1. Record Nr. UNINA9910337608503321

Titolo	Handbook of Advanced Lighting Technology [[electronic resource] /] / edited by Robert Karlicek, Ching-Cherng Sun, Georges Zissis, Ruiqing Ma
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-319-00295-3
Descrizione fisica	1 online resource (2000 p.)
Disciplina	621.3
Soggetti	Microwaves Optical engineering Lasers Photonics Optical materials Electronics - Materials Energy consumption Electrical engineering Signal processing Image processing Speech processing systems Microwaves, RF and Optical Engineering Optics, Lasers, Photonics, Optical Devices Optical and Electronic Materials Energy Efficiency Communications Engineering, Networks Signal, Image and Speech Processing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Conventional Light Sources -- Light Emitting Diodes (LEDs) -- OLEDS/PLEDS -- LED Driver Technology -- Conventional Sensor Systems -- Advanced Sensor Systems -- Sensor Integration and

Control Methods -- Advanced Lighting Control Technology -- Communications -- Applications/Case Studies -- Human Factors -- Circadian Topics -- Lighting and Education -- Lighting and the Workplace -- Energy Efficiency -- Environmental Considerations -- Governmental and Social Impacts -- Economics of smart lighting -- Driving Adoption.

Sommario/riassunto

The Handbook of Advanced Lighting Technology is a major reference work on the subject of light source science and technology, with particular focus on solid-state light sources – LEDs and OLEDs – and the development of 'smart' or 'intelligent' lighting systems; and the integration of advanced light sources, sensors, and adaptive control architectures to provide tailored illumination which is 'fit to purpose.' The concept of smart lighting goes hand-in-hand with the development of solid-state light sources, which offer levels of control not previously available with conventional lighting systems. This has impact not only at the scale of the individual user, but also at an environmental and wider economic level. These advances have enabled and motivated significant research activity on the human factors of lighting, particularly related to the impact of lighting on healthcare and education, and the Handbook provides detailed reviews of work in these areas. The potential applications for smart lighting span the entire spectrum of technology, from domestic and commercial lighting, to breakthroughs in biotechnology, transportation, and light-based wireless communication. Whilst most current research globally is in the field of solid-state lighting, there is renewed interest in the development of conventional and non-conventional light sources for specific applications. This Handbook comprehensively reviews the basic physical principles and device technologies behind all light source types and includes discussion of the state-of-the-art. The book essentially breaks down into five major sections: Section 1: The physics, materials, and device technology of established, conventional, and emerging light sources, Section 2: The science and technology of solid-state (LED and OLED) light sources, Section 3: Driving, sensing and control, and the integration of these different technologies under the concept of smart lighting, Section 4: Human factors and applications, Section 5: Environmental and economic factors and implications.