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Handbook of Advanced Lighting Technology

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INTRODUCTION

The book **Handbook of Advanced Lighting Technology, 9783319001760 (online), 9783319001753, DOI: 10.1007/978-3-319-00176-0** edited by **Karlicek, R., Sun, C.-C., Zissis, G., Ma, R.**, from *Springer* is here reviewed.

It is composed of 47 chapters

- **History of Light Sources**
Waymouth, John F.
- **History of Solid-State Light Sources**
Shchekin, Oleg (et al.)
- **LED Materials: Epitaxy and Quantum Well Structures**
Li, Zhen-Yu (et al.)
- **LED Materials: GaN on Si**
Dadgar, Armin (et al.)
- **Thin-GaN LED Materials**
Horng, Ray-Hua
- **Phosphors for White LEDs**
Lin, Chun Che (et al.)
- **Component-Level Reliability: Physical Models and Testing Regulations**
Tan, Cher Ming
- **Thermal Management: Component to Systems Level**
Chung, Te-Yuan

• **Optical Design: Chip and Packaging**

Sun, Ching-Cherng

• **White OLED Materials**

Chen, Yonghua (et al.)

• **White OLED Devices**

Ma, Dongge

• **OLED Optics**

Youn, Wooram (et al.)

• **White OLED Lighting Panel Manufacturing Process**

Spindler, Jeffrey P. (et al.)

• **OLED Manufacturing Equipment and Methods**

Spindler, Jeffrey P. (et al.)

• **Dimming**

Denicholas, Joseph

• **Conventional IR and Ultrasonic Sensor Systems**

Steiner, J. P.

• **Ambient and Spectral Light Sensors**

Ghoshal, Sajol

• **Adaptive Distributed Sensing and Control Methods**

Huang, Zhenhua (et al.)

• **Lighting Control Protocols and Standards**

Patel, Maulin (et al.)

• **Adaptive Control Technology for Lighting Systems**

Rubinstein, Francis

• **Ambient Light Sensor Integration**

Topalis, Frangiskos V. (et al.)

• **Optical Wireless Applications**

Zhou, Z. (et al.)

• **Indoor Localization and Applications**

Haruyama, Shinichiro

• **Integration of RF and VLC Systems**

Rahaim, Michael B. (et al.)

• **Agricultural and Horticultural Lighting**

Pinho, Paulo (et al.)

• **Museum and Exhibition Lighting**

Ezrati, Jean-Jacques

• **Landscape Lighting**

Moyer, Janet Lennox

• **Human Vision and Perception**

Ramamurthy, Mahalakshmi (et al.)

• **History of Color Metrics**

Davis, Wendy

• **Color Rendering Metrics: Status, Methods, and Future Development**

Žukauskas, A. (et al.)

• **Photoreception for Human Circadian and Neurobehavioral Regulation**

Brainard, George C. (et al.)

• **Lighting and the Elderly**

Noell-Waggoner, Eunice

• **Photobiological Safety**

Martinsons, Christophe

• **Educational Lighting and Learning Performance**

Laike, Thorbjörn

• **Ethnic and Social Aspects of Lighting**

Ukegawa, Shin

• **Energy Consumption and Environmental and Economic Impact of Lighting: The Current Situation**

Zissis, Georges

• **Life Cycle Assessment of Lighting Technologies**

Tähkämö, Leena (et al.)

• **Impact of Lighting on Flora and Fauna**

Schroer, Sibylle (et al.)

- **Light Pollution Reduction**

Schroer, Sibylle (et al.)

- **Incandescent Lamps**

Gendre, Maxime F.

- **Low-Pressure Gas Discharge Lamps**

Lister, Graeme (et al.)

- **Mercury-Vapor Lamps**

Schöpp, Heinz (et al.)

- **High-Pressure Sodium-Vapor Lamps**

Schöpp, Heinz (et al.)

- **High-Pressure Xenon Lamps**

Schöpp, Heinz (et al.)

- **Metal-Halide Lamps**

Franke, Steffen (et al.)

- **Ceramic Metal Halide Lamps**

Mucklejohn, Stuart A.

- **Electrodeless Lamps and UV Sources**

Lister, Graeme

elaborated in order to achieve the following objectives, as expressed in the presentation on the website of the publishing house:

-To clarify basic physical principles and device technologies behind all light source types,

-To review the research on the impact of lighting on healthcare & education, and other human factors,

- To treat the latest breakthroughs in lighting technology, transportation and communication,

-To cross disciplines from electrical, electronic, civil & automotive engineering to materials & environmental science and physics.

THE REVIEW

“Handbook of Advanced Lighting Technology” is, as the title specifies, a handbook that cover broad topics relevant to lighting technology, such as 1: The

physics, materials, and device technology of established, conventional, and emerging light sources, 2: The science and technology of solid-state (LED and OLED) light sources, 3: Driving, sensing and control, and the integration of these different technologies under the concept of smart lighting, 4: Human factors and applications, and 5: Environmental and economic factors and implications, along which the readers are gifted with an engraving of current knowledge and state-of-the-art results in lighting technology. Indeed, it is a major reference work on the subject of light source science and technology.

It is a monumental work with an encyclopedic character due to the number of topics covered and the diversity of subjects approached, admirable for the way it manages to maintain high scientific and technical standards throughout such a long text.

Significant to note that each chapter can be read and understood independently of the others, that there is practically no redundancy between chapters and that it is difficult to find a relevant subject in the scope of lighting that is not considered in this manual. It is therefore a complete and lean work.

This manual is extremely useful, even indispensable for engineers and other skilled workers who work either in the lighting devices industry or in the design of lighting projects of any size

Also important for members of the academic world who can find in "Handbook of Advanced Lighting Technology" very relevant material either to research or to teach.