



## Hot Topics

[CIE Statement on Non-Visual Effects of Light](#)

[Call for Papers: 10th Biannual Joint Meeting of the CNC/CIE and CIE/USA](#)

[28th CIE Session: Manchester 2015 Issue #7](#)

## Message from the President



The 2015 CIE Quadrennial Session is now history and our own **Dr. Yoshi Ohno** is the new president of CIE. I know we all congratulate Yoshi on this impressive and important achievement. He has contributed to the technical work of CIE for many years, primarily in

Division Two where he also served as Division Director, and now will lead the entire organization for the next four years. His term will culminate with the 2019 Quadrennial Session being held in the United States, most likely in the Washington, DC area.

This newsletter should contain more information about the 2015 Manchester meeting and we will have major reports from that meeting at our annual meeting, to be held jointly with the Canadian National Committee in Toronto on October 18-20, 2015.

Most of the credit for the successful invitation to bring the 2019 session to the USA goes to **Dr. Ron Gibbons**, our treasurer and CIE Division Four Director, who worked with meeting planners at Virginia Tech University to enlist their aid in providing much of the administrative duties required to put on such an event. CIE last met in the United States in 1995 in San Diego. We will need volunteers from CIE/USA to help plan and carry out the myriad of details necessary to ensure that we offer a signally great meeting; please let me know if you'd like to volunteer for the Steering Committee.

**As this is the beginning of the new quadrennium, we will elect a new group of officers at our upcoming annual meeting**

## Upcoming Events

10th Biannual Joint Meeting of the CNC/CIE and CIE/USA, October 19-20, 2015, Toronto, Ontario, Canada

CIE Tutorial and Expert Symposium on LED Measurements Standard S025, November 23 - 26, 2015, PTB Braunschweig, Germany

CIE 2016 Lighting Quality and Energy Efficiency Conference, March 3 - 5, 2016, Melbourne, Australia

to serve for the next four years. If you are interested and willing to serve, please contact the chair of our Nominating Committee, past-president **Tom Lemons** ([tmlattla@aol.com](mailto:tmlattla@aol.com)). Current officers willing to continue in your present or an alternate position should also let Tom know of your interest.

I look forward to seeing many of you Toronto. Have a wonderful summer.

*Alan Lewis*

## Message from the New CIE President



It is my great pleasure to send this message to my CIE/USA colleagues. It is a great honor for me to take this position to serve as CIE President for the next term. It is an exciting challenge for me and I humbly accepted this opportunity not only to make a contribution to the international lighting community but also with a hope that this could stimulate CIE activities in USA. USA is a big country, but its participation in CIE has not been. I feel this strongly because I have been involved in standardization activities for solid-state lighting for many years. Although US industry has been very active in solid state lighting (SSL) and standardization for SSL on a national level was started here earliest in the world (thanks to great initiative by Department of Energy), it has not been so active or strong in the international arena. Much high quality research in lighting is also done in the USA, but I often felt sad when I saw the rather small number of participants from the USA at CIE conferences or participating in CIE TCs. I feel the attractiveness of CIE needs to be further enhanced by better

## New Publications

[Report on the First International Workshop on Circadian and Neurophysiological Photometry, 2013 – CIE TN 003:2015](#)

[Visit the CIE Publications News page on the CIE/USA site for a summary of CIE Publications](#)

communicating the benefits of membership and would like to contribute to such efforts.

We are in an exciting time in the revolution of lighting by LEDs, which is still in progress and are at the dawn of similar progress in smart lighting. International standards are getting more and more important as SSL is spreading world-wide. I feel regional standardization work should shift more to international work, which will avoid duplicated efforts and will speed up world harmonization. There are still many technical issues to address in SSL, such as color quality, flicker, glare, mesopic, photobiology, and test methods for LED products. Further research and then international standards are urgently needed in all these areas. Smart lighting is creating new needs. CIE still has a reputation of being very slow. Many measures to address the need for increased speed have been taken during the last CIE term, but we still have room for improvements and I hope to contribute in this aspect also.

I am happy to see that CIE/USA is becoming more active in the last one or two years thanks to Alan's leadership, other officers' hard work, and many companies' support. But our financial difficulties still continue and CIE/USA should be and can be more active for the size of the country. I hope to support CIE/USA or any other NCs and to see if there is anything we can do to help from the CIE Board side for membership promotion. I also thank Ron Gibbons very much for his initiative in bringing up our proposal for hosting CIE 2019. I hope this will also stimulate more CIE activities in USA. I look forward to working with everybody during this next term in my new capacity.

***Yoshi Ohno***

## New Sponsors

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[Read about the Value of CIE/USA Membership, and become a Sponsor organization](#)

## 28th Session of the CIE, Manchester UK, Successful



The Session was hosted by CIE-UK and took place from June 28th to July 3rd at University of Manchester, UK, the hometown of the CIE President, **Prof. Ann Webb**. The session was very successful with 493 participants from 36 countries. There were 30 participants from USA. The General Assembly was held on June 28th. The welcome reception was held at the magnificent Manchester Town Hall.

The opening started with an excellent video on the history of CIE and lighting for about 20 minutes, which impressed all participants (this video will be made available later). It was followed by a welcome speech by the Mayor of Manchester, then an invited talk by **Prof. Chittka** from Queen Mary University London, who talked about the vision of bees (symbol of Manchester). The CIE Gold Pin awards were presented to **Dr. Peter Blattner** of METAS, Switzerland (Wyszecki Gold Pin), **Prof. Steve Fotios** of Univ. of Sheffield, UK (Waldrum Gold Pin), and **Ms. Teresa Goodman** of NPL, UK (De Boer Service Gold Pin).

A total of about 310 papers in various subject areas of all CIE Divisions were presented during the whole week of the Session, including 5 invited and 76 oral presentations, 229 poster papers (including 43 presented posters) and 6 workshops/seminars. In addition all CIE Divisions and 51 Technical Committees met to progress their work. There was also a panel discussion with all Division Directors. During the Gala Dinner, the outgoing General Secretary, **Ms. Martina Paul**, was thanked and the new General Secretary, **Ms. Kathy Nield**, was introduced.

At the closing ceremony, outgoing CIE Board members were recognized and the new President, **Dr. Yoshi Ohno**, was introduced and the President's medal was handed to him by

## CIE Newsletters

June 2015 - Manchester 2015  
Newsletter #7

June 2015 - Melbourne 2016  
#01

June 2015 - Manchester 2015  
Newsletter #6

May 2015 - CIE IYL Newsletter  
#02

**Prof. Ann Webb**, the outgoing President. Before closing, several upcoming CIE events were announced: CIE Lighting Quality and Energy Efficiency in Melbourne March 2016, CIE mid-term Session in Jeju Island Korea 2017 and the 29th Session in Washington DC in 2019.

*Yoshi Ohno*

## Join the CNC/CIE and CIE/USA in Toronto, October 18-20, 2015

The Canadian National Committee of the CIE (CNC/CIE) is hosting the 10th Biannual Joint Meeting of the CNC/CIE and CIE/USA, along with celebration of the IYL2015. Attendees will learn about the latest advances from leading North American researchers and practitioners in the science and art of light and lighting and hear updates from the Division meetings held during the 28th Quadrennial CIE session earlier in July in Manchester, UK. The CNC/CIE will also host a celebration of the UNESCO designation of 2015 as the International Year of Light (<http://www.light2015.org>).

The event begins with a Welcome Reception on Sunday evening, October 18 at the hotel. Monday, October 19 is Technical Day featuring technical presentations on a broad range of topics and a special student presentation by the winner of CNC/CIE IYL 2015 High School Science Competition. On Monday evening, the CNC/CIE will host a celebration of the International Year of Light with a free public lecture by **Prof. George Brainard** on the exciting ways that lighting can affect human health. The event wraps up on Tuesday, October 20 with CIE Business Day, with a joint morning session of CNC/CIE and CIE/USA and separate business meetings in the afternoon. The technical and business meetings will take place at the University of Toronto in downtown Toronto.

For registration details, visit the [conference information web page](#). Early Bird Registration runs through October 3, 2015.

## Technical Council News

### Division I

#### Color & Color Vision



Division I joined with all the other divisions for the CIE 28th Session in the International Year of Light in Manchester, UK June 28-July 4, 2015. The general program had presentations in the mornings, with Division and TC meetings in the afternoons.

The week started off strongly with:

- 1) Division I Invited Lecture **Françoise Viénot**, “Applications of cone fundamentals”
- 2) **Kevin Smet** “Geographic effects on memory colors and their impact on color rendition evaluation”
- 3) **Yoshi Ohno** “Vision Experiment on Chroma Saturation for Color Quality Preference”
- 4) **Ronnier Luo** “Testing CRI using Visual Data under Different LED Sources”

Later in the week, Division I talks continued with:

- 1) **Karin Bieske** “Investigation of Luminous Colour Differences within and Between Luminaires;”
- 2) **Peter Hanssler** “Towards a New Colour Appearance Model for Unrelated Colours”
- 3) **Li-Chen Ou** “Feasibility of a Universal Model for Color Harmony”
- 4) **Muhammad Safdar** “Using Digital RGB Cameras to

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Measure Room Appearance”

- 5) **Jumpei Mitsunashi** “The Appearance of Paintings and Colour Charts under White LEDs With High Colour Rendering”
- 6) **Malcolm Nicholson** “Apparent Intensity of Flashing Lights”
- 7) **Mark Rea** “Shedding Light on Light and Lighting”
- 8) **Ludovic Gustafsson Coppel** “Perception of Whiteness Difference under Different Illuminations and Backgrounds”

Numerous poster presentations from Division were available for attendees to discuss with the authors during the first of two poster sessions Monday afternoon.

The compressed Division 1 meeting was held Tuesday afternoon, with 21 country delegates present and approximately 60 other attendees. The new Division officers: Director, **Youngshin Kwak** from Korea, Secretary **Li-Chen Ou** from Taiwan, and Associate Director, **Nana Itoh** from Japan were introduced by the outgoing Director **Ronnier Luo**. Thanks were given to the retiring officers Director **Ronnier Luo**, **Michael Pointer** Secretary, and **Miyoshi Ayama** Associate Director for Vision. **Phil Green**, Editor and I (Associate Director for Color) will continue in our positions and help in the transition to the new leadership. Many changes within TCs and Reporterships were discussed within the division meeting including the closing of 10 TCs, the reopening of several TCs and the formation of 2 new Reporterships (with possibly more to come). These changes will be described in more detail once the Board of Administration has approved the applications and numbers have been assigned. It was agreed at the meeting that **the next Division 1 meeting will be held in conjunction with the Division 1 & 2 Joint Expert Symposium on Appearance, 29 August – 2 September 2016 in Prague, Czech Republic.**

On the very busy Wednesday and Thursday afternoons, 15 of the Division 1 TCs held meetings. These included:

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- **TCI-63** Validity of the Range of CIEDE2000
- **TCI-71** Tristimulus Integration
- **TCI-77** Improvement of the CIE Whiteness and Tint Equations
- **TCI-81** Validity of Formulae for Predicting Small Colour Differences
- **TCI-82** The Calculation of Colour Matching Functions as a Function of Age and Field Size
- **TCI-83** Visual Aspects of Time-Modulated Lighting Systems
- **TCI-84** Definition of Visual Field for Conspicuity
- **TCI-86** Models of Colour Emotion and Harmony
- **TCI-88** Scene Brightness Estimation
- **TCI-89** Enhancement of Images for Colour Defective Observers
- **TCI-90** Colour Fidelity Index
- **TCI-91** New Methods for Evaluating the Colour Quality of White-Light Sources
- **TCI-92** Skin colour database
- **TCI-93** Calculation of self-luminous neutral scale
- **TCI-94** Visually meaningful spectral luminous efficiency functions.

The week was marked by pleasant reunions of many international scientists active in the field, excellent presentations, many changes to CIE rules, structure, and TCs, and glorious social events, highlighted by the banquet and announcement that the 29th CIE Session will be held in the USA.

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*Ellen Carter*

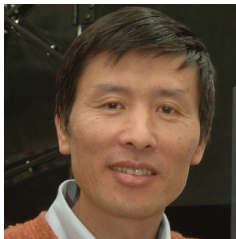


## Division 2

### Physical Measurement of Light & Radiation



Division 2 (D2) had about 60 papers presented in Manchester. Among them were 1 invited presentation, 16 oral presentations, 8 presented posters and about 35 posters. There were 4 oral paper sessions:



- 1) Near and far-field goniophotometry,
- 2) Optical and visual properties of materials
- 3) Advanced characterization of measurement devices
- 4) Characterization of light sources

The quality of the oral presentation papers was high and we had very good feedback on the D2 papers. The US participation to D2, however, was low; only two papers from USA submitted on D2 subjects and only one oral presentation.

A highlight of D2 was a 2-hour workshop on “CIE Illuminant L (LED), Pros, Cons and Challenges”, moderated by **Peter Blattner**. This is currently a hot topic, with LED products replacing incandescent and discharge lamps in general lighting, and also standard lamps (incandescent) for photometry are becoming more and more difficult to obtain. There were active discussions from the audience, but no agreement was reached at the end of this workshop. A CIE Illuminant L might be useful, but concerns were that the LED technology was still evolving and there were a large number of LED types, which would make the selection of Illuminant L challenging. Other concerns included that the new Illuminant L might mislead the users (meaning that CIE endorses a particular type of LEDs) and might become obsolete quickly. Furthermore, the LED's long-term stability is still mostly unknown. D2 also has a reportship on this subject (R2-71)

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for continuing research on this topic.

Division 2 had 15 TC meetings during the week in Manchester Session. They were TC2-29, 2-47, 2-50, 2-59, 2-63, 2-64, 2-65, 2-68, 2-69, 2-77, 2-78, 2-79, 2-71 TG2, 2-73, and 2-75. Each meeting was rather short but many TCs made good progress.

D2 had its annual meeting on June 30 and July 4 (total one day). There were about 80 participants including D2 representatives from 22 countries. Most time was spent to discuss and decide actions for the current 27 TCs and 23 reporterships. The Code of Procedures is strictly followed in D2. Three TCs were closed (TC2-17, 57, 70) and new TC chairs were considered for TCs 2-62, 2-68, and 2-72. 11 reporterships were closed as their work was done in most cases. There were 6 new TC proposals but no decisions were made and further refined proposals and votes are forthcoming. 3 new reporterships were created. For further details, draft minutes of D2 meeting in Manchester is made available to D2 associates.

It was reported that the CIE D2 Tutorial and Expert Symposium on Measurement Uncertainties in Photometry and Radiometry for Industry, in Vienna in September 2014, was very successful, and it seems there are further needs for such symposia on uncertainties. Future D2 meetings planned are:

- **2015** November 23 – 26, CIE Tutorial and Expert Symposium on the CIE So25 LED Lamps, LED Luminaires and LED Modules Test Standard, PTB Braunschweig, Germany
- **2016** D2 meeting in conjunction with CIE LQ&EE March 2016 Melbourne
- **2016** August 30 – September 1, 4th CIE Expert Symposium on Appearance, Prague, Czech Republic (D1, D2)
- **2017** D2 meeting in conjunction with CIE Midterm in Jeju, Korea, Oct. 2017

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- **2018** D2 meeting (and possibly a D2 symposium) proposed by Netherlands.

*Yoshi Ohno & Yuguin Zong*

## Division 3

### Interior Environment & Lighting Design



ISO TC 274 has started up in the last 4 years, and there is now a good relationship between the ISO and CIE. Fundamental standards remain the responsibility of the CIE. Applications standards will typically be led by the ISO in joint groups. The

scope of work of the ISO TC 274 is defined as follows:

Standardization in the field of application of lighting in specific cases complementary to the work items of the International Commission on Illumination (CIE) and the coordination of drafts from the CIE, in accordance with the Council Resolutions 19/1984 and 10/1989 concerning vision, photometry and colorimetry, involving natural and man-made radiation over the UV, the visible and the IR regions of the spectrum, and application subjects covering all usage of light, indoors and outdoors, energy performance, including environmental, non-visual biological and health effects.

Division 3 is working on a strategic research plan and standards plan as input to the CIE for this joint work.

**Jennifer Veitch** solicited a list of research and standards topics that should be considered for inclusion. These suggestions will be boiled down to an essential 5 most important research/standardization topics. A list of the already named topics (such as glare metrics for interior and exterior non-uniform sources, flicker guidance, metrology

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shift away from incandescent references, color metrics, etc.) and survey for additional topics and priorities will be distributed to Division 3 members through the Coll Tool.

Several Division 3 committees were closed or reconstituted based on lack of participation, leadership, change of focus or direction of work. As an example, **TC3-39** has now been reconstituted as "Assessment of Glare from Daylight in Buildings".

There is a Joint Technical Committee formed in Division 2, 3, and 6 to quantify ocular radiation input for non-visual photoreceptor stimulation. It will look at action spectra and metrics, consolidating what's already known.

A need for testing and rating methods for complex daylight devices was discussed. There was generally positive response, with several countries showing interest in participating. **Dr. Veitch** is going to consult with Division 2, since this could fall into that Division's area of work as well.

The Division Director brought up a model for spectral daylight data as a subject for a Technical Committee. **Martine Knoop** will investigate interest and write a proposal for that committee.

The next meeting dates for Division 3 are

2016: Webex, June

2017: CIE mid-term session, Korea, October

2018: Webex, June

2019: CIE 29th Session, Washington, DC (likely early June)

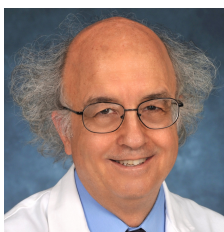
**Naomi Miller**

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## Division 6

### Photobiology & Photochemistry



The USNC Division 6 Member and Alternate regret being unable to attend the CIE Quadrennium Meeting recently held in Manchester, UK. We look to attending Division 6 colleagues to provide updates on Division 6 activities at that meeting.

The CIE has now approved and published “Report on the First International Workshop on Circadian and Neurophysiological Photometry, 2013”, CIE TN 003:2015. The CIE technical note on the Workshop is now available online at [http://www.cie.co.at/index.php?i\\_ca\\_id=978](http://www.cie.co.at/index.php?i_ca_id=978).

Division 6 was fortunate to have **Luke Price** providing leadership on this effort. His reportership is related to a full peer-review publication of: “Measuring and using light in the melanopsin age” Trends in Neurosciences 37(1): 1-9 (2014)

**Lucas, Peirson, Berson, Brown, Cooper, Czeisler, Figueiro, Gamlin, Lockley, O’Hagan, Price, Provencio, Skene, and Brainard.** Accompanying that publication is a freely available web-based toolbox to allow users to express the five weighted irradiance quantities in the SI unit for irradiance, as well as the five separate human photoreceptive equivalent illuminance units (cyanopic, melanopic, rhodopic, chloropic, and erythropic).

**Jennifer Veitch**, Ph.D. reports that JTC 4 (D3/D6): Visual, Health, and Environmental Benefits of Windows in Buildings during Daylight Hours would welcome participation from Division 6. The aim of this committee is to review the scientific literature in all relevant fields and to produce a concise document that identifies the values of windows in buildings. Examples of such values could be the provision of light for visibility, ventilation, means of egress; aesthetic benefits, access to a view, and light for physiological functioning, including circadian rhythm regulation.

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**The Annual Meeting of the Society of Light Therapy and Biological Rhythms was held in San Diego, CA on June 27-28, 2015.** The program included presentations on light therapy for treating winter depression, ADHD, fatigue related to chemotherapy in cancer patients and numerous other topics of interest to Division 6 members. For details and abstract see <http://sltbrmeeting.org/annual-meeting>.

***George Brainard***



Besides the several presentations related to light and circadian photobiology mentioned elsewhere, the opening plenary speaker was an entomologist from the UK, who spoke on how insects employ light for vision, navigation and circadian regulation. The eyes of bees like those of many insects are very different from those of humans and are sensitive to the polarization of scattered sunlight, which aids in navigation. The three cones of the bee peak in the UV, blue and green. The short-wavelength cone has peak sensitivity at 340 nm. It was found that it was UV that drove the circadian rhythm of bees. Fire beetles have sensors for 3  $\mu$ m, which allow them to detect a fire 32 km away.

Division 6 met during the afternoon of 30 June 2015 during the CIE 28th Session in Manchester. There was an unexpectedly large turnout of nearly 40 persons this year, and for a while there was standing room only. Two from the US attended (**Naomi Miller** and **David Sliney**), and **Dr. Sliney** was elected as an Associate Division Director. The large attendance probably resulted from the interest in the updating of CIE Standard S009, which is a joint logo standard with the International Electrotechnical Commission (IEC), as IEC 62471, Photobiological Safety of Lamps and Lamp Systems. The revision of that standard was discussed in great detail in a meeting held on 1 July of the Joint Technical

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Thank you!

Committee JTC-5, which had responsibility for the update of that standard; JTC-5 had members from IEC TC76 as well as from Division 2 and Division 6. The JTC-5 meeting resolved a number of issues that had been holding up the revision of that standard, but some controversy remains with regard to assessment distances differing from the 20-cm measurement distance. Many had favored a default assessment distance of 100 cm as reasonably foreseeable worst-case continuous exposure for 8 hours; the measurement distance had been set at 20 cm largely because of the need to have a strong signal-to-noise ratio when attempting to measure trace emissions of UV-B radiation leaking from fluorescent lamps.

A number of Technical Committees (TCs) had been closed in the last two years either because of lack of activity or because the TC could not reach a consensus. The new CIE Code of Procedure was more strict and it was clear that further TCs would be closed and nine more TCs were closed at Manchester. Division 6 has had a problem in reaching out to experts on a photobiological subject to be active in a TC, since many experts in diverse fields of ophthalmology, dermatology, plant photobiology, etc. were not members of their national committee of the CIE, and they did not want to volunteer because they saw their role as writing an explanatory report for the typical CIE community of lighting designers, lighting engineers, vision scientists and radiometrists. A total of 16 TCs have now been closed during the past two years. There are only four remaining TCs and no new TCs were proposed in Manchester. The remaining Division 6 Technical Committees are:

- **TC 6-66:** Maintaining summer levels of 25OH vitamin D during winter by minimal exposure to artificial UV sources; requirements and weighing the (dis)advantages
- **TC 6-64:** Optical Safety of Infrared Eye Trackers Applied for Extended-Duration
- **TC 6-52:** Proper Measurement of Passive UV Air Disinfection Sources
- **TC 6-49:** Infrared Cataract

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Division 6 also has the DR 6-43 reportership on “Illuminators for Treatment of Infant Hyperbilirubinemia” still open, as this will hopefully produce a Technical Note soon, i.e. a CIE publication, that might subsequently be used in a Technical Report or Standard.

*David Sliney*

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