., Czyczylo-Mysza I. // Conference Record of the 2006 IEEE 4th World Conference on Photovoltaic Energy Conversion. - Waikoloa, HI, May 2006. - Vol. 2. - P. 2400-2403.

C2684. J. Thongpron. Static Parameters of Solar Cells Determined from Solar Simulators Using Quartz Tungsten Halogen Lamps and Super Bright Light Emitting Diodes. / J. Thongpron, S. Lohapetch, K. Kirtikara. // Conference Record of the 2006 IEEE 4th World Conference on Photovoltaic Energy Conversion. - Waikoloa, HI, May 2006. - Vol. 2. - P. 2235-2237.

C2685. Warner J.H. The Effects of High Energy Protons on Shielded Space Solar Cells. / Warner J.H., Messenger S.R., Walters R.J., Summers G.P. // Conference Record of the 2006 IEEE 4th World Conference on Photovoltaic Energy Conversion. - Waikoloa, HI, May 2006. - Vol. 2. - P. 1854-1857.

C2686. Biglari M.H. Reliability Aspects of Lead-Free Soldering in Industrial Applications. / Biglari M.H., Kox F., Hermans M., Kodentsov A. // 2006. 1st Electronics Systemintegration Technology Conference. - Dresden, 5-7 Sept. 2006. - Vol. 1. - P. 481-484.

C2687. Schmieder K. Luminous PWBs-OLED-Displays on FR4. / Schmieder K., Hoffmann T., Fielder R., Schneider O., Stubinger T., Hofmann M. // 2006. 1st Electronics Systemintegration Technology Conference. - Dresden, 5-7 Sept. 2006. - Vol. 1. - P. 253-256.

C2688. Poppe A. Thermal Measurements and Qualification IC Packages Using the Transient Method: Principles and Applications. 2006. 1st Electronics Systemintegration Technology Conference. - Dresden, 5-7 Sept. 2006. - Vol. 1. - P. x.

C2689. Jacob P. Reliability Failures in Small Optocoupling and DC/DC Converter Devices. / Jacob P., Nicoletti G., Rutsch M. // 2006. 13th International Symposium on the Physical and Failure Analysis of Integrated Circuits. - Singapore, 3-7 July 2006. - P. 167-170.

C2690. Ringel S.A. III-V/Si Device Integration Via Metamorphic SiGe Substrates. / Ringel S.A., Kwon O., Lueck M., Boeckl J., Fitzgerald E.A. // 2006. ISTDM 2006. Third International SiGe Technology and Device Meeting. - Princeton, NJ, 2006. - P. 1-2.

C2691. Huanjun Liu. An Empty Bottle Intelligent Inspector Based on Support Vector Machines and Fuzzy Theory. / Huanjun Liu, Yaonan Wang, Feng Duan. // 2006. WCICA 2006. The Sixth World Congress on Intelligent Control and Automation. - Dalian, 2006. - Vol. 2. - P. 9739-9743.

C2692. Yuezong Wang. Design of a Page-Checking Instrument Based on Fuzzy Pattern Recognition. / Yuezong Wang, Desheng Li. // 2006. WCICA 2006. The Sixth World Congress on Intelligent Control and Automation. - Dalian, 2006. - Vol. 1. - P. 5134-5138.

C2693. Hao-Chih Yuan. Flexible Thin-film Transistors on Strained Si/SiGe Membranes. / Hao-Chih Yuan, Guogong Wang, Roberts M.M., Savage D.E., Lagally M.G., Zhenqiang Ma. // 2006. ISTDM 2006. Third International SiGe Technology and Device Meeting. - Princeton, NJ, 2006. - P. 1-2.

C2694. Peng Y.H. Characteristics of Superlattice LED with a Si0.8 Ge0.2 or Si Capped Layer at Room Temperature. / Peng Y.H., Li H.R., Chen P.S., Suen Y.W., Kuan C.H., Lee S.C. // 2006. ISTDM 2006. Third International SiGe Technology and Device Meeting. - Princeton, NJ, 2006. - P. 1-2.

C2695. Hartmann J.M. High temperature growth of very high Ge content SiGe virtual substrates. / Hartmann J.M., Bogumilowicz Y., Di Nardo C., Holliger P., Rolland G., Papon A.-M., Billon T. // 2006. ISTDM 2006. Third International SiGe Technology and Device Meeting. - Princeton, NJ, 2006. - P. 1-2.

C2696. Gong-Ru Lin. Enhancement of Fowler-Nordheim Tunneling Based Light Emission from metal-SiOx-Si MOSLED. / Gong-Ru Lin, Chun-Jung Lin. // 2006. 3rd IEEE International Conference on Group IV Photonics. - Ottawa, Ont., 2006. - P. 219-221.

C2697. Yasuhara N. Triggered Electroluminescence from a Strained Si1-XGeX/Si Single Quantum Well. / Yasuhara N., Fukatsu S. // 2006. 3rd IEEE International Conference on Group IV Photonics. - Ottawa, Ont., 2006. - P. 167-169.

C2698. Kompocholis C. A Characterization of Injection, Transport an Excitation Mechanisms in Si-nc based MOS-LEDs. / Kompocholis C., Pucker G., Bellutti P., Lui A., Vanzetti L., Bersani M., Anderle M., Prezioso S., Gaburro Z., Pavesi L. // 2006. 3rd IEEE International Conference on Group IV Photonics. - Ottawa, Ont., 2006. - P. 140-142.

C2699. Jiming Sa. Study on Transmission Optical Fiber Hydrogen Sensor. / Jiming Sa, Youping Chen, Gang Zhang, Zude Zhou. // 2006. WCICA 2006. The Sixth World Congress on Intelligent Control and Automation. - Dalian, 2006. - Vol. 1. - P. 5046-5048.

C2700. Haiyan Ji. Design of Portable LED-based NIR Integrity Wheat Component Intelligent Measuring Apparatus. / Haiyan Ji, Ming Wen. // 2006. WCICA 2006. The Sixth World Congress on Intelligent Control and Automation. - Dalian, 2006. - Vol. 1. - P. 4944-4947.

C2701. Xianbin Xue. Planning and Simulation of the Flowers and Plants' Environment Adjustment Based on Fuzzy-PI Control. / Xianbin Xue, Kaixue Yao, Chengye Liu. // 2006. WCICA 2006. The Sixth World Congress on Intelligent Control and Automation. - Dalian, 2006. - Vol. 1. - P. 3810-3814.

C2702. Liao M.H. Electroluminescence from the Ge Quantum Dot Metal-Oxide-Semiconductor Tunneling Diodes. / Liao M.H., Cheng T.-H., Chen T.C., Lai C.-H., Lee C.-H., Liu C.W. // 2006. ISTDM 2006. Third International SiGe Technology and Device Meeting. - Princeton, NJ, 2006. - P. 1-2.

C2703. Chen C.C. LED back-light driving system for LCD panels. / Chen C.C., Wu C.-Y., Wu T.-F. // 2006. APEC '06. Twenty-First Annual IEEE Applied Power Electronics Conference and Exposition. 19-23 March 2006. - P. 5

C2704. Fadiel A. Computational Analysis of Mass Spectrometry Data Using Novel Combinatorial Methods. / Fadiel A., Langston M.A., Peng X., Perkins A.D., Taylor H.S., Tuncalp O., Vitello D., Pevsner P., Naftolin F. // 2006. IEEE International Conference on. Computer Systems and Applications. March 8, 2006. - P. 266-273.

C2705. Miyauchi S. Analysis of LED-allocation algorithm for high-speed parallel wireless optical communication system. / Miyauchi S., Komine T., Haruyama S., Nakagawa M. // 2006 IEEE Radio and Wireless Symposium. 17-19 Jan. 2006. - P. 191-194.

C2706. {no data available}. Twenty Second Annual IEEE Semiconductor Thermal Measurement and Management Symposium. 2006 IEEE Twenty-Second Annual IEEE Semiconductor Thermal Measurement and Management Symposium. - Dallas, TX, 14-16 March 2006. - P. i.

C2707. Anderson B. CCFL inverters: opportunity or threat. / Anderson B., Brush L. // 2006. APEC '06. Twenty-First Annual IEEE Applied Power Electronics Conference and Exposition. 19-23 March 2006. - P. 4

C2708. In-Hwan Oh. A single-stage power converter for a large screen LCD back-lighting. 2006. APEC '06. Twenty-First Annual IEEE Applied Power Electronics Conference and Exposition. 19-23 March 2006. - P. 6

C2709. Chakravarthy S. Dynamic programming environment for active rules. / Chakravarthy S., Varkala S. // 2006 7th International Baltic Conference on Databases and Information Systems. - Vilnius, 2006. - P. 3-16.

C2710. Wei-Chung Cheng. Minimization for LED-backlit TFT-LCDs. / Wei-Chung Cheng, Chain-Fu Chao. // 2006 43rd ACM/IEEE Design Automation Conference. - San Francisco, CA, 2006. - P. 608-611.

C2711. Lopez-Hernandez F.J. Low-Cost Diffuse Wireless Optical Communication System based on White LED. / Lopez-Hernandez F.J., Poves E., Perez-Jimenez R., Rabadan J. // 2006. ISCE '06. 2006 IEEE Tenth International Symposium on Consumer Electronics. - St. Petersburg, 2006. - P. 1-4.

C2712. Komine T. Performance evaluation of narrowband OFDM on integrated system of power line communication and visible light wireless communication. / Komine T., Haruyama S., Nakagawa M. // 2006 1st International Symposium on Wireless Pervasive Computing. 16-18 Jan. 2006. - P. 6

C2713. Tzer-En Nee. Effect of multiquantum barriers on performance of InGaN/GaN multiple-quantum-well light-emitting diodes. / Tzer-En Nee, Jen-Cheng Wang, Ray-Ming Lin. // 2006 IEEE Conference on Emerging Technologies-Nanoelectronics. 10-13 Jan. 2006. - P. 360-365.

C2714. Ray-Ming Lin. Brightness Improvement and limited Forward Voltage of the AlGaInP MQW LED with Wet-Oxidation by Taguchi Method. / Ray-Ming Lin, Jen-Chih Li, Tzer-En Nee. // 2006 IEEE Conference on Emerging Technologies-Nanoelectronics. 10-13 Jan. 2006. - P. 245-248.

C2715. Amirshahi P. Broadband access over medium and low voltage power-lines and use of white light emitting diodes for indoor communications. / Amirshahi P., Kavehrad M. // 2006. CCNC 2006. 3rd IEEE Consumer Communications and Networking Conference. 8-10 Jan. 2006. - Vol. 2. - P. 897-901.

C2716. Mathew R. 1Gb/s Ethernet physical layer device package development. / Mathew R., Wang M., Jinsong Hu, Qinghua Chen, Cowen C., Gifford E., Ivanir E. // 2006. Proceedings. 56th Electronic Components and Technology Conference. - San Diego, CA, 2006. - P. 6

C2717. Zhang K. Thermal interface material with aligned CNT and its application in HB-LED packaging. / Zhang K., Yuen M.M.F., Wang N., Miao J.Y., Xiao D.G.W., Fan H.B. // 2006. Proceedings. 56th Electronic Components and Technology Conference. - San Diego, CA, 2006. - P. 6

C2718. Sun Z. From nanostructured thin films to photonic devices --development and commercialization. / Sun Z., Chen T., Zhang Z.J., Wang L.L., Ni S., Cao Z.Y., Chen Y.W., Guo P.S., Sun Y., Tay B.K. // 2006 IEEE Conference on Emerging Technologies-Nanoelectronics. 10-13 Jan. 2006. - P. 29-32.

C2719. Gips J. Mapping human networks. / Gips J., Pentland A. // 2006. PerCom 2006. Fourth Annual IEEE International Conference on Pervasive Computing and Communications. - Pisa, 13-17 March 2006. - P. 10 P.-168.

C2720. Kanayama H. Ultra small projector with high efficiency illumination system. / Kanayama H., Maeda M., Miwa T., Ikeda T., Murata H., Chihara K. // 2006. ICCE '06. 2006 Digest of Technical Papers. International Conference on Consumer Electronics. 7-11 Jan. 2006. - P. 127-128.

C2721. Jianzheng Hu. Thermal effects of moisture inducing delamination in light-emitting diode packages. / Jianzheng Hu, Lianqiao Yang, Moo Whan Shin. // 2006. Proceedings. 56th Electronic Components and Technology Conference. - San Diego, CA, 2006. - P. 6

C2722. Linder S.P. Using the Morphology of the Photoplethysmogram Envelope to Automatically Detect Hypovolemia. / Linder S.P., Wendelken S. // 2006. CBMS 2006. 19th IEEE International Symposium on

Computer-Based Medical Systems. - Salt Lake City, UT, 2006. - P. 371.

C2723. Afgani M.Z. Visible light communication using OFDM. / Afgani M.Z., Haas H., Elgala H., Knipp D. // 2006. TRIDENTCOM 2006. 2nd International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities. - Barcelona, 2006. - P. 6 P.-134.

C2724. Jung Kyu Park. A suggestion for high power LED package based on LTCC. / Jung Kyu Park, Hyun Dong Shin, Young Sam Park, Sung Yeol Park, Ki Pyo Hong, Byung Man Kim. // 2006. Proceedings. 56th Electronic Components and Technology Conference. - San Diego, CA, 2006. - P. 6

C2725. Lan Kim. Thermal resistance analysis of high power LEDs with multi-chip package. / Lan Kim, Woong Joon Hwang, Moo Whan Shin. // 2006. Proceedings. 56th Electronic Components and Technology Conference. - San Diego, CA, 2006. - P. 6

C2726. Sheng Liu. A microjet array cooling system for thermal management of active radars and high-brightness LEDs. / Sheng Liu, Tim Lin, Xiaobing Luo, Mingxiang Chen, Xiaoping Jiang. // 2006. Proceedings. 56th Electronic Components and Technology Conference. - San Diego, CA, 2006. - P. 5

C2727. Lin G. Materials Challenges and Solutions for the Packaging of High Power LEDs. / Lin G., Zhou Y., Tran N., Chiang W., He Y., Shi F.G. // 200611th International Symposium on Advanced Packaging Materials: Processes, Properties and Interface. - Atlanta, GA, 2006. - P. 63.

C2728. Reza Chaji G. High-precision, fast current source for large-area current-programmed a-Si flat panels. / Reza Chaji G., Nathan A. // 2006. ISCAS 2006. Proceedings. 2006 IEEE International Symposium on Circuits and Systems. - Island of Kos, 2006. - P. 4

C2729. Liu H.C. Quantum well infrared photodetectors-recent advances at NRC. 2006 Digest of the LEOS Summer Topical Meetings. - Quebec City, Que., 2006. - P. 19-20.

C2730. Ilkwon Park. Efficient Measurement of Eye Blinking under Various Illumination Conditions for Drowsiness Detection Systems. / Ilkwon Park, Jung-Ho Ahn, Hyeran Byun. // 2006. ICPR 2006. 18th International Conference on Pattern Recognition. - Hong Kong, 2006. - Vol. 1. - P. 383-386.

C2731. Jinen K. Near-infrared Electroluminescence from Multilayered CdF2/CaF2 Quantum Heterostructure Grown on Trench-Patterned Si. / Jinen K., Uchida K., Kodaira S., Watanabe M., Asada M. // 2006. 3rd IEEE International Conference on Group IV Photonics. - Ottawa, Ont., 2006. - P. 128-130.

C2732. Barnhoefer U. Ulrich Barnhoefer, Moon-Jung Kim, and Mattan Erez A Low Power, Passively Cooled 2000 cd/m2 Hybrid LED-LCD Display. / Barnhoefer U., Kim M.-J., Erez M. // 2006. ISCE '06. 2006 IEEE Tenth International Symposium on Consumer Electronics. - St. Petersburg, 2006. - P. 1-4.

C2733. Fardi B. Obstacle Detection and Pedestrian Recognition Using A 3D PMD Camera. / Fardi B., Dousa J., Wanielik G., Elias B., Barke A. // 2006 IEEE Intelligent Vehicles Symposium. - Tokyo, 2006. - P. 225-230.

C2734. Yamada T. Analysis of Very Low Threshold Current Density GaInNAs Laser at Low Temperature. / Yamada T., Ishizuka T., Koyama K., Fujii K., Hashimoto J., Katsuyama T. // 2006. Conference Digest. 2006 IEEE 20th International Semiconductor Laser Conference. - Kohala Coast, HI, 2006. - P. 169-170.

C2735. Gong-Ru Lin. SiOx/Si Interfacial Si Nano-Pyramids Enhancd Electroluminescence from Si-Rich SiOx MOSLED. / Gong-Ru Lin, Chi-Kuan Lin. // 2006. 3rd IEEE International Conference on Group IV Photonics. - Ottawa, Ont., 2006. - P. 107-109.

C2736. Shui-Hsiang Su. Improving the Luminous Efficiency of Organic Light Emitting Diodes using a Modulated Doping Hole Injection Layer. / Shui-Hsiang Su, Cheng-Chieh Hou, Chih-Kai Chang, Zheng-Wei Huang, Yokoyama M. // 2006. IWJT '06. International Workshop on Junction Technology. - Shanghai, 2006. - P. 277-279.

C2737. Seko Y. "Firefly capturing method": Motion capturing by monocular camera with large spherical aberration of lens and Hough-transform-based image processing. / Seko Y., Saguchi Y., Hotta H., Miyazaki J., Koshimizu H. // 2006. ICPR 2006. 18th International Conference on Pattern Recognition. - Hong Kong, 2006. - Vol. 4. - P. 821-824.

C2738. Se-Heon Kim. Efficient Unidirectional Wavelength-Scale Photonic Crystal Light Emitters. / Se-Heon Kim, Hyun-Ju Chang, Yong-Hee Lee. // 2006. Conference Digest. 2006 IEEE 20th International Semiconductor Laser Conference. - Kohala Coast, HI, 2006. - P. 63-64.

C2739. Brown I.H. Screening of Piezoelectric Fields in InGaN Quantum Well Laser Structures. / Brown I.H., Blood P., Smowton P.M., Thomson J.D., Olaizola S.M., Fox A.M., Parbrook P.J., Chow W.W. // 2006. Conference Digest. 2006 IEEE 20th International Semiconductor Laser Conference. - Kohala Coast, HI, 2006. - P. 81-82.

C2740. Treurniet T. Thermal management in color variable multi-chip led modules. / Treurniet T., Lammens V. // 2006 IEEE Twenty-Second Annual IEEE Semiconductor Thermal Measurement and Management Symposium. - Dallas, TX, 14-16 March 2006. - P. 173-177.

C2741. Sang-Yun Lee. New Design and Application of High Efficiency LED Driving System for RGB-LED Backlight in LCD Display. / Sang-Yun Lee, Jae-Wook Kwon, Hyung-Suk Kim, Myoung-Soo Choi, Kyung-Soo Byun. // 2006. PESC 06. 37th IEEE Power Electronics Specialists Conference. - Jeju, 18-22 June 2006. - P. 1-5.

C2742. Chauraya A. Beam Scanning Antenna with Photonically Tuned EBG Phase Shifters. / Chauraya A., Panagamuwa C., Vardaxoglou J. // IEEE Antennas and Propagation Society International Symposium 2006. - Albuquerque, NM, 9-14 July 2006. - P. 2283-2286.

C2743. Soon-min Seo. A Fabrication Method for Micro/Nanostructures. / Soon-min Seo, Tae-il Kim, Lee H.H. // 2006. IEEE/LEOS International Conference on Optical MEMS and Their Applications Conference. - Big Sky, MT, 21-24 Aug. 2006. - P. 144-145.

C2744. Steckl A.J. Challenges and Opportunities for Biophotonic Devices in the Liquid State and the Solid State. / Steckl A.J., Hagen J.A., Yu Z., Jones R.A., Li W., Han D., Kim D.Y., Spaeth H., Grote J.G., Hopkins F.K. // 2006. IEEE-NANO 2006. Sixth IEEE Conference on Nanotechnology. 17-20 June 2006. - Vol. 1. - P. 159-161.

C2745. Tatebayashi J. Optical Properties of Stranski-Krastanow and Strain-Free GaSb Quantum Dots on GaAs Substrates-Towards Sb-based Type-II Quantum Dot Emitters -. / Tatebayashi J., Balakrishnan G., Huang S.H., Khoshakhlagh A., Mehta M., Dawson L.R., Huffaker D.L. // 2006. IEEE-NANO 2006. Sixth IEEE Conference on Nanotechnology. 17-20 June 2006. - Vol. 1. - P. 119-122.

C2746. Chen C.C. Fast Transition Current-Type Burst-Mode Dimming Control for the LED Back-Light Driving System of LCD TV. / Chen C.C., Wu C.-Y., Wu T.-F. // 2006. PESC 06. 37th IEEE Power Electronics Specialists Conference. - Jeju, 18-22 June 2006. - P. 1-7.

C2747. Lee S.W.R. Development and prototyping of a HB-LED array module for indoor solid state lighting. / Lee S.W.R., Lau C.H., Chan S.P., Ma K.Y., Ng M.H., Ng Y.W., Lee K.H., Lo J.C.C. // 2006. HDP'06. Conference on High Density Microsystem Design and Packaging and Component Failure Analysis. - Shanghai, 27-28 June 2006. - P. 141-145.

C2748. Kun Zhao. Effects of thermosonic bonding parameters on flip chip LEDs. / Kun Zhao, Lei Jia, Ji'an Duan, Jianhua Zhanga. // 2006. HDP'06. Conference on High Density Microsystem Design and Packaging and Component Failure Analysis. - Shanghai, 27-28 June 2006. - P. 101-107.

C2749. Fuliang Wang. Effect of bonding parameters on thermosonic flip chip bonding under pressure constraint pattern. / Fuliang Wang, Junhui Li, Lei Han, Jue Zhong. // 2006. HDP'06. Conference on High Density Microsystem Design and Packaging and Component Failure Analysis. - Shanghai, 27-28 June 2006. - P. 87-89.

C2750. Reiche M. Light Emission by Dislocations in Silicon. / Reiche M., Kittler M., Wilhelm T., Arguirov T., Seifert W., Yu X. // 2006. IEEE/LEOS International Conference on Optical MEMS and Their Applications Conference. - Big Sky, MT, 21-24 Aug. 2006. - P. 110-111.

C2751. Hu F.R. Growth of GaN Quantum Well Film on Si Substrate and Its Application to a GaN-Si Hybrid Lightning Device. / Hu F.R., Ito R., Zhao Y., Kanamori Y., Hane K. // 2006. IEEE/LEOS International Conference on Optical MEMS and Their Applications Conference. - Big Sky, MT, 21-24 Aug. 2006. - P. 27-28.

C2752. Groom K.M. High-Power and Broad-Band Quantum Dot SLDs for Optical Coherence Tomography. /

Groom K.M., Ray S.K., Alexander R.R., Choi T., Kennedy K., Liu H., Hopkinson M., Hogg R.A. // 2006. Conference Digest. 2006 IEEE 20th International Semiconductor Laser Conference. - Kohala Coast, HI, 2006. - P. 47-48.

C2753. Word R.C. Polymer coatings on nano-structured semiconductor surfaces. / Word R.C., Konenkamp R. // 2006. IEEE-NANO 2006. Sixth IEEE Conference on Nanotechnology. 17-20 June 2006. - Vol. 2. - P. 534-536.

C2754. Jackson T. Vapor and Solution Deposited Organic Thin Film Transistors. 2006 International Symposium on VLSI Technology, Systems, and Applications. - Hsinchu, 24-26 April 2006. - P. 1-2.

C2755. Buss I. 3D Modelling of Enhanced Surface Emission using Surface Roughening. / Buss I., Cryan M., Nash G., Haigh M., Craddock I., Railton C., Rarity J. // 2006 International Conference on Transparent Optical Networks. - Nottingham, 18-22 June 2006. - Vol. 4. - P. 150-153.

C2756. Vandersteegen P. Numerical Investigation of a 2D-Grating for Light Extraction of a Bottom Emitting OLED. / Vandersteegen P., Van Buggenhout C., Bienstman P., Baets R. // 2006 International Conference on Transparent Optical Networks. - Nottingham, 18-22 June 2006. - Vol. 2. - P. 211-214.

C2757. Sanjiv Sambandan. Adaptive Estimation of Device Parameters for Pixel Calibration in Large Area Display Systems. / Sanjiv Sambandan, Arokia Nathan. // 2006 IEEE North-East Workshop on Circuits and Systems. - Gatineau, Que., June 2006. - P. 257-260.

C2758. G. Reza Chaji. Low-Cost Stable a-Si:H AMOLED Display for Portable Applications. / G. Reza Chaji, Arokia Nathan. // 2006 IEEE North-East Workshop on Circuits and Systems. - Gatineau, Que., June 2006. - P. 97-100.

C2759. Pei Z. Printed Electronics for System Application. / Pei Z., Kung C.P., Lo P.Y., Chang J.J., Chung C.A., Huamg S.H., Chan Y.J. // 2006 International Symposium on VLSI Technology, Systems, and Applications. - Hsinchu, 24-26 April 2006. - P. 1-2.

C2760. Langer K.-D. Recent Developments in WDM-PON Technology. / Langer K.-D., Vathke J., Habel K., Arellano C. // 2006 International Conference on Transparent Optical Networks. - Nottingham, 18-22 June 2006. - Vol. 1. - P. 12-13.

C2761. Jones R.A. Organic Photovoltaic Devices with Nanometer Scale Thickness by Molecular Beam Deposition. / Jones R.A., Li W., Hagen J., Steckl A.J. // 2006. IEEE-NANO 2006. Sixth IEEE Conference on Nanotechnology. 17-20 June 2006. - Vol. 2. - P. 764-765.

C2762. Jeongdai Jo. Fabrication of OTFT Array on Plastic Substrate by using Nanocontact Printing and Low Temperature Process. / Jeongdai Jo, Eung-Sug Lee, Esashi M. // 2006. IEEE-NANO 2006. Sixth IEEE Conference on Nanotechnology. 17-20 June 2006. - Vol. 2. - P. 588-591.

C2763. Adhiri R. Band-Alignment of ZnSe/ZnSSe Based Layer Structures for Light Emitting Devices, Determination by Photocurrent Measurements. / Adhiri R., Atmani E.H., Moussetad M., Fahli A., Jaouad A., Souifi A., Guillot G., Uusimaa P., Rinta-Moykky A., Pessa M. // 2006 International Conference on Transparent Optical Networks. - Nottingham, 18-22 June 2006. - Vol. 2. - P. 262-268.

C2764. Fiore A. Telecom-Wavelength Single-Photon Sources from Quantum Dots in Microcavities. / Fiore A., Zinoni C., Alloing B., Monat C., Li L.H., Le Thomas N., Houdre R., Lunghi L., Francardi M., Gerardino A. // 2006 International Conference on Transparent Optical Networks. - Nottingham, 18-22 June 2006. - Vol. 2. - P. 235-236.

C2765. Kawaguchi H. All-Optical Signal Regeneration and Optical Buffering Using Polarization Bistable VCSELs. 2006 International Conference on Transparent Optical Networks. - Nottingham, 18-22 June 2006. - Vol. 1. - P. 24-27.

C2766. Neto O.P.V. Evolvable Hardware Applied to Nanotechnology. / Neto O.P.V., Masiero L.P., Pacheco M.A.C., Barbosa C.R.H. // 2006. AHS 2006. First NASA/ESA Conference on Adaptive Hardware and Systems. - Istanbul, 15-18 June 2006. - P. 88-96.

C2767. Nosato H. Automatic Alignment of Multiple Optical Components Using Genetic Algorithm. / Nosato H., Murakawa M., Higuchi T. // 2006. AHS 2006. First NASA/ESA Conference on Adaptive Hardware and Systems. -

Istanbul, 15-18 June 2006. - P. 67-73.

C2768. Zhaowen Xu. 10 Gb/s WDM-PON upstream transmission using injection-locked Fabry-Perot laser diodes. / Zhaowen Xu, Yang Jing Wen, Chang-Joon Chae, Yixin Wang, Chao Lu. // 2006 and the 2006 National Fiber Optic Engineers Conference. OFC 2006 Optical Fiber Communication Conference. 5-10 March 2006. - P. 3

C2769. Litos G. Synchronous Image Acquisition based on Network Synchronization. / Litos G., Zabulis X., Triantafyllidis G. // 2006. CVPRW '06. Conference on Computer Vision and Pattern Recognition Workshop. 17-22 June 2006. - P. 167.

C2770. Huiying Shen. Reading LCD/LED Displays with a Camera Cell Phone. / Huiying Shen, Coughlan J. // 2006. CVPRW '06. Conference on Computer Vision and Pattern Recognition Workshop. 17-22 June 2006. - P. 119.

C2771. Schmickl T. Trophallaxis among swarm-robots: A biologically inspired strategy for swarm robotics. / Schmickl T., Crailsheim K. // 2006. BioRob 2006. The First IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics. - Pisa, 20-22 Feb. 2006. - P. 377-382.

C2772. Poppe A. Multi-domain simulation and measurement of power LED-s and power LED assemblies. / Poppe A., Farkas G., Szekely V., Horvath G., Rencz M. // 2006 IEEE Twenty-Second Annual IEEE Semiconductor Thermal Measurement and Management Symposium. - Dallas, TX, 14-16 March 2006. - P. 191-198.

C2773. Lan Kim. Thermal resistance measurement of LEDswith multi-chip packages. / Lan Kim, Moo Whan Shin. // 2006 IEEE Twenty-Second Annual IEEE Semiconductor Thermal Measurement and Management Symposium. - Dallas, TX, 14-16 March 2006. - P. 186-190.

C2774. Wilcoxon R. Thermal management of an led light engine for airborne applications. / Wilcoxon R., Cornelius D. // 2006 IEEE Twenty-Second Annual IEEE Semiconductor Thermal Measurement and Management Symposium. - Dallas, TX, 14-16 March 2006. - P. 178-185.

C2775. C.A. Castillo. Impact of Vergence Adaptative Process of Progressive Len Acceptability. / C.A. Castillo, B.A. Gayed, C. Pedrono, K.J. Ciuffreda, J.L. Semmlow, T.L. Alvarez. // 2006. Proceedings of the IEEE 32nd Annual Northeast Bioengineering Conference. - Easton, PA, USA, 2006. - P. 145-146.

C2776. Foo W.-J.T. Teaching near field coupling with PCB layout. / Foo W.-J.T., Chee J. // 2006. EMC-Zurich 2006. 17th International Zurich Symposium on Electromagnetic Compatibility. - Singapore, Feb. 27 2006-March 3 2006. - P. 557-560.

C2777. Jiandong Fang. Vertical and Horizontal Parallel Mounting of Micro Components on a Substrate with High Surface Coverage. / Jiandong Fang, K.F. Bohringer. // 2006. MEMS 2006 Istanbul. 19th IEEE International Conference on Micro Electro Mechanical Systems. - Istanbul, Turkey, 2006. - P. 250-253.

C2778. Ankur Jain. Using Stationary-Dynamic Camera Assemblies for Wide-area Video Surveillance and Selective Attention. / Ankur Jain, Kopell D., Kakligian K., Yuan-Fang Wang. // 2006 IEEE Computer Society Conference on Computer Vision and Pattern Recognition. 17-22 June 2006. - Vol. 1. - P. 537-544.

C2779. Hua Wang. The Application of Image Recognition into the Automatic Recognition System for Truck Cab Assembly Identifier. / Hua Wang, Hudai Fu, Wei Yang. // 2006. ICICIC '06. First International Conference on Innovative Computing, Information and Control. - Beijing, Aug. 30 2006-Sept. 1 2006. - Vol. 2. - P. 117-120.

C2780. Popoviciu C.P. IPv6 Led Changes of the Broadband Access Architectures. 2006. ICNS '06. International conference on Networking and Services. - Slicon Valley, CA, 16-18 July 2006. - P. 9.

C2781. Uchikoga S. Future Trend of Flat Panel Displays and Comparison of its Driving Methods. 2006. ISPSD 2006. IEEE International Symposium on Power Semiconductor Devices and IC's. - Naples, 4-8 June 2006. - P. 1-5.

C2782. Zhen Li. Hardware and software design of an automated testing tool for traffic controllers. / Zhen Li, Johnson B., Abdel-Rahim A., Kyte M. // 2006. ITSC '06. IEEE Intelligent Transportation Systems Conference. - Toronto, Ont., 17-20 Sept. 2006. - P. 1525-1530.

C2783. Jong Hak Baek. A Current Driver IC using a S/H for QVGA FullColor Active-Matrix Organic LED Mobile Displays. / Jong Hak Baek, Jae Hoon Lee, Han Su Pae, Chang Ju Lee, JongSeon Kim, Myunghee Lee, JinTae Kim, ChangSik Choi, Hong Kwon Kim, Tae Jin Kim, Ho Kyoon Chung. // 2006. ISSCC 2006. Digest of Technical Papers. IEEE International Solid-State Circuits Conference. - San Francisco, CA, 6-9 Feb. 2006. - P. 609-618.

C2784. {no data available}. Display Drivers. 2006. ISSCC 2006. Digest of Technical Papers. IEEE International Solid-State Circuits Conference. - San Francisco, CA, 6-9 Feb. 2006. - P. 597-598.

C2785. van Soestbergen M. Measuring In-Thickness Mechanical Properties of Sub Micron Polymer Dielectric Films. / van Soestbergen M., Ernst L.J., Jansen K.M.B., van Driel W.D., Bartek M., Polyakov A. // 2006. EuroSime 2006. 7th International Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems. - Como, 24-26 April 2006. - P. 1-5.

C2786. Yan Lai. Thermal Management of Bright LEDs for Automotive Applications. / Yan Lai, Cordero N.S. // 2006. EuroSime 2006. 7th International Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems. - Como, 24-26 April 2006. - P. 1-5.

C2787. Shibata H. A system for converting robot 'emotion' into facial expressions. / Shibata H., Kanoh M., Kato S., Itoh H. // 2006. ICRA 2006. Proceedings 2006 IEEE International Conference on Robotics and Automation. - Orlando, FL, 15-19 May 2006. - P. 3660-3665.

C2788. Ciftci K. Processing Near Infrared Spectroscopy Signals Using Canonical Correlation Analysis. / Ciftci K., Sankur B., Akin A., Kahya Y.P. // 2006 IEEE 14th Signal Processing and Communications Applications. - Antalya, 17-19 April 2006. - P. 1-4.

C2789. Gago A. New full-colour LED based screen. / Gago A., Guil N., Gago A.C. // 2006. MELECON 2006. IEEE Mediterranean Electrotechnical Conference. - Malaga, 16-19 May 2006. - P. 393-396.

C2790. Sung Ki Kim. Thermal performance of cooling system for red, green and blue LED light source for rear projection TV. / Sung Ki Kim, Seo Young Kim, Young Don Choi. // 2006. ITHERM 06. The Tenth Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronics Systems. - San Diego, CA, May 30 2006-June 2 2006. - P. 377-379.

C2791. Neal T.D. Enhanced light emission from dye doped polymer layers using surface plasmons. / Neal T.D., Okamoto K., Scherer A. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2792. Dongxue Wang. Optical design and simulation for dual-wavelength LEDs in solid state lighting. / Dongxue Wang, Ferguson I., Buck J.A. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2793. Fischer A. Highly efficient multilayer organic pure-blue-light emitting diodes with substituted carbazoles compounds in the emitting layer. / Fischer A., Forget S., Chenais S., Castex M.-C., Ades D., Siove A., Denis C., Maisse P., Geffroy B. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2794. Yoon-Kyu Song. Gallium nitride-organic semiconductor heterojunctions for optoelectronic devices. / Yoon-Kyu Song, Hyunjin Kim, Atay T., Patterson W.R., Nurmikko A.V., Gherasimova M., Kim K.K., Jung Han. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2795. Choukri H. Color tunability (including white) in OLEDs by shifting the position of an ultrathin yellow layer in a blue matrix. / Choukri H., Fischer A., Forget S., Chenais S., Castex M.-C., Ades D., Siove A., Lemaitre N., Denis C., Maisse P., Geffroy B. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2796. Lee Y.J. High brightness AlGaInP-based LEDs with the stripe patterned omni-directional reflector. / Lee Y.J., Lu T.C., Kuo H.C., Wang S.C., Hsu T.C., Hsieh M.H., Jou M.J., Lee B.J. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2797. Seong-Ju Park. Growth of p-type ZnO and its application to ZnO LEDs. 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2798. Porta P.A. Surface plasmon mediated emission from resonant-cavity LEDs. / Porta P.A., Summers H.D. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2799. Lee Y.J. Fabricating GaN-based LEDs with V-shape sapphire facet mirror by double transferred scheme. / Lee Y.J., Lu T.C., Kuo H.C., Wang S.C., Hwang J.M., Hsu T.C., Hsieh M.H., Jou M.J. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2800. Chi-Feng Huang. Phosphor-free all-semiconductor white-light light-emitting devices. / Chi-Feng Huang, Dong-Ming Yeh, Chih-Feng Lu, Horng-Shyang Chen, Tsung-Yi Tang, Jeng-Jie Huang, Chih-Chung Yang. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2801. Zibik E.A. Broadband quantum cascade lasers and superluminescent diodes. / Zibik E.A., Ng W.H., Soulby M.R., Wilson L.R., Cockburn J.W., Colley C.S., Hebden J.C., Delpy D.T., Groom K.M., Hopkinson M. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2802. Alegria F. Vehicle Plate Recognition for Wireless Traffic Control and Law Enforcement System. / Alegria F., Girao P.S. // 2006. ICIT 2006. IEEE International Conference on Industrial Technology. - Mumbai, 15-17 Dec. 2006. - P. 1800-1804.

C2803. Aziz T.H.T. Reduction of Turn-On Voltage in a Single Layer Structured Organic Light-Emitting Diode using Nanocomposites SiO2:PHF. / Aziz T.H.T., Salleh M.M., Umar M., Yahaya M. // 2006. ICSE '06. IEEE International Conference on Semiconductor Electronics. - Kuala Lumpur, Oct. 29 2006-Dec. 1 2006. - P. 89-92.

C2804. Yan Huang. An optoelectronic platform for retinal prosthesis. / Yan Huang, Drakakis E.M., Toumazou C., Nikolic K., Degenaar P. // 2006. BioCAS 2006. IEEE Biomedical Circuits and Systems Conference. - London, Nov. 29 2006-Dec. 1 2006. - P. 110-113.

C2805. Kelly G. A Full-Color QVGA Microdisplay using Light-Emitting-Polymer on CMOS. / Kelly G., Woodburn R., Underwood I., Bums D., Monteith R. // 2006. ICECS '06. 13th IEEE International Conference on Electronics, Circuits and Systems. - Nice, 10-13 Dec. 2006. - P. 760-763.

C2806. Sepear S. The Effect of Annealing on the Performances of the White Organic Light Emitting Diode (OLED). / Sepear S., Salleha M.M., Yahayab M. // 2006. ICSE '06. IEEE International Conference on Semiconductor Electronics. - Kuala Lumpur, Oct. 29 2006-Dec. 1 2006. - P. 249-252.

C2807. Othman M.K. Organic Light Emitting Diode (OLED) Using Different Hole Transport and Injecting Layers. / Othman M.K., Salleh M.M., Mat A.F.A. // 2006. ICSE '06. IEEE International Conference on Semiconductor Electronics. - Kuala Lumpur, Oct. 29 2006-Dec. 1 2006. - P. 134-137.

C2808. Juhari N. Degradation of Single Layer MEH-PPV Organic Light Emitting Diode (OLED). / Juhari N., Abd. Majid W.H., Ibrahim Z.A. // 2006. ICSE '06. IEEE International Conference on Semiconductor Electronics. - Kuala Lumpur, Oct. 29 2006-Dec. 1 2006. - P. 112-115.

C2809. Norgia M. Stress-strain hysteresis cycle measured by a differential self-mixing interferometer. / Norgia M., Giuliani G., Donati S. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2810. Qifeng Zhang. ZnO nanowire-based Schottky-barrier-type UV light-emitting diodes. / Qifeng Zhang, Yanxin Wang, Hui Sun, Jinlei Wu. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2811. Schubert E.F. Innovations in light-emitting diodes. 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26

May 2006. - P. 1-2.

C2812. Gaillard A. A New Active Pixel Design using µc-Si TFT Technology to Improve Brightness Uniformity of Organic Displays. / Gaillard A., Rogel R., Crand S., Mohammed-Brahim T., Le Roy P., Prat C. // 2006. ICECS '06. 13th IEEE International Conference on Electronics, Circuits and Systems. - Nice, 10-13 Dec. 2006. - P. 498-501.

C2813. Ray S.K. Design, fabrication, and operating characteristics of broadband quantum dot superluminescent diodes. / Ray S.K., Alexander R., Kennedy K., Groom K.M., Liu H.Y., Hopkinson M., Hogg R.A. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2814. Makarova M. Two-dimensional porous silicon photonic crystal light emitters. / Makarova M., Vuckovic J., Sanda H., Nishi Y. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2815. Hea-Jeong Cheong. Visible electroluminescence from size-controlled silicon quantum dots. / Hea-Jeong Cheong, Hippo D., Tanaka A., Usami K., Tsuchiya Y., Mizuta H., Oda S. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2816. Haas B. An Inexpensive Imbedded Motor Controller Using a Tachometer Feedback. / Haas B., Etezadi-Amoli M., McPherson D. // 2006. NAPS 2006. 38th North American Power Symposium. - Carbondale, IL, 17-19 Sept. 2006. - P. 57-63.

C2817. Huang H.-Y. Modulation-speed enhancement of a GaN based green light-emitting-diode (LED) by use of n-type barrier doping for plastic optical fiber (POF) communication. / Huang H.-Y., Shi J.-W., Wu Y.-S., Chyi J.-I., Sheu J.-K., Lai W.-C., Lin G.-R., Ci-Ling Pan. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2818. Min Sizong. Bump Thermal Management Analysis of LED with Flipchip Package. / Min Sizong, Li Junhui, Duan Ji-an, Deng Guiling. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-7.

C2819. Kalingamudali S. R. D. Pedestrian and vehicular traffic friendly uninterrupted solar powered traffic signal light system. / Kalingamudali S. R. D., Harambearachchi J. C., Kumara L. S. R., De Silva J. H. S. R., Piumwardena D. D. F., De Silva L. D. L., Abeynanda L. T., Chameera K. H. G. G., Dissanayake D. P., Attenayake A. M. C. R., Molligoda S. A. G. N. // First International Conference on Industrial and Information Systems. - Peradeniya, 8-11 Aug. 2006. - P. 208-210.

C2820. Yu S.-Q. Electroluminescence refrigeration in semiconductors. / Yu S.-Q., Ding D., Wang J.-B., Johnson S.R., Zhang Y.-H. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2821. Zhong-Jie Yang. Fabricated the inclined-undercut structure in high efficiency InGaN-based light emitting diodes. / Zhong-Jie Yang, Jing-Hui Zheng, Jing-Jie Dai, Chia-Feng Lin. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2822. Yuan L. Thermal Analysis of High Power LED Array Packaging with Microchannel Cooler. / Yuan L., Liu S., Mingxiang Chen, Xiaobing Luo. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-5.

C2823. Wayne Yong. Illumination System Modeling Techniques in Wire Bonding Pattern Recognition System. / Wayne Yong, Cai Xiao Jin, Hong Meng Ho. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-6.

C2824. Dianming Wang. The Design and Fabrication of Microlens and LED Integrated Packaging. / Dianming Wang, Sihai Chen, Ming Wang, Sihua Xiang. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-3.

C2825. Xiaobing Luo. A Closed Micro Jet Cooling System for High Power LEDs. / Xiaobing Luo, Sheng Liu. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-7.

C2826. Sheng Liu. Cu/M/Cu Sub-mount Applied in High Brightness LED Array Package. / Sheng Liu, Jingming Song. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-4.

C2827. Zhijun Guo. ESD Models and Measurement for Semiconductor Device. / Zhijun Guo, Xinya Tu, Jiangen Pan, Fei Lu. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-7.

C2828. Xin Y.-C. 1.3 μm quantum dot multi-section super-luminescent diode with extremely broad bandwidth (150 nm). / Xin Y.-C., Martinez A., Nilsen T.A., Moscho A., Li Y., Gray A.L., Lester L.F. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2829. Paiella R. Plasmonic dispersion engineering for light-emission efficiency enhancement. / Paiella R., Cunha M. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2830. Parry G. Resonant-cavity LED transceiver arrays for optical wireless communication. / Parry G., Stavrinou P., O'Brien D.C., Faulkner G.E., Zyambo E.B., Jim K., Edwards D.J., Bellon J., Sibley M.J., Lalithambika V.A., Joyner V.M., Samsudin R.J., Holburn D.M., Mears R.J. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2831. Tsung-Xian Lee. Light extraction analysis of GaN-based LEDs. / Tsung-Xian Lee, Shih-Hsin Ma, Wei-Ting Chien, Ching-Cherng Sun. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2832. Dixit S. Differential optical imaging using inhaled gases. / Dixit S., Kotz K.T., Amin K., Faris G.W. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2833. Arif R.A. Polarization field engineering with Type-II InGaN-GaNAs quantum well for improved nitride gain media at 420-550 nm. / Arif R.A., Yik-Khoon Ee, Tansu N. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2834. Su M.Y. Enhanced light extraction from circular Bragg grating coupled microcavities. / Su M.Y., Mirin R.P. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2835. Harries M.D. LED emission through sub-wavelength apertures. / Harries M.D., Summers H.D. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2836. Danner A.J. Efficient light-emitting diodes fabricated with a spin-on photonic crystal surface grating. / Danner A.J., Jeong-Ki Hwang, Sigalas M.M., Hong-Wai Wan, Ben-Zhong Wang, Soo-Jin Chua. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2837. Cheng Cheng. Spectral Characteristics of CdSe Quantum Dots. / Cheng Cheng, Xiaoyan Wang. // 2006. IRMMW-THz 2006. Joint 31st International Conference on Infrared Millimeter Waves and 14th International Conference on Teraherz Electronics. - Shanghai, 18-22 Sept. 2006. - P. 494.

C2838. Lloyd-Hughes J. Light Induced Recovery of Polymer Field Effect Transistors. / Lloyd-Hughes J., Richards T., Castro-Camus E., Sirringhaus H., Johnston M.B., Herz L.M. // 2006. IRMMW-THz 2006. Joint 31st International Conference on Infrared Millimeter Waves and 14th International Conference on Teraherz Electronics. - Shanghai, 18-22 Sept. 2006. - P. 482.

C2839. Nathan S. Energy Saving Using Light Emitting Diodes in Lighting Applications. / Nathan S., Shammas N., Grainger S. // 2006. UPEC '06. Proceedings of the 41st International Universities Power Engineering Conference. - Newcastle-upon-Tyne, 6-8 Sept. 2006. - Vol. 3. - P. 960-964.

C2840. Kadlecova E. The source of light with high power LED diodes. / Kadlecova E., Steinbauer M. // 2006. AE 2006. International Conference on Applied Electronics. - Pilsen, 6-7 Sept. 2006. - P. 83-85.

C2841. Inoue T. External Field Effects on Photoluminescence Properties of Blue InGaN Quantum-Well Diodes. / Inoue T., Fujiwara K., Sheu J.K. // 2006 Conference on Optoelectronic and Microelectronic Materials and Devices. - Perth, WA, 6-8 Dec. 2006. - P. 7-10.

C2842. Nizamoglu S. White Light Generation with CdSe/ZnS Core-Shell Nanocrystals and InGaN/GaN Light Emitting Diodes. / Nizamoglu S., Ozel T., Sari E., Demir H.V. // 2006 Conference on Optoelectronic and Microelectronic Materials and Devices. - Perth, WA, 6-8 Dec. 2006. - P. 21-23.

C2843. Jae Ho Choi. The nanophotonic crystals of anodic alumina deposited on InGaN/GaN quantum well structures. / Jae Ho Choi, Keunjoo Kim, Mi Jung, Deok Ha Woo. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 328-329.

C2844. Kim Y.C. PQR laser can outdo LED. / Kim Y.C., Jung T.S., Lee Y.J., Yoon J.H., Kim D.K., Lee S.E., Kwon H.S., Kim S.S., O'Dae Kwon. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 134-135.

C2845. Lekic N. A Multifunctional Microcontroller Device Which Can be Connected to RS232 Hub. / Lekic N., Mijanovic Z., Stojanovic R., Filipovic D. // 2006. AE 2006. International Conference on Applied Electronics. - Pilsen, 6-7 Sept. 2006. - P. 109-112.

C2846. Lu A.W. Top Emitting OLEDs with multi-layered Mirror Consisting of Metallic and Dielectric Layers. / Lu A.W., Chan J., Rakic A.D., Man Ching Ng A., Djurisic A.B. // 2006 Conference on Optoelectronic and Microelectronic Materials and Devices. - Perth, WA, 6-8 Dec. 2006. - P. 188-191.

C2847. Ekrt O. Thin organic layers prepared by MAPLE for gas sensor application. / Ekrt O., Vyslouzil F., Kopecky D., Vrnata M., Myslik V., Fitl P., Jelinek M., Kocourek T. // 2006 Conference on Optoelectronic and Microelectronic Materials and Devices. - Perth, WA, 6-8 Dec. 2006. - P. 268-271.

C2848. Chen Jeffrey. System-In-Package Approach for Ultra-High-Power Semiconductor Devices. 2006. EMAP 2006. International Conference on Electronic Materials and Packaging. - Kowloon, China, 11-14 Dec. 2006. - P. 1-21.

C2849. Leung K.K. Electrical and Structural Studies of Laser-debonded GaN Light Emitting Diodes. / Leung K.K., Chan C.P., Yue T.M., Surya C. // 2006 Conference on Optoelectronic and Microelectronic Materials and Devices. - Perth, WA, 6-8 Dec. 2006. - P. 98-100.

C2850. Tam K.H. ZnO nanorods by hydrothermal method for ZnO/GaN LEDs. / Tam K.H., Ng A.M.C., Leung Y.H., Djurisic A.B., Chan W.K., Gwo S. // 2006 Conference on Optoelectronic and Microelectronic Materials and Devices. - Perth, WA, 6-8 Dec. 2006. - P. 109-112.

C2851. In-Ho Im. Low-Temperature Growth of A1N thin films on ZnO templates prepared on Ak2 O3 substrates. / In-Ho Im, Jin-Sub Park, Minegishi T., Seung-Hwan Park, Hanada T., Ji-Ho Chang, Dong-Cheol Oh, Meung-Whan Cho, Yao T. // 2006 Conference on Optoelectronic and Microelectronic Materials and Devices. - Perth, WA, 6-8 Dec. 2006. - P. 156-159.

C2852. Kyeong-Min Kim. Increase in the luminescence efficiency of R·G·B LED via the controlling texture of AZO thin films. / Kyeong-Min Kim, Eun-Mi Jin, Yong-Kab Kim. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 540-541.

C2853. In-Sung Yoo. Fabrication of high mobility p-type ZnO thin film by ampoule-tube method. / In-Sung Yoo, Soon-Jin So, Choon-Bae Park. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 538-539.

C2854. Kudo K. Recent progress on organic thin film transistors and flexble display applications. 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 290-

291.

C2855. Lee J.W. Organic perylene single crystal based field-effect transistor. / Lee J.W., Kang H.S., Kim M.K., Cho M.Y., Joo J. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 626-627.

C2856. Dong-Hwa Yun. Sensitivity improvement of polypyrrole-based urea sensor using copper ion doping effect. / Dong-Hwa Yun, Min-Jung Song, Huijun Sim, Suk-In Hong. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 574-575.

C2857. Hu-Jie Jin. Defect analysis of N-doped p-type ZnO film fabricated by magnetron sputtering via photoluminescence spectra. / Hu-Jie Jin, Deok-Kyu Kim, Choon-Bae Park. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 542-543.

C2858. Mi Jung. Enhancement of PL intensity by photonic crystal fabricated on GaAs substrate using nanoporous alumina mask. / Mi Jung, Seok Lee, Min Chul Park, Young Tae Byun, Young Min Jhon, Sun Ho Kim, Sun-il Mho, Keunjoo Kim, Deok Ha Woo. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 436-437.

C2859. Oh-Kwan Kwon. Temperature dependent electrical properties of OLEDs using Zn complex. / Oh-Kwan Kwon, Dong-Eun Kim, Won-Sam Kim, Burm-Jong Lee, Young-Soo Kwon. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 366-367.

C2860. Hun-Soo Kim. Bio electroluminescent device composed of cytochrome c/chlorophyll a hetero-structure. / Hun-Soo Kim, Chang-Ho Lee, Doo-Bong Lee, Se-Young Oh, Jeong-Woo Choi. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 350-351.

C2861. Weisbuch C. High efficiency LEDs by photonic crystal-assisted extraction. / Weisbuch C., David A., Benisty H., Fujii T., McGroddy K., Sharma R., Denbaars S., Hu E., Nakamura S. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 244-245.

C2862. Won Sam Kim. Photoluminescence and electroluminescence properties of organotin complexes. / Won Sam Kim, Jeong-Keun Park, Dong-Eun Kim, Young-Soo Kwon, Burm-Jong Lee. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 480-481.

C2863. Sang-Jin Hong. Boron ion implantation on Al-doped ZnO films for OLEDs transparent conducting electrodes. / Sang-Jin Hong, Gi-Seok Heo, Bum-Ho Choi, Dong-Chan Shin. // 2006. NMDC 2006. IEEE Nanotechnology Materials and Devices Conference. - Gyeongju, 22-25 Oct. 2006. - Vol. 1. - P. 470-471.

C2864. Okuno A. Unique White LED Packaging Systems. / Okuno A., Miyawaki Y., Oyama N., Wang Dongxu. // 2006. EMAP 2006. International Conference on Electronic Materials and Packaging. - Kowloon, 11-14 Dec. 2006. - P. 1-5.

C2865. Yan Liu. Reduction of Skin Stretch Induced Motion Artifacts in Electrocardiogram Monitoring Using Adaptive Filtering. / Yan Liu, Pecht M.G. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 6045-6048.

C2866. Wieringa F.P. Remote optical stereoscopic multispectral imaging during cardiac surgery. / Wieringa F.P., Mastik F., Duncker D.J.G.M., Bogers A.J.J.C., Zeelenberg C., van der Steen A.F.W. // 2006 Computers in Cardiology. - Valencia, 17-20 Sept. 2006. - P. 693-696.

C2867. Chin-Ying Chen. Performance evaluation of the indium zinc oxide (IZO) thin films for organic electroluminescent diode applications. / Chin-Ying Chen, Jyh-Jier Ho, Hsiao R.Y. // 2006. ACOFT/AOS 2006. Australian Conference on Optical Fibre Technology/Australian Optical Society. - Melbourne, VIC, 10-13 July 2006. - P. 36-38.

C2868. Chatzandroulis S. Competitive technology approaches for Electronic Hybridisation Detection in a microsystem with microfluidics for diagnosis genetic tests. / Chatzandroulis S., Bellis S., Blionas S., Carrera J., Getin S., Misiakos K., Planat-Chretien A., Tsoukalas D. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 4103-4106.

C2869. Castillo C.A. The Transient Component of Disparity Vergence maybe an Indication of Progressive Lens Acceptability. / Castillo C.A., Gayed B., Pedrono C., Ciuffreda K.J., Semmlow J.L., Alvarez T.L. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 5687-5690.

C2870. In Duk Hwang. Evaluation of Chip LED Sensor Module for Fat Thickness Measurement using Tissue Phantoms. / In Duk Hwang, Kunsoo Shin, Dong-Su Ho, Beop-Min Kim. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 5993-5996.

C2871. Fukuma S. Non-metallic VEP stimulator without interference in CT scanning for neurosurgical operation. / Fukuma S., Kawakami Y., Kitai R., Awara K., Sakurai T., Okuda A. // 2006. BioCAS 2006. IEEE Biomedical Circuits and Systems Conference. - London, Nov. 29 2006-Dec. 1 2006. - P. 17-20.

C2872. Thahab S.M. Simulation of InGaN Multiple Quantum Wells (MQWs) Light Emitting Diodes (LEDs). / Thahab S.M., Abu Hassan H., Hassan Z. // 2006. ICSE '06. IEEE International Conference on Semiconductor Electronics. - Kuala Lumpur, Oct. 29 2006-Dec. 1 2006. - P. 1034-1037.

C2873. Yap Chi Chin. Fabrication of White Polymer Light Emitting Diodes with ITO/PVK:PBD:DPVBi:DCJTB/Al Structure. / Yap Chi Chin, Yahaya M., Salleh M.M. // 2006. ICSE '06. IEEE International Conference on Semiconductor Electronics. - Kuala Lumpur, Oct. 29 2006-Dec. 1 2006. - P. 314-318.

C2874. Nakazawa N. Welfare Support-equipment for Operations of Personal Computer with Head Tilting and Mouth Open-Close Motions. / Nakazawa N., Matsui T., Yamada K. // 2006. SMC '06. IEEE International Conference on Systems, Man and Cybernetics. - Taipei, 8-11 Oct. 2006. - Vol. 5. - P. 4046-4051.

C2875. Yamakita M. Measurement of Driver's Consciousness by Image Processing 2 -Detection of Concentration on Cellular Phone Call from Facial Expression Change coping with Individual Differences-. / Yamakita M., Takahashi K., Yamada K., Yamamoto O., Yamamoto S. // 2006. SMC '06. IEEE International Conference on Systems, Man and Cybernetics. - Taipei, 8-11 Oct. 2006. - Vol. 2. - P. 1688-1692.

C2876. Wong A.K.Y. A NIR CMOS preamplifier with DC photocurrent rejection for pulsed light source. / Wong A.K.Y., Kong-Pang Pun, Yuan-Ting Zhang, Ka Nang Leung. // 2006. BioCAS 2006. IEEE Biomedical Circuits and Systems Conference. - London, Nov. 29 2006-Dec. 1 2006. - P. 9-12.

C2877. Chin-Ying Chen. Performance Evaluation of Indium Zinc Oxide Thin Films for Flexible Organic Light-emitting Device Applications. / Chin-Ying Chen, Jyh-Jier Ho. // 2006. COIN-NGNCON 2006. The Joint International Conference on Optical Internet and Next Generation Network. - Jeju, 9-13 July 2006. - P. 262-264.

C2878. Nadarajah N. Scalability Analysis of Electronic Code Division Multiple Access based Virtual Private Networks over Passive Optical Networks. / Nadarajah N., Wong E., Nirmalathas A. // 2006. COIN-NGNCON 2006. The Joint International Conference on Optical Internet and Next Generation Network. - Jeju, 9-13 July 2006. - P. 386-388.

C2879. Suzaki H. Noninvasive measurement of total hemoglobin and hemoglobin derivatives using multiwavelength pulse spectrophotometry -In vitro study with a mock circulatory system. / Suzaki H., Kobayashi N., Nagaoka T., Iwasaki K., Umezu M., Takeda S., Togawa T. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 799-802.

C2880. Bin-Juine Huang. Study of System Dynamics of High-Power LEDs. / Bin-Juine Huang, Chun-Wen Tang, Jia-Hong Wu. // 2006. EMAP 2006. International Conference on Electronic Materials and Packaging. - Kowloon, 11-14 Dec. 2006. - P. 1-6.

C2881. Shang Ping Ying. Charaterizing LEDs for Mixture of Colored LED light sources. / Shang Ping Ying, Chun-Wen Tang, Bin-Juine Huang. // 2006. EMAP 2006. International Conference on Electronic Materials and Packaging. - Kowloon, 11-14 Dec. 2006. - P. 1-5.

C2882. Chin-Ying Chen. Performance Evaluation of Organic Electroluminescent Devices with Nitrogen Doped Electron Transporter. / Chin-Ying Chen, Jyh-Jier Ho. // 2006. COIN-NGNCON 2006. The Joint International Conference on Optical Internet and Next Generation Network. - Jeju, 9-13 July 2006. - P. 241-243.

C2883. Saeki Y. The measurement technique of human's bio-signals. / Saeki Y., Takamura K., Magatani K. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 1351-1354.

C2884. Hayashi T. Measurement of Human Gastric Motility by Near-Infrared Light for the Assessment of Chronic Mental Stress. / Hayashi T., Shiozawa N., Makikawa M. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 2227-2230.

C2885. Hiley J.B. A Low Cost Human Computer Interface based on Eye Tracking. / Hiley J.B., Redekopp A.H., Fazel-Rezai R. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 3226-3229.

C2886. Thompson D. Pulse Oximeter Improvement with an ADC-DAC Feedback Loop and a Radial Reflectance Sensor. / Thompson D., Wareing A., Day D., Warren S. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 815-818.

C2887. Ruiping Wang. Localization of FFA Using SSVEP-based Binocular Rivalry. / Ruiping Wang, Yajing Zhang, Wei Wu, Hesheng Liu, Xiaorong Gao, Shangkai Gao. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 1150-1153.

C2888. Cvetkovic D. Influence of Sinusoidally Modulated Visual Stimuli at Extremely Low Frequency Range on the Human EEG Activity. / Cvetkovic D., Simpson D., Cosic I. // 2006. EMBS 06. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. - New York, NY, Aug. 30 2006-Sept. 3 2006. - P. 1311-1314.

C2889. Suchanek P. Design and simulation of humidity micro-sensors structure based on Polymers. / Suchanek P., Husak M. // 2006. ASDAM '06. International Conference on Advanced Semiconductor Devices and Microsystems. - Smolenice Castle, Oct. 2006. - P. 189-192.

C2890. Martineau R.L. An optical micro-instrumentation system for measurement of fluorescent proteins in whole-cell biosensors. / Martineau R.L., Towe B.C., Stout V. // 2006. BMN '06 Bio Micro and Nanosystems Conference. - San Francisco, CA, 15-18 Jan. 2006. - P. 90-93.

C2891. Seongwook Park. Design and Application of an Electromagnetic Induction System Using Multi-sensor Array. 2006. IMTC 2006. Proceedings of the IEEE Instrumentation and Measurement Technology Conference. - Sorrento, 24-27 April 2006. - P. 1357-1362.

C2892. Megens Mischa. Photonic crystals for lighting applications. 2006. Metamaterials 2006. International Symposium on Biophotonics, Nanophotonics and Metamaterials. - Hangzhou, China, Oct. 2006. - P. 232.

C2893. Shengyi Yang. Enhanced Charge Carriers Injection by Using High-doped Silicon in Organic-inorganic Light-emitting Diodes. / Shengyi Yang, Xiulong Zhang, Zhidong Lou, Feng Teng, Zheng Xu, Yanbing Hou. // IVNC/IFES 2006. Technical Digest. 19th International Vacuum Nanoelectronics Conference, 2006 and the 2006 50th International Field Emission Symposium. - Guilin, July 2006. - P. 491.

C2894. Kovac J. Recent Advances in Organic Electronic. / Kovac J., Jakabovic J., Peternai L., Lengyel O., Kytka M. // 2006. ASDAM '06. International Conference on Advanced Semiconductor Devices and Microsystems. - Smolenice Castle, Oct. 2006. - P. 287-294.

C2895. Bent Sarah. LEDs as both Optical Sources and Detectors in Bi-directional Plastic Optical Fibre Links. / Bent Sarah, Moloney Aoife, Farrell Gerald. // 2006. IET Irish Signals and Systems Conference. - Dublin, 28-30 June 2006. - P. 345-349.

C2896. Pazirandeh R. Electroluminescence as an instrument to observe defect generation in InGaP/GaAs HBTs. / Pazirandeh R., Zeimer U., Wurfl J., Trankle G. // 2006. [Reliability of Compound Semiconductors] ROCS Workshop. - San Antonio, TX, 12-12 Nov. 2006. - P. 129-137.

C2897. Yost S.A. Work in Progress: A Cognitive Apprenticeship Approach to Instruction in Engineering: Lessons Learned from the Design of Field Research in the Classroom. / Yost S.A., Schirmer B.R., Krishnan M. //

36th Annual Frontiers in Education Conference. - San Diego, CA, 27-31 Oct. 2006. - P. 26-27.

C2898. Ashoka Reddy K. Virtual Instrument for the Measurement of Haemo-dynamic Parameters Using Photoplethysmograph. / Ashoka Reddy K., Rezuana Bai J., George B., Madhu Mohan N., Jagadeesh Kumar V. // 2006. IMTC 2006. Proceedings of the IEEE Instrumentation and Measurement Technology Conference. - Sorrento, 24-27 April 2006. - P. 1167-1171.

C2899. Magadan Ferrera F. Design of a Low-Cost Instrument for Pulse Oximetry. / Magadan Ferrera F., Ferrero F.J., Blanco C., Viera J.C., Vega M.G., Blanco J.R. // 2006. IMTC 2006. Proceedings of the IEEE Instrumentation and Measurement Technology Conference. - Sorrento, 24-27 April 2006. - P. 573-577.

C2900. Ozdemir S.K. Assessment on Self-mixing Laser Interferometry for Blood flow Measurement over Skin Surface. / Ozdemir S.K., Ohno I., Shinohara S. // 2006. IMTC 2006. Proceedings of the IEEE Instrumentation and Measurement Technology Conference. - Sorrento, 24-27 April 2006. - P. 27-31.

C2901. Li X. Semitransparent Organic Light Emitting Device with Ag Electrodes. / Li X., Chen W.B., Lin H. // TENCON 2006. 2006 IEEE Region 10 Conference. - Hong Kong, 14-17 Nov. 2006. - P. 1-3.

C2902. Qiaoyu Xu. Accurate Camera Calibration with New Minimizing Function. / Qiaoyu Xu, Dong Ye, Rensheng Che, Yan Huang. // 2006. ROBIO '06. IEEE International Conference on Robotics and Biomimetics. - Kunming, 17-20 Dec. 2006. - P. 779-784.

C2903. Payoux F. WDM PON with a single SLED seeding colorless RSOA-based OLT and ONUs. / Payoux F., Chanclou P., Brenot R. // 2006. ECOC 2006. European Conference on Optical Communications. - Cannes, France, 24-28 Sept. 2006. - P. 1-2.

C2904. Lansley S.P. Field-Emission Diode and Triode Structures Using Self-Assembled Silicon Nanostructure Cathodes. / Lansley S.P., Wu B., Thongpang S., Blaikie R.J., Johnson S., Markwitz A. // 2006. ICONN 06. International Conference on Nanoscience and Nanotechnology. 3-7 July 2006. - {no data available}.

C2905. Jongman Cho. An Algorithm for Real-Time Eye-Movement Tracking with Free Head Movement. / Jongman Cho, Sungil Kim, Jaehong Lim. // TENCON 2006. 2006 IEEE Region 10 Conference. - Hong Kong, 14-17 Nov. 2006. - P. 1-3.

C2906. Khumsat P. Low-Cost Laser-Based Wireless Optical Transceiver for 10-Mbps Ethernet Link. / Khumsat P., Wattanapisit N., Kulhavey K. // TENCON 2006. 2006 IEEE Region 10 Conference. - Hong Kong, 14-17 Nov. 2006. - P. 1-4.

C2907. Jian Xu. Microcavity Light Emitting Devices Based on Colloidal Semiconductor Nanocrystal Quantum Dots. / Jian Xu, Ting Zhu, Fan Zhang. // 2006. Metamaterials 2006. International Symposium on Biophotonics, Nanophotonics and Metamaterials. - Hangzhou, 16-18 Oct. 2006. - P. 286-287.

C2908. Jinsong Xia. Two-dimensional Photonic Crystal Microcavity with Germanium Self-assembled Quantum Dots. / Jinsong Xia, Usami N., Shiraki Y. // 2006. Metamaterials 2006. International Symposium on Biophotonics, Nanophotonics and Metamaterials. - Hangzhou, 16-18 Oct. 2006. - P. 283-285.

C2909. Choy W.C.H. Wavelength Tunable Light Emitting Nanostructures and Devices. / Choy W.C.H., Liang C.J., Leung Y.P. // 2006. Metamaterials 2006. International Symposium on Biophotonics, Nanophotonics and Metamaterials. - Hangzhou, 16-18 Oct. 2006. - P. 243-248.

C2910. Ghazanfar S. Stabilization and Control of the Wavelength of GaN LED. / Ghazanfar S., Liu Deming, Alla A.N.A., Liu Hairong, Bhatti M.A. // 2006. ICET '06. International Conference on Emerging Technologies. - Peshawar, 13-14 Nov. 2006. - P. 358-361.

C2911. Gonzalez-Roman A. A semi-spherical irradiance profiles meter used as a quality control device. / Gonzalez-Roman A., Tecpoyotl-Torres M., Escobedo-Alatorre J., Pal-Verma S., Torres-Cisneros M., Sanchez-Mondragon J. // 2006. MEP 2006. Multiconference on Electronics and Photonics. - Guanajuato, 7-10 Nov. 2006. - P. 253-256.

C2912. Rong-jin Yan. Enhancement of Light Extraction Efficiency in OLED with Periodic Nano-Structure. / Rong-jin Yan, Qing-kang Wang. // 2006. NEMS '06. 1st IEEE International Conference on Nano/Micro Engineered and Molecular Systems. - Zhuhai, 18-21 Jan. 2006. - P. 713-716.

C2913. Ashtiani S.J. A Driving Scheme for AMOLED Displays Based on Current Feedback. / Ashtiani S.J., Nathan A. // 2006. CICC '06. IEEE Custom Integrated Circuits Conference. - San Jose, CA, 10-13 Sept. 2006. - P. 289-292.

C2914. Lee W.-I. Randomly non-lithographic masking and MOCVD regrowth of GaN micro-hillocks to improve light emitting diode efficiencies. 2006. AOE 2006. Asian Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, China, Oct. 2006. - P. 1.

C2915. Kinlin C. The Future of Asian Optical Communications; Asian Optical Fiber Communication & Optoelectronic Exposition & Conference 2006. 2006. AOE 2006. Asian Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, 24-27 Oct. 2006. - P. 1-3.

C2916. Y. Divayana. Improved organic light-emitting devices with tunable IV by inserting a hole-blocking layer between hole-injecting layer and hole-transporting layer. / Y. Divayana, B. J. Chen, X. W. Sun, G. Q. Lo, K. R. Sarma. // 2006. ESSDERC 2006. Proceeding of the 36th European Solid-State Device Research Conference. - Montreux, Sept. 2006. - P. 339-342.

C2917. Poonawalla B.J. Flight Test Evaluation of Synthetic and Peripheral Vision Displays in General Aviation. / Poonawalla B.J., Pandya S., Kephart J., Braasch M.S. // 2006 IEEE/AIAA 25th Digital Avionics Systems Conference. - Portland, OR, 15-19 Oct. 2006. - P. 1-9.

C2918. Li Dejie. Development of flat panel displays. 2006. AOE 2006. Asian Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, China, Oct. 2006. - P. 1-3.

C2919. Yingfang Zhang. High Efficiency Deep-Blue Organic Light-Emitting Devices. / Yingfang Zhang, Yi Zhao, Feng He, Yuanyuan Lin, Chunyan Ruan, Yuguang Ma, Shiyong Liu. // 2006. AOE 2006. Asian Optical Fiber Communication & Optoelectronic Exposition & Conference. - Shanghai, 24-27 Oct. 2006. - P. 1-3.

C2920. Gutzeit E.M. Calculations of Optical Systems of Light-Emitting Diodes Under Program Tracepro. / Gutzeit E.M., Milyutin D.V., Sidorov A.M. // International Conference on Actual Problems of Electron Devices Engineering. - Saratov, 20-21 Sept. 2006. - P. 330-335.

C2921. McBride L.R. MBARI's Midwater Ecology Low-Light Imaging System Development. / McBride L.R., Reisenbichler K.R., Johnson B.L. // OCEANS 2006. - Boston, MA, 18-21 Sept. 2006. - P. 1-6.

C2922. Rowland J. Field Tests of a New Camera/LED Strobe System. / Rowland J., Farr N., Singh H. // OCEANS 2006. - Boston, MA, 18-21 Sept. 2006. - P. 1-4.

C2923. Tosi A. InGaAs/InP Single Photon Avalanche Diode Design and Characterization. / Tosi A., Cova S., Zappa F., Itzler M.A., Ben-Michael R. // 2006. ESSDERC 2006. Proceeding of the 36th European Solid-State Device Research Conference. - Montreux, 19-21 Sept. 2006. - P. 335-338.

C2924. Hollinger W. An Asynchronous 1.8MHz DC/DC Boost Converter Implemented in the Current Domain for Cellular Phone Lighting Management. / Hollinger W., Punzenberger M. // 2006. ESSCIRC 2006. Proceedings of the 32nd European Solid-State Circuits Conference. - Montreux, 19-21 Sept. 2006. - P. 528-531.

C2925. Ashurkov S.G. Researches of Light-Emitting Diodes Luxeon Star with Various Polymeric Lenses. / Ashurkov S.G., Bartsev A.A., Gutzeit E.M., Sidorov A.M. // International Conference on Actual Problems of Electron Devices Engineering. - Saratov, 20-21 Sept. 2006. - P. 335-339.

C2926. Sookhan Kim. Design Optimization of Glass Substrate Handler for Evaporating Process System. / Sookhan Kim, Dongeun Lee, Eungki Lee. // 2006. International Joint Conference SICE-ICASE. - Busan, 18-21 Oct. 2006. - P. 1385-1388.

C2927. Tanaka T. Autonomous Flight Control for a Small RC Helicopter ~A Measurement System with an EKF and a Fuzzy Control via GA-Based Learning~. / Tanaka T., Sasaki D., Matsumiya K., Morikuni Y., Kato K. // 2006. International Joint Conference SICE-ICASE. - Busan, 18-21 Oct. 2006. - P. 1279-1284.

C2928. Kitamura S. Improvement of the Ability to Recognize Sweet Peppers for Picking Robot in Greenhouse Horticulture. / Kitamura S., Oka K. // 2006. International Joint Conference SICE-ICASE. - Busan, 18-21 Oct. 2006. - P. 353-356.

C2929. Abdelkader Adla. A Cooperative Intelligent Decision Support System. / Abdelkader Adla, Pascale Zarate. // 2006 International Conference on Service Systems and Service Management. - Troyes, Oct. 2006. - Vol. 1. - P. 763-769.

C2930. Okajima H. Measurement of methane gas concentration using an infrared LED. / Okajima H., Kakuma S., Uchida K., Wakimoto Y., Noda K. // 2006. International Joint Conference SICE-ICASE. - Busan, 18-21 Oct. 2006. - P. 1652-1655.

C2931. Katsumata T. Temperature Dependence of Phosphor Contained Silica Gel Sensor. / Katsumata T., Takechi W., Yamaguchi H., Ito K., Aizawa H. // 2006. International Joint Conference SICE-ICASE. - Busan, 18-21 Oct. 2006. - P. 1574-1577.

C2932. Takeshita T. A House Cleaning Robot System -Path indication and Position estimation using ceiling camera. / Takeshita T., Tomizawa T., Ohya A. // 2006. International Joint Conference SICE-ICASE. - Busan, 18-21 Oct. 2006. - P. 2653-2656.

C2933. Yuan-Chang Lin. Materials Challenges and Solutions for the Packaging of High Power LEDs. / Yuan-Chang Lin, Nguyen Tran, Yan Zhou, Yongzhi He, Shi F.G. // 2006. IMPACT 2006. International Microsystems, Packaging, Assembly Conference Taiwan. - Taipei, 18-20 Oct. 2006. - P. 1-4.

C2934. Tran N.T. Light extraction from light-emitting diodes: effect of die geometries. / Tran N.T., Shi F.G. // 2006. IMPACT 2006. International Microsystems, Packaging, Assembly Conference Taiwan. - Taipei, 18-20 Oct. 2006. - P. 1-4.

C2935. Karashima M. Unconscious transmission of human feelings. / Karashima M., Ishibashi Y. // 2006. International Joint Conference SICE-ICASE. - Busan, 18-21 Oct. 2006. - P. 5450-5453.

C2936. Watanabe S. Biometric Authentication using Phase Only Correlation with Compensation Algorithm for Rotation. / Watanabe S., Tanaka T., Iwata E. // 2006. International Joint Conference SICE-ICASE. - Busan, 18-21 Oct. 2006. - P. 3711-3715.

C2937. Oshima N. Real Time Mean Shift Tracking using Optical Flow Distribution. / Oshima N., Saitoh T., Konishi R. // 2006. International Joint Conference SICE-ICASE. - Busan, 18-21 Oct. 2006. - P. 4316-4320.

C2938. Teller O. The design of the cooling system for the CMS Barrel Electromagnetic Calorimeter. 2006. IEEE Nuclear Science Symposium Conference Record. - San Diego, CA, Oct. 29 2006-Nov. 1 2006. - Vol. 1. - P. 430-434.

C2939. Rossiter J. An LED-based Tactile Sensor for Multi-sensing over Large Areas. / Rossiter J., Mukai T. // 2006. 5th IEEE Conference on Sensors. - Daegu, 22-25 Oct. 2006. - P. 835-838.

C2940. Postolache O. Smart Flexible Turbidity Sensing Based on Embedded Neural Network. / Postolache O., Dias Pereira J.M., Girao P.S., Ramos H. // 2006. 5th IEEE Conference on Sensors. - Daegu, 22-25 Oct. 2006. - P. 658-661.

C2941. Davitt K. UV LED arrays for spectroscopic sorting of bioaerosols. / Davitt K., Yoon-Kyu Song, Patterson W.R., Nurmikko A.V., Yong-Le Pan, Chang R.K., Gherasimova M., Jung Han. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1.

C2942. Vasile S. 64-pixel GPD array for WLS fiber readouts. / Vasile S., Warner D. // 2006. IEEE Nuclear Science Symposium Conference Record. - San Diego, CA, Oct. 29 2006-Nov. 1 2006. - Vol. 2. - P. 1273-1275.

C2943. Kocsis M.M. Study of a new class of picosecond X-ray scintillators: organic/inorganic perovskite. / Kocsis M.M., Muller H. // 2006. IEEE Nuclear Science Symposium Conference Record. - San Diego, CA, Oct. 29 2006-Nov. 1 2006. - Vol. 2. - P. 1197-1198.

C2944. Wang C.Y. A new type of highly sensitive portable ozone sensor operating at room temperature. / Wang C.Y., Cimalla V., Roehlig C.-C., Stauden T., Niebelschuetz F., Ambacher O., Kiesewetter O., Kittelmann S. // 2006. 5th IEEE Conference on Sensors. - Daegu, 22-25 Oct. 2006. - P. 81-84.

C2945. Margallo-Balbas E. Diffuse Optical Tomography in a Spinal Cage: Monte Carlo Simulation and in-Vitro

Studies. / Margallo-Balbas E., Ruano-Suarez H., Smit T.H., French P.J. // 2006. 5th IEEE Conference on Sensors. - Daegu, 22-25 Oct. 2006. - P. 62-65.

C2946. Chaudhry A.I. Path Generation Using Matrix Representations of Previous Robot State Data. 2006 45th IEEE Conference on Decision and Control. - San Diego, CA, 13-15 Dec. 2006. - P. 6790-6795.

C2947. Hyung-June Yoon. A CMOS Image Sensor for Fluorescence Lifetime Imaging. / Hyung-June Yoon, Kawahito S. // 2006. 5th IEEE Conference on Sensors. - Daegu, 22-25 Oct. 2006. - P. 400-403.

C2948. King Tong Lau. Low Cost Optical Array Sensing Platform. / King Tong Lau, Shepherd R.L., Yerazunis B., Diamond D. // 2006. 5th IEEE Conference on Sensors. - Daegu, 22-25 Oct. 2006. - P. 287-290.

C2949. Suzuki H. Refractive Index Measurement of Liquids Using A Dual-color Optical Fiber SPR Sensing System. / Suzuki H., Shibata H., Sugimoto M., Matsui Y., Kondoh J. // 2006. 5th IEEE Conference on Sensors. - Daegu, 22-25 Oct. 2006. - P. 189-192.

C2950. van Soestbergen M. Mechanical Properties of Polymer Dielectric Films at ElevatedTemperatures. / van Soestbergen M., Ernst L.J., Jansen K.M.B., van Driel W.D. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-4.

C2951. Jianping Li. The Design and Realization of Machine Vision System in Flip-chip Bonder. / Jianping Li, Zhongsheng Zou, Fuliang Wang. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-7.

C2952. LiPing Lu. Powerline Communication System for Monitoring and Supervision of Feeder Equipments for MV Substation Automation. / LiPing Lu, GangYan Li, YeQiong Song. // 2006. IES '06. International Symposium on Industrial Embedded Systems. - Antibes Juan-Les-Pins, 18-20 Oct. 2006. - P. 1-8.

C2953. Fan Wu. Analysis of Dark Stain on Chip Surface of High-Power LED. / Fan Wu, Yiping Wu, Bing An, Fengshun Wu. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-4.

C2954. Kim Zhao. Effects of Bonding Parameters on the Lighting Performance of High Power LEDs Fabricated by Thermosonic Flip Chip Bonding. / Kim Zhao, Jianhua Zhang, Ji'an Duan. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-5.

C2955. Kai Zhang. Heat Spreader with Aligned CNTs Designed for Thermal Management of HB-LED Packaging and Microelectronic Packaging. / Kai Zhang, Yuen M.M.F. // 2006. ICEPT '06. 7th International Conference on Electronic Packaging Technology. - Shanghai, 26-29 Aug. 2006. - P. 1-4.

C2956. Lai C.F. Characterization and theoretical modeling of light extraction enhancement in GaN photonic crystal light emitting diodes. / Lai C.F., Chao-Kuei Lee, Wang J.-F.T., Chi J.Y., Ko T.S., Yu M., Kuo H.C., Wang S.C. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2957. Hung-Wen Huang. Investigation of InGaN/GaN light emitting diodes by excimer laser etching. / Hung-Wen Huang, Jung-Tang Chu, Chih-Chiang Kao, Chang-Chin Yu, Tien-Chang Lu, Hao-Chung Kuo, Shing-Chung Wang. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2958. Buss I.J. 3D modelling of enhanced surface emission using surface roughening. / Buss I.J., Cryan M.J., Ho D., Nash G., Haigh M.K., Craddock I.J., Railton C.J., Rarity J.G. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2959. Jong Kyu Kim. Enhancement of light extraction in GaInN light-emitting diodes by conductive omni-directional reflectors. / Jong Kyu Kim, Xi J.-Q., Hong Luo, Schubert E.F., Jaehee Cho, Cheolsoo Sone, Yongjo Park. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2960. Withers N.J. 2-μm InGaSb/AlGaAsSb multiple-quantum-well light-emitting diodes. / Withers N.J., Hongjun Cao, Smolyakov G.A., Kaspi R., Osinski M. // 2006 and 2006 Quantum Electronics and Laser Science

Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2961. Yi-An Chang. Experimental and theoretical analysis on ultraviolet 370-nm AlGaInN light-emitting diodes. / Yi-An Chang, Sheng-Horng Yen, Tsung-Hsine Ko, Te-Chung Wang, Chun-Yi Lu, Hao-Chung Kuo, Yen-Kuang Kuo, Tien-Chang Lu, Shing-Chung Wang. // 2006 and 2006 Quantum Electronics and Laser Science Conference. CLEO/QELS 2006. Conference on Lasers and Electro-Optics. - Long Beach, CA, 21-26 May 2006. - P. 1-2.

C2962. Singh B. A fork connected auto-transformer based 24-pulse AC-DC converter. / Singh B., Gairola S. // 2006. IICPE 2006. India International Conference on Power Electronics. - Chennai, 19-21 Dec. 2006. - P. 183-187.

C2963. Bisogno F.E. A Line Power-Supply for LED Lighting using Piezoelectric Transformers in Class-E Topology. / Bisogno F.E., Nittayarumphong S., Radecker M., Carazo A.V., do Prado R.N. // 2006. IPEMC 2006. CES/IEEE 5th International Power Electronics and Motion Control Conference. - Shanghai, 14-16 Aug. 2006. - Vol. 2. - P. 1-5.

C2964. Poppe A. Thermal characterization of multi-die packages. / Poppe A., Yan Zhang, Farkas G., Hon Wong, Wilson J., Szabo P. // 2006. EPTC '06. 8th Electronics Packaging Technology Conference. - Singapore, 6-8 Dec. 2006. - P. 500-505.

C2965. Lee K.H. Process development for yellow phosphor coating on blue light emitting diodes (LEDs) for white light illumination. / Lee K.H., Lee S.W.R. // 2006. EPTC '06. 8th Electronics Packaging Technology Conference. - Singapore, 6-8 Dec. 2006. - P. 379-384.

C2966. Singh B. A Novel Harmonic Mitigation Converter for Variable Frequency Drives. / Singh B., Gairola S. // 2006. PEDES '06. International Conference on Power Electronics, Drives and Energy Systems. - New Delhi, 12-15 Dec. 2006. - P. 1-6.

C2967. Cheng Y.K. General Study for using LED to replace traditional lighting devices. / Cheng Y.K., Cheng K.W.E. // 2006. ICPESA '06. 2nd International Conference on Power Electronics Systems and Applications. - Hong Kong, 12-14 Nov. 2006. - P. 173-177.

C2968. Huey Pang. DC Electrical Distribution Systems in Buildings. / Huey Pang, Lo E., Pong B. // 2006. ICPESA '06. 2nd International Conference on Power Electronics Systems and Applications. - Hong Kong, 12-14 Nov. 2006. - P. 115-119.

C2969. Jian Miao. A Low-Cost Light Source for WDM-PONs with Shared High Power Fiber Lasers. / Jian Miao, Jiuchun Ren. // 2006. ICCT '06. International Conference on Communication Technology. - Guilin, 27-30 Nov. 2006. - P. 1-3.

C2970. Khumsat P. Optical Front-Ends for Low-Cost Laser-Based 10-Mbps Free-Space Optical Transceiver. / Khumsat P., Wattanapisit N., Kulhavey K. // 2006. APCCAS 2006. IEEE Asia Pacific Conference on Circuits and Systems. - Singapore, 4-7 Dec. 2006. - P. 1911-1914.

C2971. Lu A.W. Effect of Anode Material and Cavity Design on the Performance of Microcavity OLEDs. / Lu A.W., Chan J., Rakic A.D., Man Ching Ng A., Djurisic A.B. // 2006. ICONN 06. International Conference on Nanoscience and Nanotechnology. 3-7 July 2006. - {no data available}.

C2972. Szabo P. Short time die attach characterization of leds for in-line testing application. / Szabo P., Rencz M., Farkas G., Poppe A. // 2006. EPTC '06. 8th Electronics Packaging Technology Conference. - Singapore, 6-8 Dec. 2006. - P. 360-366.

C2973. Loher T. Stretchable electronic systems. / Loher T., Manessis D., Heinrich R., Schmied B., Vanfleteren J., DeBaets J., Ostmann A., Reichl H. // 2006. EPTC '06. 8th Electronics Packaging Technology Conference. - Singapore, 6-8 Dec. 2006. - P. 271-276.

C2974. Ren K. LEDS: Providing Location-Aware End-to-End Data Security in Wireless Sensor Networks. / Ren K., Lou W., Zhang Y. // INFOCOM 2006. 25th IEEE International Conference on Computer Communications. Proceedings. - Barcelona, Spain, April 2006. - P. 1-12.

C2975. Chen C.-C. Sequential Color LED Back-Light Driving System for LCD Panels. / Chen C.-C., Wu C.-Y., Lu P.-C., Chen Y.-M., Wu T.-F. // 2006. IPEMC 2006. CES/IEEE 5th International Power Electronics and Motion Control Conference. - Shanghai, 14-16 Aug. 2006. - Vol. 1. - P. 1-5.

C2976. {no data available}. Quantum, Power, and Compound Semiconductor Devices -- III-V FETs for Logic: Lasers and Light Emitters in Si and III-V's. 2006. IEDM '06. International Electron Devices Meeting. - San Francisco, CA, 11-13 Dec. 2006. - P. 1.

C2977. Kim Chang Jung. Highly Stable Ga2O3-In2O3-ZnO TFT for Active-Matrix Organic Light-Emitting Diode Display Application. / Kim Chang Jung, Kang Donghun, Song Ihun, Park Jae Chul, Lim Hyuck, Kim Sunil, Lee Eunha, Chung Ranju, Lee Jae Cheol, Park Youngsoo. // 2006. IEDM '06. International Electron Devices Meeting. - San Francisco, CA, 11-13 Dec. 2006. - P. 1-4.

C2978. Kittler M. 1.5 μm Emission from a Silicon MOS-LED Based on a Dislocation Network. / Kittler M., Reiche M., Yu X., Arguirov T., Vyvenko O.F., Seifert W., Mchedlidze T., Jia G., Wilhelm T. // 2006. IEDM '06. International Electron Devices Meeting. - San Francisco, CA, 11-13 Dec. 2006. - P. 1-4.

C2979. Trybula W. Overview of emerging technologies-nano. 2006 IEEE/UT Engineering Management Conference. - Austin, TX, 10-11 Aug. 2006. - P. 7-8.

C2980. Orita Kenji. Highly Efficient GaN-Based LEDs with Photonic Crystals Replicated from Patterned Si Substrates. / Orita Kenji, Takase Yuji, Fukushima Yasuyuki, Usuda Manabu, Ueda Tetsuzo, Takigawa Shin-ichi, Tanaka Tsuyoshi, Ueda Daisuke, Egawa Takashi. // 2006. IEDM '06. International Electron Devices Meeting. - San Francisco, CA, 11-13 Dec. 2006. - P. 1-3.

C2981. Esmaeili-Rad M.R. High Stability, Low Leakage Nanocrystalline Silicon Bottom Gate Thin Film Transistors for AMOLED Displays. / Esmaeili-Rad M.R., Sazonov A., Nathan A. // 2006. IEDM '06. International Electron Devices Meeting. - San Francisco, CA, 11-13 Dec. 2006. - P. 1-4.

C2982. Alqamzi H. Low Energy, Distributed, and QoS-Coverage-Preserving Architecture for Cluster-Based Sensor Networks. / Alqamzi H., Jing Li. // 2006. ChinaCom '06. First International Conference on Communications and Networking in China. - Beijing, 25-27 Oct. 2006. - P. 1-8.

C2983. Swiatkowski M. Student Notice Board Based on LED Matrix System Controlled over TCP/IP Protocol. / Swiatkowski M., Wozniak K., Olczyk L. // 2006 International Students and Young Scientists Workshop Photonics and Microsystems. - Wroclaw, June 30 2006-July 2 2006. - P. 59-60.

C2984. Chakaroun M. Modelling of Organic Device Cathode Obtained by Ion Beam Assisted Deposition. / Chakaroun M., Ratier B., Moliton A. // IECON 2006-32nd Annual Conference on IEEE Industrial Electronics. - Paris, 6-10 Nov. 2006. - P. 4905-4909.

C2985. Sekitani T. A large-area flexible wireless power transmission sheet using printed plastic MEMS switches and organic field-effect transistors. / Sekitani T., Takamiya M., Noguchi Y., Nakano S., Kato Y., Hizu K., Kawaguchi H., Sakurai T., Someya T. // 2006. IEDM '06. International Electron Devices Meeting. - San Francisco, CA, 11-13 Dec. 2006. - P. 1-4.

C2986. Choukri H. Influence of thickness and position of an ultrathin yellow layer on color tuning (including white) of Organic Light Emitting Diodes. / Choukri H., Fischer A., Forget S., Chenais S., Billeton T., Castex M.-C., Ades D., Siove A., Lemaitre N., Denis C., Maisse P., Geffroy B. // IECON 2006-32nd Annual Conference on IEEE Industrial Electronics. - Paris, 6-10 Nov. 2006. - P. 4865-4869.

C2987. Pinho P. Synergies of Controller-Based LED Drivers and Quality Solid-State Lighting. / Pinho P., Tetri E., Halonen L. // Ph. D. Research in Microelectronics and Electronics 2006. - Otranto, . - P. 405-408.

© В.И. Карнышев, 2011
Тематический реферативный сборник сгенерирован в атоматическом режиме
с использованием специализированного программного модуля (ПИО ТУСУР)