



DIVISION 1: VISION AND COLOUR

To study visual responses to light and to establish standards of response functions, models and procedures of specification relevant to photometry, colorimetry, colour rendering, visual performance and visual assessment of light and lighting.

Ellen Carter reporting



STRUCTURE OF DIVISION I

Officers:

Division Director: Youngshin Kwak, Korea

Secretary: Li-chen Oh, Taiwan

Associate Director for Vision: Yoko Mizokami, Japan (**new this year**)

Associate Director for Colour: Kaida Xiao, United Kingdom (**new this year**)

Editor: Peter Hanselaer: Belgium

9 Technical Committees plus 6 Joint Technical committees

7 Reporterships

1 Research Forum



DIVISION I

2020 TECHNICAL COMMITTEES

- I-76 (C) Unique Hue Data
- I-83 (V) Visual Aspects of Time-Modulated Lighting Systems
- I-84 (V) Definition of Visual Field for Conspicuity
- I-91 (C) Methods for Evaluating the Colour Quality of White-Light Sources
- I-92 (C) Skin Colour Database
- I-95 (C) The Validity of the CIE Whiteness and Tint Equations
- I-96 (C) A Comprehensive Model of Colour Vision
- I-97 (V) Age- and Field-Size-Parameterised Calculation of Cone-Fundamental-Based Spectral Tristimulus Values
- I-98 (C) A Roadmap Toward Basing CIE Colorimetry on Cone Fundamentals



TC I-98 IS NEW IN 2020

- Title: A Roadmap toward Basing CIE Colorimetry on Cone Fundamentals
- Chair: Lorne Whitehead, Canada
- Terms of reference: To create a roadmap for the development of a new, complete, self-consistent system of CIE colorimetry measures based directly on cone fundamentals, with explicit consideration of the impacts of normal variations of the cone fundamentals due to age, field of view, and individual diversity.



JOINT TECHNICAL COMMITTEES

- JTC 01 (D4/D1/D2) Implementation of CIE 191:2010 Mesopic Photometry in Outdoor Lighting – Chair Mucklejohn GB
- JTC 08 (D1/D2/D3/D4/D5/D6/D8) Terminology in light and lighting – Division 1 – rep Michael Pointer
- JTC 10 (D8/D1) A new colour appearance model for colour management systems: CIECAM16 Division 1 rep M. Ronnier Luo
- JTC 12 (D2/D1/D8) The measurement of sparkle and graininess – Division 1 rep Francisco Miguel Martinez-Verdu
- JTC 16 (D1/D8) Validity of Chromatic Adaptation – Chair Minchen (Tommy) Wei
- JTC 17 (D1/D2/D8) Gloss measurement and gloss perception: A framework for the definition and standardization of visual cues to gloss – Chair Frederick Leloup



REPORTERSHIPS

DR I-60 (V)	Future colour-difference evaluation	Guihua Cui New 2020 Manuel Melgosa
DR I-62 (C)	Typical LED spectra	Sophie Jost
DR I-63 (C)	Tristimulus integration	Li Changjun
DR I-64 (C)	Real colour gamut	Li Changjun
DR I-66 (V)	The Effect of Dynamic and Stereo Visual Images on Human Health	Hiroyasu Ujike
DR I-67 (C)	Revisiting Correlated Colour Temperature	Youngshin Kwak
DR I-69 (V)	Applicability of Metrics for Evaluating Reflected Glare on Displays	Shao-Tang Hung



RESEARCH FORUM - 3

MATTERS RELATING TO COLOR RENDITION

Chair: Kees Teunissen

This research forum (RF) is related to CIE strategy top priority topic #2: “Colour Quality of Light Sources Related to Perception and Preference”. The RF will provide a discussion and information- and data-sharing platform to support the development of a comprehensive method that characterizes all colour rendition aspects of white-light sources and lighting systems for general lighting purposes. Topics to be addressed/discussed can include a literature review of existing methods to characterize the colour rendition properties of white-light sources with their advantages and limitations (TC I-91); a review of CIE activities and publications: e.g. the use of 10-deg CMF instead of 2-deg CMF, CIE 2006 Colorimetry (TC I-97), CIECAM16 (JTC 10), a new CCT definition (DR I-67) and/or a new chromatic adaptation transform (JTC 16) and their impact on colorimetry and on the lighting community; and creating an overview of the desired colour rendition-related specification items (from a manufacturer, designer, specifier, and consumer’s point of view) for describing colour “quality” for a selected set of application areas and target groups.



NEW PUBLICATION

[CIE 240:2020](#)

[Enhancement of Images for Colour-Deficient Observers](#)

This document is the product of TC 1.89 chaired by Po-Chieh Hung. It summarizes the methods used to enhance images in order to be easily recognized by colour-deficient observers. They are classified into three major categories: recolouring, edge enhancement and pattern superposition; pros and cons are discussed. The document provides recommendations on how to choose an enhancement method for a specific application with the proviso that there is no unique technique covering all cases. Besides it describes some evaluation methods of the enhancement techniques to be proposed in the future. Three types of test images (a natural scene, a scientific visualization and an office document) are provided for the evaluations.



PUBLICATIONS (IN PRODUCTION)

Joint ISO/CIE Draft International Standard: **ISO/CIE DIS 11664-2:2020(E) Colorimetry – Part 2: CIE** **standard illuminants**

CIE Final Draft International Standard that has passed NC/BA/DIV ballot, in preparation for publication:

- CIE FDIS 017:2019 ILV: International Lighting Vocabulary



DIVISION I ACTIVITIES IN 2020

- CIE Tutorials on Colorimetry and Visual Appearance
 - July 28-29, 2020 Online
 - This set of 19 tutorials on colorimetry and visual appearance included tutorials on: CIE Colorimetry, 3D Printing, Measurement of Advanced BRDF, Measurement of Sparkle and Graininess
- The Division I Annual Meeting 5th Meeting of the Kwak Term was held August 13, 2020 online
 - 20 nations were represented at the meeting
 - The United States was represented by E. Carter
- DI-D2 Task Group meeting on CCT of CIE Standard Illuminant A.
 - Division I attendees: Youngshin Kwak, Yoshi Ohno, and Ellen Carter



US PARTICIPATION IN DIVISION I ACTIVITIES

TC 1.76 – Renzo Shamey (co-chair), Michael Webster, Rolf Kuehni

(TC 1.89 – Po-Chieh Hung (chair), Gaurav Shama – closed this year with publication of CIE 240:2020)

TC 1.91 – Yoshi Ohno, J Zawada

TC 1.92 – Paula Alessi, Francisco Imai

TC 1.95 - Michael H Brill, Ellen Carter, Roland Connelly, Todd Popson, Art Springsteen

TC 1.96 – Mark Fairchild

TC 1.97 – Michael Brill, Mark Fairchild, Hugh Fairman

JTC 10 – Erik Walowit, Michael Brill

JTC 12 – Larry Steenhoek

JTC 16 – Mark Fairchild, Michael Royer

JTC 17 – Kumar Ramasamy, Danny Rich

No participants in TCs 1.83, and 1.84,

Associates (on DI mailing list) Carl Anderson, John Bullough, Mark Duffy, Kevin Houser, Jim Leland, Karl Tylman



2020 BALLOTS RELATING TO DIVISION I

- 1. A new Technical Committee entitled "Modelling two-dimensional colour appearance scales" for which Prof. Ming Ronnier Luo (GB) is proposed to serve as the TC Chair
- 2. A new Reportership entitled "Visual assessment methods of perceptual colour shifts in high-dynamic-range (HDR) luminance conditions" for which Dr. Jisoo Hwang (KR) is proposed to serve as the Reporter



UPCOMING MEETINGS

Division 1 Meeting in conjunction with

CIE Midterm Meeting, 2021

September 2021

September 26, 2021 to October 2, 2021

Kuala Lumpur, MALAYSIA

Kuala Lumpur, Malaysia



*Thank you!
Ellen*