

LpS 2012 Preview – Latest Technologies, Presentations, Discussions and Networking

The 2nd LED professional Symposium +Expo will take place on September 25th to September 27th. Gerlinde Graf, the LpS Promotion Manager at LED professional gives us a glimpse of the highlights, explains what is new and what we can expect from LpS2012.

There are still a vast amount of challenges related to the development and manufacturing of LEDs. Some of them are not directly related to the manufacturing technology for LED-based luminaires. Nonetheless, they are important factors in the general commercialization of LED products. There is, for example, the need for education in LED-based luminaire design and the understanding and manufacturing of luminaire reliability. Other tasks include integration at the components level as an important consideration for lowering costs and improving product quality. Among other things, hybrid integration schemes could have a significant impact on the final luminaire costs.

The LED professional Symposium & Exhibition targets groups and individuals who are involved in some or all of the above and are looking to gain and exchange information on LED lighting technologies and its applications in light modules and lighting elements. The symposium is technology oriented and therefore an ideal meeting place for specialists from research and industry.

A Big Leap Beyond Last Year's Event

Quality growth is just one feature at the LpS 2012. While in 2011 over 700 experts from all LED lighting technology fields attended the LED professional Symposium +Expo, this September more than 900 industry specialists and more than 70 exhibitors are expected in September in Bregenz. Visitors come from a wide range of luminaire and lighting industries. In 2011 20% were involved in luminaire & lighting system manufacturing, 12% came from research & education, 9% from distribution, 7% from LED manufacturing, 6% were involved in engineering & design services, 5% were driver & supply manufacturers, 12% were electronic component manufacturers, lamp manufacturers and consultants. Specialists from all these fields are expected in Bregenz again this year to glean information from the new Tech Panels, the highly significant sessions and a cutting edge workshop. Additional product information and the latest industry developments will be available from the exhibitors directly. A specially organized networking event will provide still more opportunities to discuss a vast variety of subjects, establish new contacts and intensify existing ones.

Dr. Eng. Stelian Matei, Manager Semiconductor Lighting Centre, Electromagnetica SA. commented on the LpS 2011:

"I was not only impressed with the conference content, but with the venue and set-up as well. I had the opportunity to attend a similar event afterwards which unfortunately did not impress me as much as LpS did. I hope the LpS event will become a permanent European event. Thank you again and hope to meet with you at the next LED professional Symposium."

LpS 2012 Introduces Tech-Panels

The newly established Tech-Panels will give attendees the opportunity to discuss highly current topics with a group of specialists. OLED, Thermal-Management and LED Lamp Tech-Panel discussions will be set-up with the experts to deepen the attendee's knowledge in these specific domains.

OLEDs are the next challenge that luminaire manufacturers will be facing. In some aspects they can be treated similarly to LEDs but not in others. Luminaire and module manufacturers have certainly learned from the inorganic relatives of the OLEDs and OLED suppliers are working hard to optimize the technical and quality parameters. However, some questions may still be unanswered or unclear. The expert panel will discuss



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and clarify technical issues such as OLED types, color consistency and luminous homogeneity, reliability, temperature dependencies as well as how to drive OLEDs.

Thermal management will deal with the efficacy of LEDs that have improved a great deal over the years. However, in an LED lighting system 60-80% of electrical energy is still transformed into heat and has to be dissipated. Discussions are ongoing concerning which thermal management method should be applied. There are the questions of whether active or passive cooling is sufficient or necessary and if

it leads to a relevant increase of system efficiency or not. Does it sacrifice or improve system reliability? Does it increase costs disproportionately? Can it improve light quality? The expert panel will talk about and shed light on these and other technical issues.

LED replacement lamps have made a great deal of progress. The first 100W equivalent bulbs were announced recently and will be available on the market soon. Designing reliable replacement bulbs is still one of the most challenging tasks. Engineers have to deal with inappropriate

form-factors, sockets, dimming devices or other electronics. One may ask if there are alternative solutions and what they might look like. On the other hand, we have to find solutions that will serve the billions of existing sockets and apply technologies that lead to reliable products immediately. The plenum will be discussing the different approaches and technical key issues for lamp designs.

Sessions Jam-Packed with Highly Relevant Topics

This year's event will feature three keynote speakers, one workshop and 26 lectures in eight sessions. LED-professional is proud to announce that Dr. Sergej Ikoenko has agreed to lead the workshop in 2012. Over 50 satisfied participants attended the workshop in 2011 and "Operating Beyond Competition" in 2012 will deal with competitive patent circumvention strategies using Function Analysis and TRIZ. The workshop will precede the symposium and will be followed by the keynote speeches and the opening of the exhibition.

The participation of Mr. Michael Ziegler (Ph.D.), member of the Photonics Unit at the European Commission's General Directorate as keynote speaker underlines the importance of the LpS for the LED community. He will report about the status of the Green Paper "Lighting the Future" initiative. He will also report on the results of the open consultation and provide an overview of EU initiatives relevant for the faster deployment of SSL in Europe.

The second keynote speaker, Dr. Hans Nikol, the VP of LED Technology Strategy at Philips Lighting will give insights into future perspectives with intelligent light sources, embedded lighting and new form factors not possible before. In addition, exciting features for luminaire manufacturers, specifiers, light designers and other key players in the lighting industry will be discussed.

The closing session will be presented by Prof. Andreas Schulz, Professor HAWK Hildesheim and CEO LichtKunstLicht AG, and Member of the IALD Board of

Figure 1:
Enthusiastic and informative speeches can be expected again this year like the one given by Andrew Dennigton, Optical Design Manager at Polymer Optics in 2011



Figure 2:
Attendees are captivated by the lectures



Directors, who will demonstrate state-of-the-art technology for LED lighting designs using the example of a museum project. He will also discuss strategies, design approaches and explain the characteristics implemented in lighting technologies.

The eight sessions are scheduled for days two and three. The first session will disclose disruptive LED technologies to the audience. GaN-on-Si, while being a challenging technology is already around the corner with mass production announced for 2013. Two speakers, Pars Mushik (Yole) and Tom van den Busche (Bridgelux), will concentrate on this topic. Another hot topic, driverless AC LEDs, will be covered by Bob Kottritsch (Link Labs) and Thomas Zabel (e.lumix). In addition, Mr. Zabel will show in-chip protection using a grid load regulator in-chip layers to prevent hot-spots and improve thermal stability of the LEDs.

The morning will continue with talks on LED light conversion technologies. The three speakers Lena Pilz, Johannes Nicolic and Dominic Sacher will speak about mechanisms of white light generation with phosphors, from efficiency to physical limits, thermal issues of phosphor converted LEDs like temperature distribution in an LED package and thermally induced color deviations and new and remote phosphor technologies for future solid-state lighting designs with improved CRI of more than 95 and phosphors with higher temperature stability.

After the lunch break Alexander Leis, Hans Laschefski and Angelika Hofmann will introduce the audience to the latest developments in LED optics design, speaking in detail about optical design challenges when using multi-chip or single-bin LEDs, such as spatial color and distribution problems, intelligent reflector technology for glare reduced LED luminaires with high optical efficiency and tolerancing tailored freeform optics for illumination systems to compensate shape and assembly deviations by automated tolerancing.

The concluding session of the day will cover important aspects of LED electronic systems design. Subjects such as LED driver designs to overcome the costs vs. performance dilemma, understanding the challenges and complexity of LED dimming technology explaining pros and cons of current vs. PWM dimming, application of color-managed ambient light sensor for advanced LED lighting systems to optimized daylight harvesting, and optimization of absolute accuracy for true color sensors in a closed control loop to provide constant luminous color over life-time will be presented by Peter Green, Steve Roberts, Sajol Ghoshal and Fredrik Hailer.

On the third day most current issues of LED Production Technologies & Materials, LED System Standardization & Measurement, LED System Reliability and LEDs in Outdoor Lighting Applications will be covered in four sessions.

In the first session of the day Harald Reisigl will introduce the audience to "Glass - A Viable Alternative Optical Material for LED Applications". He will be followed by Huub Claassen speaking about compression and transfer molding solutions for HB LED optics for a significant cost reduction. The final speaker of this session is Andreas Steffen Klein with his important subject of stamped circuit board technology as an alternative solution for SSL thermal management.

Before the lunch break Dawson Liu will speak about Zhaga compatible light engines. Requirements, design and compliance will be explained for the "Book 3" spotlight engine. Dirk Hansen will cover LED measurement issues to obtain polychromatic raydata using a near-field goniometer and their value for simulations, and Peter Laepple will address the subject of measurement of LED light sources and interpreting data in respect to photobiological safety standards.

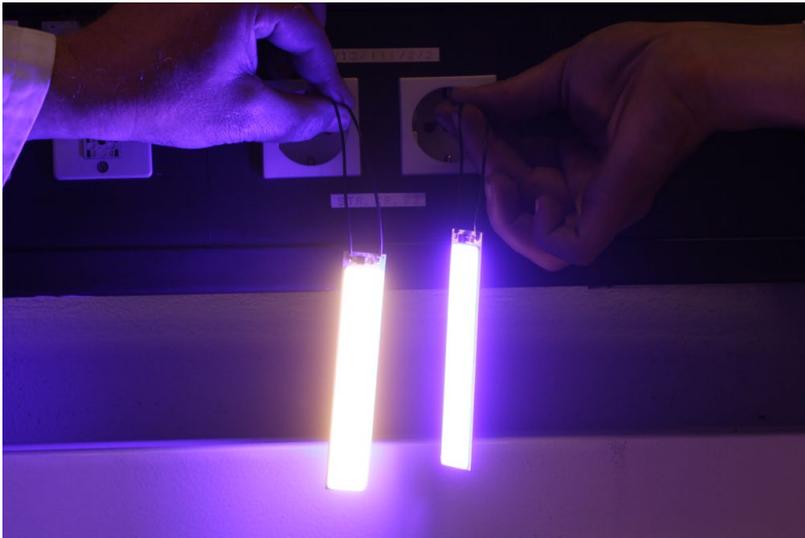
The afternoon will start with three presentations on LED system reliability. The speech about fundamentals of LED system design to avoid mistakes by Shawn P. Keeney comes first and will be followed by Reinhard Pusch's contribution about failure analysis and actions to improve lifetime and reliability. The session will be concluded with the topic of reliability issues of LEDs and LED based luminaires for outdoor applications in respect to humidity and sulphur contamination by Janick Ihringer.

The final session of the symposium will feature Andreas Ueberschaer, Bob Derringer and Daria Casciani with their highly relevant talks on the influence of the light spectrum on visual perception in street lighting applications showing results under normal and poor light intensity, design process and optics selection for roadway lighting applications, and discussing why the optics selection should take place in an early stage. There will be an analysis of three projects to optimize the design process of street lights with the goal to define a design strategy toward efficient, sustainable and performing lighting fixtures.

Figure 3:
Exhibition floor space has been increased by almost 50% giving exhibitors more opportunities



Figure 4:
The driverless AC LED modules from e:lumix is just one example of the new developments which will be displayed by a number of exhibitors



All speakers will be available for questions and further discussions after their talks, during the breaks and at the Get Together networking event.

Meet the Sponsors

Some of the biggest names in the LED industry have already joined the LED professional Symposium +Expo 2012. Sponsoring maximizes marketing opportunities in the run up to the September event online at www.lps2012.com, LED professional event newsletter, the symposium program and PR.

As the exclusive Platinum Sponsor, e:lumix can take advantage of a high amount of exposure before, during and after the event. e:lumix Technologie AG is a leading and innovative manufacturer of LED-Chips and solid

state lighting solutions. As a producer of LED semiconductors as well as a vendor of replacement light items and innovative lamp bodies for general lighting technology, the company is in control of the complete process chain beginning with chip production all the way to the final product. Based on the long experience of the team in the field of architecture lighting and production of semiconductors, as well as the vertical range of manufacture (own production of LED semiconductors (Chip-FAB), metal and plastic processing, own production of boards and electronic components), e:lumix is able to act demand-oriented as well as flexible on market needs and special requests from costumers.

e:lumix will be presenting standard products as well as prototypes that Thomas Zabel talks about in his

presentation on 54 m² of exhibition space. The booth will also enhance their exposure and maximize customer contacts.

Our Gold Sponsor, Osram Opto Semiconductors, one of the leading manufacturers of opto-electronic semiconductors will be present in their 27 m² booth. The world-wide network, LED Light for you, offers a platform where certified partners can put their know-how forward to help realize LED projects. It doesn't matter if they are standard or individual solutions. The specialists come from the areas of optics, thermal, electronics and system integration. The latter accompanies a project through all of its phases, from development to the finished product.

Osram Opto Semiconductors will be presenting its most innovative products in the area of Solid State Lighting, SSL, at the LED professional Symposium. Just to name a few, the 3 mm x 3 mm outstanding, efficient, high performance LED OSOLON® Square that offers maximum flexibility for indoor and outdoor lighting. Furthermore, the highly efficient mid power class LED, DURIS® P 5, impresses with its long life even at high currents and temperatures as well as high luminance efficacy, a high maximum current of 200 mA and its elevated corrosion resistance. The SOLERIQ® E array LED will also be there. It comes in two sizes and is easily applied using a metal core board. It is especially made for downlight solutions from 1500 lm to 4500 lm and diverse color temperatures from 2700 K to 6500 K. The Chip-on-board LED with its color consistency within 4 Step MacAdams, impresses with high light yield and a color rendering of CRI > 80. Of course the next generation of the compact OSOLON® SSL, the first high performance LED with optimized radiation angles (80°/150°) is on display too. It is an excellent choice for use with secondary lenses or reflectors. A range of CRI variations in color temperatures from 2700 K to 6500 K fulfil the most diverse application requirements.

Figure 5:
The SOLERIQ® E (top), the OSOLON® Square (left), the DURIS® P 5 and the next generation OSOLON® SSL are Osram OS's most recent innovative products that will be shown at LpS 2012

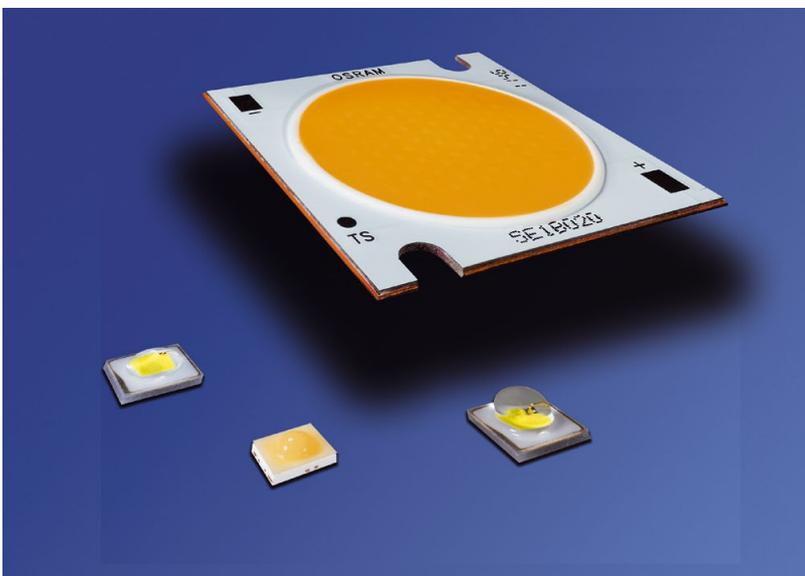


Figure 6:
The Gala Dinner networking event in 2011 was highly appraised.



Figure 7:
This year a Get Together Event will be on board the MS Vorarlberg on Lake Constance



Tridonic is the second LpS 2012 Gold Sponsor. Their R&D department has been engaged in the quest for perfect light for over 50 years. They focus on making a contribution towards better lighting results by providing constantly upgraded modern components, continuously improving the reliability and security of lighting systems and doing their bit towards climate protection. Tridonic's latest highlights are the OLED products that came out at Light+Building this spring.

More Networking Opportunities

In addition to the networking opportunities during the session breaks and also at the exhibition throughout the three days of the Symposium, a relaxing Get Together Event has been organized for Wednesday, September 26th from 07:30 pm to 11:00 pm. Whereby last year the Get Together Event was exclusively for the attendees, this year, visitors, attendees, exhibitors, press

and sponsors can join the cruise around Lake Constance with dinner and live entertainment. This will provide additional opportunities to continue technical exchanges started earlier in the day, mingle, develop contacts and meet new people. The objective of the evening is to relax and enjoy.

A Central Location

Bregenz is located on the shores of Lake Constance. It is one of Austria's leading cultural and leisure areas, the capital city of the state of Vorarlberg and the seat of the provincial government with a population of 28,000. The area is known as a high tech region in the heart of Europe and is only a 2-3 hour drive from other technology hubs in northern Italy, France and Germany. Last year's participants were not only impressed with the quality of the presentations, but also the perfect location – "Bregenz and the location on the lake-side of the Lake Constance provided a beautiful backdrop for the important developments in lighting" said Bodo Artl, Publisher of Bodo's Power Magazine. –

This unique package will also provide an efficient and at the same time, attractive environment for the dialogue requirements between the players in the SSL market this year from September 25th to 27th, 2012. ■