Handbook of Advanced Lighting Technology

- Clarifies basic physical principles and device technologies behind all light source types
- Reviews research on the impact of lighting on healthcare & education, and other human factors
- Treats the latest breakthroughs in lighting technology, transportation and communication
- Crosses disciplines from electrical, electronic, civil & automotive engineering to materials & environmental science and physics

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.