

# LED professional

# Review



**Ad Close**  
June 15<sup>th</sup>

**Material Due**  
June 22<sup>nd</sup>

**Publication**  
July 15<sup>th</sup>/Aug 3<sup>rd</sup>

# Key topics

## ENVIRONMENTALLY FRIENDLY, LASTING DESIGNS & APPROACHES

Interview with Scott Zimmerman, CEO of Silas and Evangelist for Full Spectrum Lighting Applications

Circular Economy and Life Cycle Assessment

Updates in Automotive and Horticulture Lighting

Publication of the LpS Best Scientific Paper



# Wider global distribution

## Technology Channels

LED professional Review Subscribers: 27,500

LED professional Twitter: 22,000

Publisher's LinkedIn Channel: 11,000

LED professional LinkedIn Group: 700

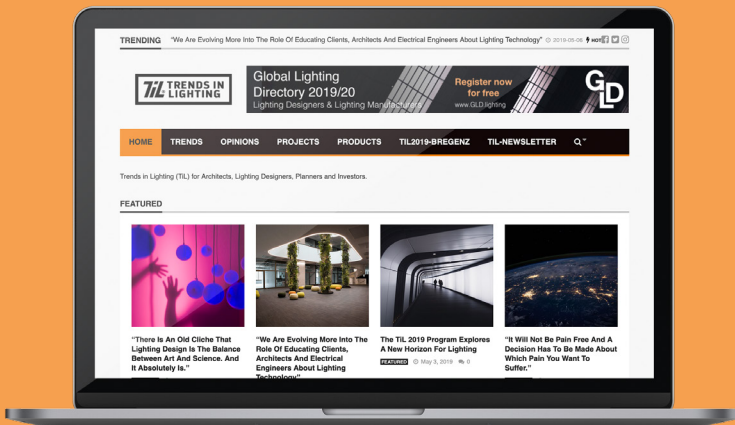
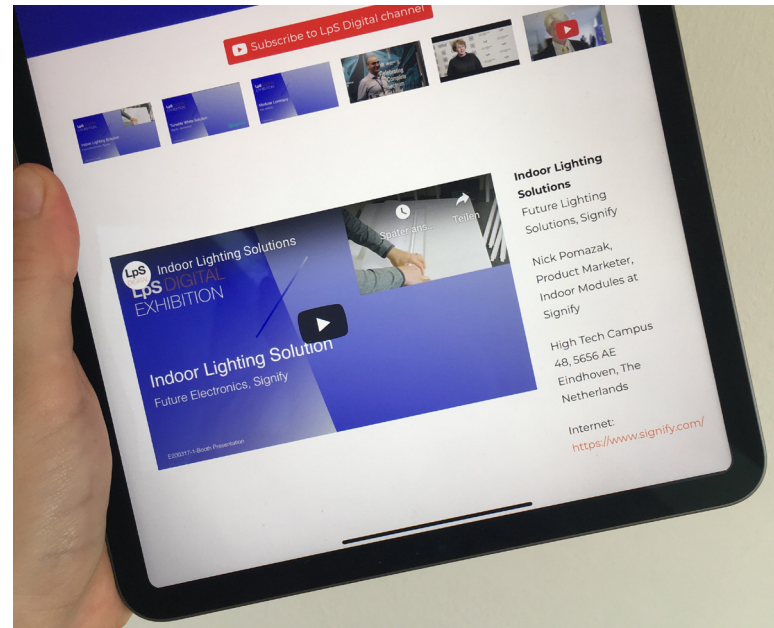
LED professional Online: YES

## Design Channels

Trends in Lighting LinkedIn Group: 4,600

Trends in Lighting Online: YES

Trends in Lighting Newsletter: 15,000



This issue will reach over

# 60,000 Readers

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# Trending Topics in the 80<sup>th</sup> LpR

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## TECH-TALKS BREGENZ

### Scott Zimmerman, CEO of Silas and Evangelist for Full Spectrum Lighting Applications

In an LpR article, Scott proposed to add IR light to the visible spectrum of LEDs and started a very controversial topic. Meanwhile, also other companies and lighting specialists are proposing similar approaches. Scott is continuously researching the effects of light on the human body, the physiology, health and well-being. He recently published an article on the effects of ROS on virus infections. It is known that ROS in the air has a positive effect on reducing pathogens. ROS production in the body but also in the environment strongly relates to some fractions of the lighting spectrum. LED professional discusses this topic from his latest paper, if and how improved lighting products could help reduce infections and much more.

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## RESEARCH

### Best Papers: When Circular Economy Meets the Lighting Industry (LCA)

Sustainability, life-cycle, re-usability and circular economy are one of the most important topics of the EC.

This paper is based on the European Repro-Light research project. The Repro-Light LED luminaire is reconfigurable, dimmable and customizable, and aspires to be the “Luminaire of the Future”. Conventional LED linear luminaires are analyzed using Life Cycle Assessment (LCA) methodology, paying particular attention to both Climate Change and Resource Depletion impact categories. It assesses the impact of the production of a specific linear LED luminaire to identify the components that contribute most to the selected environmental impacts and that could be improved through modularity. It will be discussed how circular economy principles can be incorporated in the lighting industry.

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## TECHNOLOGIES

### Introduction of a 2 Channel On-BBL Tunable White Technology

The request for tunable white application is increasing and especially a dimming behavior to low CCTs of 2000 K or less known from incandescent light are requested. Until recently this required a sophisticated and expensive multi-color LED solution when accurate CCT tuning along the Black Body Line (BBL) was

required as a conventional warm white LED + cool white LED combination creates a huge shift away from the real white color points located on the BBL in a xy chromaticity diagram. This article proposes and describes a novel 2-channel on-BBL tunable white technology that allows tunable white applications for a wide tuning range at high quality.

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## TECHNOLOGIES

### Atomic Layer Deposition – the Leading Thin Film Coating Technology for SSL

Thin film coating is one of today’s most important technologies in many applications and especially in solid state lighting. In this respect, Atomic Layer Deposition (ALD) is currently the most sophisticated technology. ALD produces ultra-thin, only nanometer-scale films of various oxides, nitrides, pure metals, mixed layers and nanolaminates. The article explains how it works, how it is applied, its functions, where it is used, and it discusses the advantages compared to other coating methods. Additionally, novel approaches, such as 3D nano-structuring opportunities will be presented. performance, respective areas, performance and application solutions.

# Trending Topics in the 80<sup>th</sup> LpR

## AUTOMOTIVE / APPLICATIONS

### An Open-Source LIDAR Prototyping Platform

LIDAR is one of the advanced SSL applications for many different fields of our daily life, but inevitable for self-driving cars. This article discusses a new LIDAR prototyping platform and how it helps shorten the customers' product development time by providing a complete hardware and software solution that customers can use to prototype their algorithms and custom hardware solutions. It goes over the details of the modular hardware design, including the light receive and transmit signal chains, FPGA interface, and optics for long range sensing. System partitioning decisions are explained and the components of the open source LIDAR software stack and the platform specific API are described.

## HORTICULTURE

### Specifying LED Colors for Horticultural Lighting

Whereas human vision relies on five opsins as photoreceptors, most plants have a wide variety of photopigments that are responsive to optical radiation from 280 nm to 800 nm. Beyond photosynthesis, plants rely on this radiation to control photomorphogenesis, phototropism, shade avoidance, and both circadian and circannual rhythm entrainment. As botanists do not define what is meant by colors, it is difficult to replicate laboratory experiments without knowing the SPD of the horticultural light source. The author of this article proposes an LED „color“ specification that represents a given SPD using a small number of radial basis functions that provides a metric for comparing biologically similar SPDs and introduces a trainable fuzzy logic SPD classifier to compare biologically similar SPDs for specific horticultural applications.

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