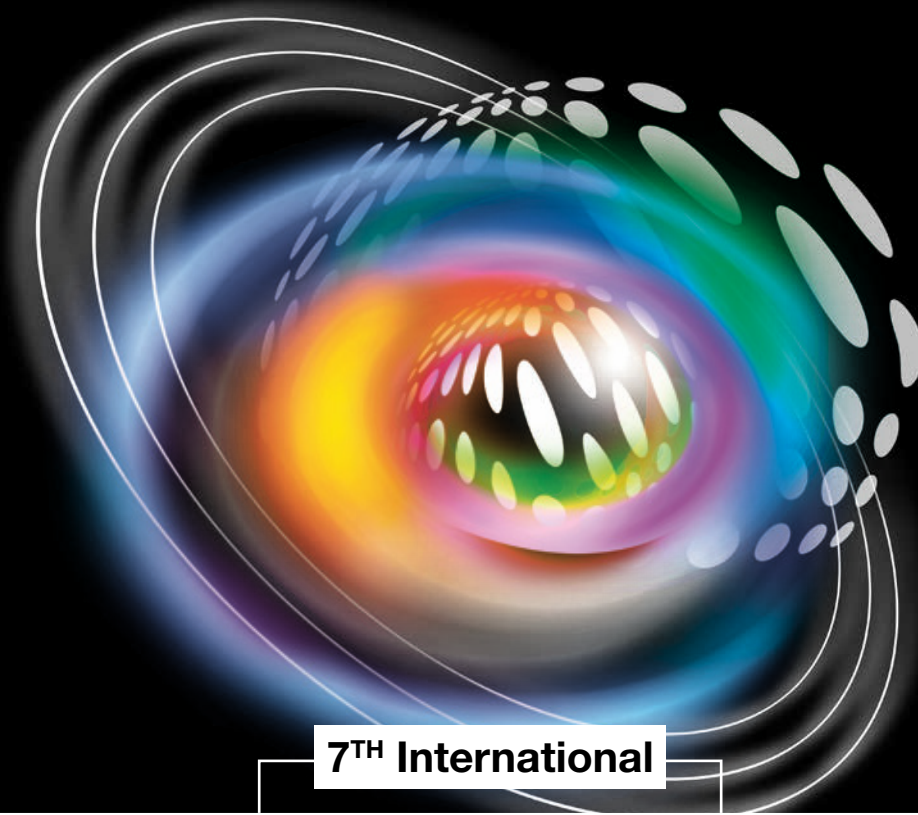


LpS 2017

LED SYMPOSIUM
professional +EXPO



7TH International

LED professional Symposium +Expo

The Lighting Event for Technologies of Tomorrow



LpS is the leading international lighting technologies event for design, testing and production of lighting systems, controls and equipment.

SEPTEMBER 2017
26TH - 28TH

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WORKSHOPS & FORUMS | DAY 1, SEPT 26TH

WORKSHOP | SEPT 26, 08.00 AM – 09.30 AM

OLEDs – Bring Your Design to Light | by OLEDWorks



OLEDs have done more than make previously unimagined technical solutions possible – since they appeared on the global lighting stage. They are adjustable, adaptable and as capable of making a spectacular appearance as of providing more restrained, barely perceptible lighting. Consumers can enjoy an entirely new form of light with OLEDs. No more redirecting, reflecting and manipulating point sources and linear sources. A beautiful light quality comes from the just millimeter-thin OLED panels. Just turn it on and the entire surface of the OLED delivers a pleasant, low-glare, broad spectrum light, which is unrivaled by other light sources and systems.

Just a glow. Too expensive. Not available in volume. These are just a few of the tags that cling to the reputation of OLED lighting. It is time to shake off these dusty labels and start seeing OLED lighting as the exciting innovative light engine it truly is. Let's consider performance. OLEDs now enable beautiful light quality at truly functional light

levels. One panel can provide e.g. 300 lumens. So yes, the performance is enticing. But aren't they too expensive? More and more lighting designers are concluding "no", that in fact the total cost is compelling. OLEDs are easy to integrate. The OLED itself offers numerous variations of a new light source, right out of the box. There is no need for complicated thermal management, optical wave guidance or diffusers. This results in less product development time and faster time to market. With performance and price opening greater market opportunities, are products available in volume?

The OLED Workshop shows how easy it is to work with OLEDs, esp. the integration of OLEDs within applications – projects and luminaires.

Moderation: Guido Olbertz, Business Development Manager at OLEDWorks

WORKSHOP | SEPT 26, 08.00 AM – 09.30 AM

Bluetooth Mesh and IoT/Smart Control Panel Discussion | by Silvair & Bluetooth SIG

SILVAIR

A workshop on Bluetooth mesh networking in professional lighting applications. Simon Slupik, chair of the Bluetooth SIG's Mesh Working Group and CTO of Silvair, will present a range of dedicated tools for prototyping connected lighting networks employing Bluetooth mesh connectivity. Participants will be able to experience the basics of this new disruptive technology, learn what type of tools can be used to evaluate it, and see lighting products with Bluetooth mesh networking in action.

Right after the workshop, a discussion panel will be held during which different representatives of the lighting value chain will share their thoughts on the Bluetooth Mesh

standard and its expected impact on the lighting industry. Can this new flavor of Bluetooth drive the connected lighting revolution in commercial spaces? Is it technically capable of enabling fully scalable smart lighting networks with wire-like reliability? What should different stakeholders do to ensure they won't miss the opportunities that the Bluetooth Mesh standard is opening? These will be some of the questions we'll try to answer.

Moderation: Szymon Slupik, CTO at Silvair and Chair of the Bluetooth SIG's Mesh Working Group

WORKSHOP | SEPT 26, 08.00 AM – 09.30 AM

LiFi – Challenges and Opportunities of LiFi | by Photonics Austria & Fraunhofer



The End-user workshop on visual light communication (LiFi) explains the technology and focusing on the chances to adapt LiFi technologies in real applications.

LiFi is a communication technology for free space communication similar to the better known WiFi. In contrast to WiFi, which is based on radio frequency communication, LiFi is an optical communication using wavelengths in the visible range. The main advantages of LiFi compared to WiFi are: Higher bandwidths and transmission rate; Higher security since it walls shield light; No license for data transmission frequency needed. LiFi requires light sources and such as LEDs which makes the communication technology to be interesting to be integrated in modern luminaires. Consequently LiFi could be a great opportunity for players in lighting to expand their business area into communications. However, opportunities are also related to challenges and in case of LiFi those challenges are related to disadvantages LiFi has compared to WiFi: Shorter communication distance; External light sources can cause interfering problems; In

many cases a line of sight between emitter and receiver is required. Due to the above mentioned disadvantages LiFi is only competitive to WiFi for a limited set of use cases. In particular, areas which are sensitive to radio frequencies are considered to be well suited for a LiFi application. Moreover, lamps with integrated LiFi functionality might serve as secure hotspots in public areas and future vehicles might communicate via head- and rear-lamps with other cars and/or traffic lights.

The aim of the workshop is to discuss challenges and opportunities of LiFi for the lighting industry. In particular, ideas and visions of new products and business models will be reflected in the frame of the workshop. Moreover, concepts for joint projects are targeted to be developed.

Moderation: Dr. Gerhard Peharz, Photonics Austria, Dr. Frank Deicke, Fraunhofer IPMS

WORKSHOP | SEPT 26, 08.00 AM – 09.30 AM

Visual Perception – Theory, Practical Demonstrations, Limitations | by Bartenbach

Bartenbach®

Lighting technology is in a time of groundbreaking changes. LEDs, as a highly efficient, digital light source, offer new spectral and radiative features for lighting applications to fulfill special visual, biological and emotional requirements. But how can we exploit these new possibilities really for the benefit of the people, thus creating a sustainable social development rather than needless technology driven gimmicks?

Today's standardized quality characteristics (metrics) are insufficient for distinguishing poor illumination from good illumination and the first bad experiences with LED illuminations (cold light with bad color, glared), together with blue light hazard issues has raised some skepticism by the end users.

In the workshop, we want to address both the opportunities and the risks of LED illuminations. The different approaches to illuminate a room (e.g. directed light versus diffuse light) and the most important quality characteristics of LED illuminations will be demonstrated in a lively and tangible way.

Moderation: Dr. Wilfried Pohl, Bartenbach

WORKSHOPS & FORUMS | DAY 3, SEPT 28TH

WORKSHOP | SEPT 28, 08.00 AM – 09.00 AM

Science meets Application | by Luger Research & Scientific Partner Network

LUGER RESEARCH
Institute for Innovation & Technology

The purpose of the Science meets Application workshop is to bring scientific partners and potential applicators together. The scientific partners will focus on the following areas:

- LEDs and OLEDs
- Drivers, Thermal Management and Reliability
- Optics and Light Quality
- Smart Lighting and IoT

In the first part of the workshop the different areas will be outlined and the scientific partners will explain how they and their organizations deal with these areas and what kind of research they can provide. In the second part of the workshop the participants will get the chance to discuss these areas with the scientific partners in smaller groups.

Participants are invited to bring their own questions and problems to start open discussions with the experts. Discussion rounds should be utilized to make new contacts.

Moderation: Dr. Günther Sejkora, R&I Manager, Luger Research e.U.

Note: The Scientific Partnerships have been created to form an active network that will strengthen and build the connections between universities, research laboratories and industry. The Scientific Partnerships mission is to enable and secure the continued developments of innovation in light technology. Members are: EVATEG (Turkey), Joanneum Research (Austria), Steinbeis Transferzentrum (Germany), Holst Centre (The Netherlands), CSEM (Switzerland), Royal Institute of Technology KTH (Sweden), University of Edinburgh (UK) and the University of Padua (Italy).

WORKSHOP | SEPT 28, 09.30 AM – 12.30 PM

Miniaturization of Solid State Lighting Systems | by EPIC

EPIC
European Photonics
Industry Consortium

With a special look at novel SSL systems in Automotive, Signalling, Wearables, Horticulture, Indoor/Outdoor and Construction.

The miniaturization of SSL light engines and systems allows for new types or revolutionary designs of luminaires and lamps with new form factors and expanding application fields, such as in automotive, signaling, wearables, horticulture and through the integration into building materials in the construction sector. The "EPIC Workshop on Miniaturization of SSL systems" will bring together high-level representatives from key organizations in the sector. Active discussions will cover the topics of improved cost/performance ratio, energy efficiency and novel application fields of miniaturized SSL systems.

- High Conductive Foils Enabling Large Area OLED Lighting
by Dr. Roland Steim, Safar, Project Manager
- Micro and Sub-Micro Optics with Freeform Designs for Miniaturized Systems
by Dr. Oscar Fernandez, CSEM, Senior R&D Engineer
- Miniaturized LED Drivers Enabling New Design Solutions
by Mickey Madsen, Nordic Power Converters, CEO

Dr. Martin Django, Light Tec, Application Engineer

Dr. Harald Pier, cenogent, CEO

FORUM | SEPT 28, 13.00 PM – 14.00 PM

Lighting Up the Dark Corners of the Internet of Things - Live IoT Hacking Demonstration | by PenTestPartners

PEN TEST PARTNERS

SMART lighting and lighting systems can improve energy efficiency and allow remote access and management. However, those access and management functions can be subverted by hackers or even worms to take control of – or gain entry to – private and corporate networks. The risks are that you simply can't turn your lights on or off, or that if a poorly configured and badly secured device is attached to your network it can let an attacker in. It is even reasonable to assume that if enough lighting systems

can be co-opted into a botnet they could be used to cause DDoS attacks, or even a power-outage. As with so many SMART and IoT devices security is an afterthought. We'll look at why that is, and also explore how developers and manufacturers can build better, more secure products.

Ken Munro, Pen Test Partners, Partner

KEYNOTES | DAY 1, SEPT 26TH

GROSSER SAAL | 15.30 PM – 17.30 PM



Lighting Visions, Trends & Projects in Modern Architecture

Helmut Kinzler, Zaha Hadid Architects, Senior Associate



Strategic Roadmap of the Global Lighting Industry

Jan W. Denneman, Philips Lighting, President Global Lighting Association & VP Philips Lighting & VP LightingEurope



Digitization of Buildings

Akshay Thakur, CISCO, Business Development Manager



Transition of Illumination - Light Centric Humans

Fred Maxik, Lighting Science Group, Founder & CTO

Time	Technologies Seestudio	Markets Saal Bodensee	Lighting Propter Homines	Forum Seefoyer
08.00	WORKSHOP OLEDs - Bring Your Design to Light <i>by OLEDFWorks</i>	WORKSHOP Visual Perception - Theory, Practical Demonstrations, Limitations <i>by Bartenbach</i>	WORKSHOP Challenges and Opportunities of LiFi <i>by Photonics Austria & Fraunhofer</i>	WORKSHOP Bluetooth Mesh and IoT/Smart Control Panel Discussion <i>by Silvair & Bluetooth SIG</i>
08.30				
09.00				
09.30	COFFEE & LpS EXPO / TIL SHOW			
10.00	Challenges and Future of LEDs <i>Ki-bum Nam</i> <i>Seoul Semiconductor, CTO</i>	Lighting Delivering Increased Value to Society - A Strategy for Growth <i>Ourania Georgoutsakou</i> <i>Lighting Europe, Secretary General</i>	Theory of Light - Reloaded <i>Dr. Stefan Kreidler</i> <i>onlog, Network & Innovation Manager</i>	Exhibiting with LED Lighting - Museo dell'Opera del Duomo in Firenze <i>Massimo Iarussi</i> <i>Studio Massimo Iarussi, Founder & Lighting Designer</i>
10.30	Spectrally Narrow Red Quantum Dots in White LEDs for General Illumination <i>Dr. Ken Shimizu</i> <i>Lumileds, Technical Director</i>	2017 LED Industry Update: Highlights and Future Trends <i>Pars Mukish</i> <i>Yole Développement, SSL & Display BU Manager</i>	Lighting Quality for the Next Decade - Visions and Mission for the Lighting Industry <i>Horst Rudolph, ITZ/Trilux, Director Research and Lighting Technology</i>	Light Management Meets IT Technology <i>Sven Müller</i> <i>ITZ/Trilux, Director Lighting Systems</i>
11.00	Laser Lighting: Opportunities and Criticalities <i>Dr. Nicola Trivellin</i> <i>LightCube, CEO</i>	LEDification: A Work Still in Progress <i>Dr. Norman Bardsley</i> <i>Bardsley Consulting, CEO</i>	Good Light Above the Clouds <i>Prof. Volker von Kardorff</i> <i>Kardorff Engineers, CEO</i>	How Lighting will Become a Secondary Function of the Luminary <i>Bastiaan de Groot</i> <i>Felto Sylvania, Global Director Strategy & BD</i>
11.30	Lighting Industry Quo Vadis <i>Klaus Vamberszky</i> <i>Zumtobel Group, EVP Technology</i>	The Fairhair Alliance Facilitating the Internet of Things for Commercial Buildings <i>Teresa Zotti</i> <i>Philips Lighting Research, Scientist for IoT Systems</i>	Melanopic Photometry vs. Melanopic Lux - The WELL Standard as a Case Study <i>Dr. Octavio L. Pérez</i> <i>Mount Sinai Hospital & Lledó Lighting, Researcher</i>	Is Smart Lighting Smart in the Eyes of the Customer? <i>Dr. Thomas Knoop</i> <i>Zumtobel Group Services, EVP</i>
12.00	LUNCH & LpS EXPO / TIL SHOW			
13.00	Colorimetry and Variability of LEDs <i>Dr. Thomas Merelle</i> <i>Pi Lighting, Senior Consultant</i>	Interoperation of Street Lighting CMS within IoT Urban Ecosystems <i>Arturo Rubio-Dobón</i> <i>ELT, Business Development Manager</i>	SCHEER Report - LED Potential Risks to Human Health <i>Axel Baschnagel</i> <i>LightingEurope, Communication Consultant</i>	Artificial Sky - The Evolution of the Sun Indoor and the Moon between Poetry and Science <i>Prof. Paolo Di Trapani</i> <i>CeoLux, President</i>
13.30	Chip Scale Package LED Lighting Modules: Opportunities and Challenges <i>Pierrick Boulay</i> <i>Yole Développement, Market and Technology Analyst</i>	The Architecture of IP Connected Lights can be the Blueprint for Connected Buildings <i>Thomas Moder</i> <i>Tridonic, Segment Manager Controls & Connectivity</i>	Impact of Artificial Illumination on Alertness and Cognition - A Psychophysical Evaluation <i>Dr. Vineetha Kalavally</i> <i>Monash University, Senior Lecturer</i>	EINSTONE Smart Retail - Sales Increase for Retailers <i>Dr. Christoph Peitz</i> <i>OSRAM, Director EINSTONE Business</i>
14.00	Design, Substrates and Processes for the Production of High Performance LED Flip Chip Modules <i>Dr. Franz Schrank</i> <i>Tridonic, Head of Research & Technology</i>	IoT Standardization Needs and Multiple Connectivity for Lighting Controls <i>Dr. Walter Werner</i> <i>Werner Mgt., CEO</i>		Bluetooth Mesh Networking Paves the Way for Smart Lighting as a Service <i>Martin Woolley</i> <i>Bluetooth SIG, Technical Program Manager</i>
14.30	COFFEE & LpS EXPO / TIL SHOW			IoT and Lighting: Affordable and Fast Time-to-Market Sensors Solutions <i>Kevin Jensen</i> <i>ams, Senior Marketing Manager</i>
15.00				
15.30	Keynotes Grosser Saal		Lighting Visions, Trends & Projects in Modern Architecture <i>Helmut Kinzler</i> <i>Zaha Hadid Architects, Senior Associate</i>	
16.00			Strategic Roadmap of the Global Lighting Industry <i>Jan W. Denneman</i> <i>Philips Lighting, President Global Lighting Association & VP Philips Lighting & VP LightingEurope</i>	
16.30			Digitization of Buildings <i>Akshay Thakur</i> <i>CISCO, Business Development Manager</i>	
17.00			Transition of Illumination - Light Centric Humans <i>Fred Maxik</i> <i>Lighting Science Group, Founder & CTO</i>	
17.30				
18.00 - 19.00	Expo Reception Werkstattbühne		Networking, Informal Drinks Reception in the Expo/Show Area	

Time	Light Sources Seestudio	Connected Lighting Saal Bodensee	Design & Engineering Propter Homines	Forum Seefoyer
08.00	Monocrystalline Luminophores for High Power Illumination (Laser) <i>Tomas Fidler Crytur, Research Engineer</i>	Case Study: Integrating Bluetooth + Mesh Into LED Drivers and Light Fixtures <i>Laurent Jenck ERP Power, VP Business Development</i>	Latest Trends and Technologies for High-End Retail Lighting <i>Sebastian Hülck EBV, Director Segment Lighting</i>	
08.30	Communicate with Graphics from IES TM-30-15 <i>Markus Reisinger Lighting Research Studio, CEO</i>	LED Drivers Overview Considering State-of-the-Art, Differentiation and Regulations <i>Iván Cid Jiménez ELT, R&D Manager</i>	Novel Encapsulation and Siloxane Materials for CSP Packaged LEDs <i>Dr. Juha Rantala Inkron, CEO</i>	Universal Use - Solar Lighting is the Topic of Today <i>Reinhard J. Weiss LEDON Lamp, CEO</i>
09.00	Understanding and Applying the Latest Eye Safety Standards to LEDs, Modules and Luminaires <i>Alexander Wilm, OSRAM Opto Semiconductors, Senior Key Expert Illumination</i>	Closed-Loop Sensing: Human-Responsive Lighting Delivers ROI <i>Tom Griffiths ams, Sr. Marketing Manager</i>	Thermal Management for Chip-Scale Packaged Lighting Modules <i>Dr. Giles Humpston Cambridge Nanotherm, Applications Manager</i>	Building Processes Revolutionized by a Multifunctioning Home Automation – Get Your IoT Building with Aladin <i>Hubert Rhomberg Rhomberg Group, Managing Director</i>
09.30	Opportunities in Spectral Tuning from High Color Rendition to Horticulture Applications <i>Ingolf Sischka Lumileds, Technical Solution Manager</i>	Zhaga Interface Specifications for Connected Lighting and a Circular Economy <i>Dr. Dee Denteneer The Zhaga Consortium, Secretary General</i>	Light Guides and Asymmetric Optics <i>Dr. Marc C. Hübner auer Lighting, Director Optical Technologies</i>	Light is Freedom of Design <i>Aninda DasGupta OSRAM, Head Global Marketing Digital Systems</i>
10.00	COFFEE & LpS EXPO / TIL SHOW			Light, Creativity & Tech <i>Stefan Yazzie Herbert The Paranormal Unicorn, CEO</i>
10.30				
11.00	Laser Light Sources for Specialty Illumination Applications <i>Dr. Paul Rudy Soraalaser, Co-Founder & SVP BD</i>	Converging Power Supplies for LEDs, IT & Consumer Electronics with Integrated Magnetics <i>Dr. Fred C. Lee Virginia Tech, Professor</i>	Equivalently Equal Electrical, Optical and Thermal Parameters Open New Design Possibilities of LED Devices <i>Olga Morozova Rusalox, VP Overseas Operations</i>	Clever Innovation that Solves Real Problems and Reduces Costs for LED Emergency <i>Russ Sharer Fulham, VP Global Marketing & BD</i>
11.30	Hybrid Quantum Dot - Light-Emitting Electrochemical Cells <i>Dr. Ekaterina Nannen Nano Energie Technik Zentrum, BD</i>	Implementing Smart Lighting Using Bluetooth Mesh Networks: Specification Walk-Through for Lighting Professionals <i>Szymon Słupik, Silvair, CTO & Chair of the Mesh Working Group at Bluetooth SIG</i>	High-End Plastics for Prospective Optical Applications <i>Alexander Woerle kdg opticomp, Head of Technology & Innovation</i>	Advanced Lighting Control and Smart City Trends in the United States, Latin America and EMEA <i>Ian Aaron UBICQUITA, CEO</i>
12.00	How the Latest High-Power Silicon-Based LED Technology is Transforming Form, Function and Performance <i>Giuliano Cassataro, Plessey, Sales Director</i>	BLE and Cloud Based Smart Lighting Solution <i>Timo Pakkala Casambi, CEO</i>	An Optimized Gas Filling for Gas Cooled LED Bulbs <i>Dr. Calogero Sciascia SAES, Head of Laboratory</i>	DALI Version 2: Lighting Systems and Interoperability Benefit from New Standards and Mandatory Certification <i>Dr. Scott Wade, DALI/DiiA, Technical Manager</i>
12.30	Smart RGB LED Concept for Automotive Lighting Applications <i>Markus Römer Inova Semiconductors, Manager Application & Systems Engineering</i>	Smart and Secure IOT LED Streetlight with Digital Driver Technology <i>Ulrich vom Bauer Infineon, Senior Segment Manager</i>	Accelerated Development with Virtual Prototyping for Lighting Industry <i>Kamil Przygoda Optis World, R&D Engineer</i>	Are You IoT-Ready™? <i>Evan D. Petridis Enlighted, Chief System Architect</i>
13.00	LUNCH & LpS EXPO / TIL SHOW			
14.00	Future Performances in CRI for Indoor and CCT for Outdoor Lighting <i>Xavier Denis Nichia, Application Engineering Mgr.</i>	IoT System Architectures of BMS, LMS & BIM <i>John Sayer, Johnson Controls, Senior Project Development Engineer</i>	New Thermally Conductive Polycarbonate Materials for Heat Management in LED Lighting <i>Axel Wetzchewald, Covestro, Marketing Manager</i>	The Fifth Material - First Impression <i>Dr. Lars Meeß-Olsohn Leichtbaukunst, Architect</i>
14.30	New Outdoor Stable LED Technology Enables Cost Efficient and Compact Luminaire Designs <i>Markus Hofmann OSRAM Opto Semiconductors, Senior Key Expert</i>	How the OpenAIS Group Communication Allows Secure and Low Latency Interoperable IoT Based Lighting Controls Designs <i>Giulio Borsoi, Zumtobel Group, Researcher</i>	Innovation in Water Purification Systems with UVC LEDs and Silicone Optics <i>Dr. Francois de Buyt Dow Corning, Adhesion Senior Specialist</i>	The Role of the Lighting Project in a Multidisciplinary Design Process <i>Dr. Arch. Helena Gentili Politecnico di Milano, Adjunct Professor, Lighting Designer</i>
15.00	Latest Technology Updates of Modern OLEDs for Lighting Application <i>Dr. Jörg Knipping OLEDWorks, R&D Manager</i>	OS-NET, An Optimized Wireless Lighting Control Solution <i>Andy Huang IR-TEC, Business Development Director</i>	Smart Design of Freeform Micro-Optical Elements for Thin Direct Lit-Luminaires <i>Dr. Christian Sommer, Joanneum Research, Deputy Head of Research Group</i>	FORUM Design meets Technology - Architectural Lighting Design, Who does What? <i>by APIL</i>
15.30	Roll-to-Roll Solution Processed Flexible OLEDs from the PI-SCALE Open Access Pilot Line <i>Prof. Pim Groen, Holst Centre, Professor</i>	Miniaturization of LED Drivers <i>Mickey Madsen Nordic Power Converters, CEO</i>	Optimization of Free-Form Optics Using T-Splines in LED Illumination Design <i>Annie Shalom Isaac Karlsruhe Institute of Technology, Researcher</i>	
16.00	COFFEE & LpS EXPO / TIL SHOW			
16.30				
17.00	Forum Grosser Saal		Award Ceremony & Expert Panel Debate on the Future of Light	
18.00 - 21.00	Get Together Evening Hauptbühne		Networking, Live Music, Drinks & Food, Introduction to the Opera Carmen on the Floating Stage	

Open to all visitors!

Time	System Quality Seestudio	System Qualification Saal Bodensee	Applications Propter Homines	Forum Seefoyer
08.00	Towards the Digital Fabrication of LED Lighting Prototypes <i>Dr. Daria Casciani Politecnico di Milano, Researcher, Designer</i>	Spectroscopic and Oscilloscopic Studies of Commercial LED Bulbs and Their Flickering Measurements <i>Dr. Aman Nagi University of Lucknow, Researcher</i>	Special LED Lighting for Poultry Farms: Research and Extension <i>Prof. Jinming Pan Zhejiang University, Professor</i>	WORKSHOP Science meets Application <i>by Luger Research & Scientific Partner Network</i>
08.30	Lifetime- and Economic Efficiency Simulation of LED Luminaires <i>Sebastian Hämmerle Vorarlberg University of Applied Sciences, Researcher</i>	Impact of Spectrum and Color Temperature on Circadian Clock and Melatonin Suppression - Spectra Model and Installed Projects <i>Luca Marinozzi Cariboni Lite - Fivep, Optics Developer</i>	Standards and Design Guidelines on Artificial Lighting for Indoor Farming <i>Henry Marvin Böll TÜV SÜD, Technical Manager Lighting</i>	
09.00	Advanced Materials to Protect LED Systems from Degradation Caused by Sulphur and Halogens Based Contaminants <i>Dr. Alessio Corazza SAES, BDM</i>	Photorealistic Luminance Measurement Method and Homogeneity Analysis by Using Digital Cameras <i>André Custódio Aspoeck, Optical Engineer</i>	Challenges and First Practical Experiences of Roadway Lighting Design in Virtual Reality <i>Viktor Zsellér Arrow, Application Engineer</i>	
09.30	Quality Aspects and Standards in Horticultural Lighting <i>Walter Parmiani UL, Principal Designated Engineer</i>	Solid State Lighting Measurements - From Basics to Recent Developments <i>Dr. Denan Konjhozic Instrument Systems, Application Engineer</i>	LED Lighting Systems for Indoor Horticultural Systems of the Future - inFarming <i>Volkmar Keuter Fraunhofer-Institute, Head of Department Photonics and Environment</i>	WORKSHOP Miniaturization of Solid State Lighting Systems <i>by EPIC</i>
10.00	COFFEE & LpS EXPO / TiL SHOW			
10.30				
11.00	Accelerated LED-Degradation under Exposure to Air Pollutants <i>Dr. Michael Kunzer Fraunhofer, Group Leader LED Modules</i>	The Importance of Accurately Modeling Light Scattering in Luminaire Design <i>Dave Jacobsen Lambda Research, Senior Application Engineer</i>	Towards Finding the Optimal Illumination Spectrum for a Particular Retail Scene <i>Kaveh Ahmadian Light & Lighting Lab, KULEUVEN, Researcher</i>	
11.30	Aerosol Jet Printing: A Promising Technology for LED Packaging <i>Dr. Paul Hartmann Joanneum Research, Director</i>	Lighting Quality Metrics - CIE and IES Recommendations on Flicker, Color Rendering and HCL <i>Mikolaj Przybyla GL Optic, COO</i>	LUMENTILE EU Project - Integration of SSL into Ceramic Tiles: A New Product for Smart-City Applications <i>Dr. Luca Carraro University of Pavia, Project Manager</i>	
12.00	Smart and Flexible Luminaire Production Solution <i>Christian Stöhr Mühlbauer, LED Project Leader & Global Account Mgt.</i>	Automatic Panel Level Transient Thermal Tester <i>Prof. Gordon Elger Univ. of Applied Science Ingolstadt, Professor</i>		
12.30	LUNCH & LpS EXPO / TiL SHOW			
13.00	Forum Werkstattbühne		Lighting Up the Dark Corners of the Internet of Things (IoT) Live IoT Hacking Demonstration <i>by PenTestPartners</i>	
14.00	CLOSING, END			

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www.lps2017.com/speakers



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