

Joint CIE(D1/D8)–OSA–IS&T Workshop

COLOUR IMAGING, PERCEPTION, AND REPRODUCTION: NEW DIRECTIONS IN COLOUR SCIENCE AND TECHNOLOGY

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Background

With novel technological developments such as high-dynamic range displays (HDR) and virtual and augmented reality (VR/AR), colour science for imaging, rendering and reproduction deserves a reconsideration in terms of its fundamental assumptions. In addition, recent developments in vision science point to the need to at least consider the role of so-called intrinsically photosensitive retinal ganglion cells (ipRGCs) expressing the photopigment melanopsin as a separate visual pathway, and the need to take into consideration individual differences in colour vision.

The goal of this workshop is to bring together researchers, practitioners and policymakers in the fields of colour imaging, rendering and reproduction to discuss the state-of-the-art knowledge, how new findings from vision science can be integrated into policies and practice, and to also define which problems are unsolved and require attention.

The topical areas are:

- 1) Revision of human cone fundamentals and colour matching functions;
- 2) Contributions of melanopsin to visual functions in humans;
- 3) High-dynamic range imaging;
- 4) Virtual reality and augmented reality.

Format

The workshop will be structured around the following approach:

- 1) In the first 120 minutes, thought leaders in the four topical areas identified above will give introductory and very much didactic talks into the area. The key thing is that the speakers not simply report on their research, but instead provide a synthesis of the field and its recent developments and lay out open and unsolved questions in it.
- 2) The workshop participants will then engage in round-table discussions led by the thought leaders, identifying and discussing areas of cross-fertilisation and develop a set of action items.
- 3) To conclude the workshop, the thought leaders will synthesize from the discussions and report back to the entire audience.

Outcomes

- 1) Identification of action items to facilitate scientific and technological progress in the topical areas.
- 2) Publication of workshop outcomes from the thought leaders as a feature.