Key topics

TECHNOLOGIES FOR VISUAL PERFORMANCE & COGNITION

Interview – LiFi Technologies and Applications

Metric to Evaluate the Naturalness of Artificial Light Sources

Full Spectrum LED Study

EU Regulations and best Scientific Paper
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

published by Luger Research
TECH-TALKS BREGENZ
Musa Unmehopa, Head of Ecosystems and Strategic Alliances for LiFi at Signify

LiFi is not a new idea, just think about luminous signals that have been used for centuries: It is the consequence of the progress in photonics technology. LED professional has frequently reported on the research in LiFi, going on for over a decade, that has been intensified with amazing results. Philips, now Signify, is certainly an avant-gardist company in this field as the company already presented their connected retail lighting system based on visual light communications (VLC) at Light + Building 2014. Musa is a well perceived authority in the lighting industry. When he recently took over the new position as Head of Ecosystems and Strategic Alliances for LiFi, it was clear for LED professional.: We must report what he has to say about the status of LiFi and what his future plans are.

RESEARCH
Best Papers“ at LpS 2019: Transient Infrared Thermography for Thermal Conduction Path Analysis of LED Modules

While modern white LEDs are highly efficient in generating light, a significant part of the electrical energy is still converted to heat. Thermal analysis and measurement are therefore important. While thermocouples are widely used for this purpose, infrared thermography offers a contact-free and efficient method to obtain the required temperature information. In this work, the potential of transient temperature measurements by infrared thermography is evaluated. The system and process of the high-speed thermography is described, the results of the analysis are demonstrated and the benefits are explained.

Latest Results of a Full Spectrum LED Study

From an LED producer’s perspective, it is essential to have knowledge about the perception of LEDs by human beings. To consolidate existing knowledge and gain new knowledge on recently introduced Full Spectrum LEDs, which claim to bring natural light quality into electric lighting appliances, a psychological study was conducted in a high-performance indoor environment laboratory. The latest results from this study conducted from a consortium of a prestigious research institute with four renowned industry partners are presented and discussed.

TECHNOLOGIES
Combination of an Advanced Thermo-Transfer Technology and a Novel High Impact Light Source to Improve MR16 Products

MR16 has been, and still is, a popular form factor, not just in residential applications but in many traditional lighting systems. Since the switch to LED technology many MR16 products suffer from poor quality, poor efficacy, poor luminous flux and poor overall light quality. A novel thermo-transfer technology combined with new high impact light source, promises to change this situation. The combination of these two technologies especially resolve heat dissipation issues and results in an advanced high-performance lighting system that features lumen, longevity, and sustainability. The author describes and explains the basic idea, the technologies and applications.
TECHNOLOGIES
New Method of Digital AC Direct LED Driver Control

Since the introduction of Solid-State-Lighting, digitalization has massively increased. However, most power management solutions are still dominated by electromechanics and traditional electronics although a replacement with solid-state technology would be beneficial. The authors propose such an IP protected solution for LED lighting applications that offers high efficiency and an extremely reduced form factor, to name just a few features. They also explain the working principle and its applications.

AUTOMOTIVE / APPLICATIONS
Performance Characteristics of Inductive Components in Automotive Lighting

As the volume and complexity of electronics in automobiles continue to increase – placing more demands on the battery – power consumption management and control have become especially critical. This article looks at trends in LED automotive lighting and the types of drivers and control circuitry needed to enable the stable, reliable operations of the advanced LED lighting features now found in vehicles. In particular, the article highlights the performance characteristics of inductive components required to operate and control LED applications, such as high-performance headlights and smart adaptive front-lighting systems, that enable variable light distribution functions to adjust brightness and change the range of illumination.

SPECIAL TOPIC – LIGHT QUALITY
A New Metric to Evaluate the Naturalness of Artificial Light Sources

Lighting has more effect on people than enabling us to see - it can also impact and affect our mood and health. The spectral engineering capability of LEDs presents opportunities to manipulate spectra, enhancing emission at certain wavelengths, or improving the match to the spectra of natural light. While there are differing schools of thought in our industry, delivering natural lighting is of interest to many human centric lighting advocates. This raises the question: How do we objectively quantify naturalness? Standard lighting quality metrics such as CRI and TM-30 do not fully address the naturalness question. This article presents a new metric, Average Spectral Difference (ASD), which provides a quantitative measurement of how closely a light source matches the spectra of natural light.