COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

Canadian National Committee Comité National Canadien

CNC/CIE Annual Report 2011

56th Annual Meeting and Workshop

2011 October 2–4

Minutes

Division Members' Reports

Joint CNC/CIE – USNC/CIE Workshop - Abstracts

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MINUTES

CNC/CIE 56th Annual Meeting
2011–October–4

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MINUTES OF THE 56th ANNUAL CNC/CIE MEETING

2011-October-4

The 56th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was held on Tuesday, October 4, 2011 at the NRC, Building M-36, 1200 Montreal Road, Ottawa K1A Or6.

The agenda is given in Appendix A.

Note: the following acronyms may be used in this report:

CIE	Commission Internationale de l'Éclairage
CIE-BA	CIE Board of Administration
CIE-CB	CIE Central Bureau
CIE-DD	CIE Division Director
NC	CIE National Committee
TC	CIE Technical Committee
CNC	Canadian National Committee
CNC/CIE	Canadian National Committee of the CIE
CIE/USA	US National Committee of the CIE
ISO	International Organization for Standardization
IESNA	Illuminating Engineering Society of North America
SCC	Standards Council of Canada
NRC-INMS	Institute for National Measurement Standards at the National Research Council of Canada
NRC-IRC	Institute for Research in Construction at the National Research Council of Canada
NRC-IRO	International Relations Office at the National Research Council of Canada
CISET	NRC Advisory Committee on International Science, Engineering and Technology
NRCan	Natural Resources Canada
DRDC	Defence Research and Development Canada
M/AM	Members/Advisory Members

The Canadian Division Members had submitted, prior to the meeting, written reports for the purpose of our CNC/CIE annual meeting and annual report.

1. Call-to-Order and Approval of Agenda:

The 56th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was called to order at 11:00 on Tuesday, October 4, 2011 by L.A. Whitehead, President.

Fifteen Members and Advisory Members were in attendance. The list of all attendees, regrets and proxies is given in Appendix A. The teleconference call facility was arranged and hosted by J.A. Veitch.

The President expressed our appreciation to NRC INMS for providing the excellent facilities for these meetings.

The agenda, as circulated prior to the meeting by email (Appendix C), was accepted.

2. Minutes of the 55th CNC/CIE Annual Meeting:

The secretary indicated that an electronic version of the Minutes of the 55th Annual Meeting had been emailed to all Members and Advisory Members days before the meeting. It was moved by J. Veitch, seconded by S . McFadden, that the Minutes be accepted as distributed. Passed.

The action items from the 55th Annual Meeting (Appendix C) were considered and the actions taken are reported in Appendix C (Results column). There were 12 action items and most of them were quite simply mentioned "done", with the exception of AI-3.

AI-3 has not resulted in the nomination of a new Div. 1 Member, resulting in S. McFadden taking up this role for the time being.

AI-4: R. Baribeau indicated that the balance of our account at the CIE Central Bureau had been transferred to the CNC/CIE bank account and that this process would be repeated every year.

There were no further Matters Arising.

3. President's Report:

L.A. Whitehead presented a verbal report.

4. Vice-President's Report:

J.A. Veitch presented and discussed her report, which is attached as Appendix E.

5. Secretary's Report:

R. Baribeau presented his report, which is attached as Appendix F. He briefly summarized each item in the report. In particular he indicated that the balance of CNC/CIE account at the CIE Central Bureau had been transferred to CNC bank account. The same action will be repeated next year (AI-1).

6. Financial and Publications Report:

K.F. Lin presented his report which is in the Appendix.

7. Requests for Financial Support:

The Secretary reported that there were no requests for funding besides the one for Alan Robertson mentioned in the Secretary Report.

8. Reports from Division Members

Reports were presented during the joint CNC/USNC session. Written reports had been circulated electronically before the meeting and are available at the CNC/CIE web site.

9. CNC/CIE Subcommittee Reports

9.1 CNC/CIE Website report:

J.A. Veitch presented her report, which is attached as Appendix H. She indicated that the Website will be migrating to new server for which there will be a higher fee.

She asked for assistance with the management of the site. Sharon McFadden offered to manage the content (e.g., maintaining lists of TC members). Venkat Venkataramanan offered to provide administrative assistance from his staff with posting the revised content.

9.2 CNC/CIE Finance Subcommittee report:

No activity, S.M. McFadden sees no strong reason for this subcommittee to stay in existence. The committee was dissolved.

10. CISET Annual Performance Review (APR) of the CNC/CIE:

Note: The structure of the NRC relationship with the CNCs can be summarized as follows:

> The NRC maintains affiliations with international bodies, such as the CIE, on behalf of Canada. NRC is authorized by the Federal Government to provide funds for membership with international bodies to enable the Canadian scientific community to have access to international meetings, networking and knowledge exchange. NRC shares the responsibility for these international affiliations with Canadian partners through Canadian Partner Agreements. Each partner creates and maintains a CNC, composed of leading Canadian researchers, to support Canada's affiliation with the relevant international scientific bodies. In the case of the CIE, the NRC maintains a Canadian Partner Agreement with NRC-INMS, which creates and maintains the CNC/CIE to support Canada's affiliation with the CIE. The NRC uses the APR to assess these international affiliations; the CISET reviews these APRs and makes recommendations to the NRC on whether the specific Canadian Partner Agreement should continue.

Réjean Baribeau indicated that that this year's questionnaire will be distributed to all NRC Partners/CNCs at the end of October 2011, and responses will be expected before December 31, 2011. He noted that the NRC Grant Transfer Program is currently being reviewed by Treasury Board. Once this review has been completed and the Terms and Conditions are in place, and contingent on the receipt and successful review of the 2011 Annual Performance Review questionnaire by CISET, the 2011 dues should be paid without delay.

J. Veitch will prepare this year's response to the questionnaire (AI-2).

11. Nominations and Appointments (CNC/CIE):

The Secretary distributed a list of the current CNC/CIE Members and Advisory Members (Appendix K).

11.1 CNC/CIE Officers:

S. McFadden noted the terms of many Members were ending in 2011 and needed reappointments. A. Gaertner observed that the Code of Procedure mentioned a two month in advance call for proposal. It was proposed by L. Whitehead that the nomination process would be conducted by email. An email would be sent proposing V. Venkataramanan for President and J. Veitch for VP and that in the absence of further nominations this would become effective. This proposal was voted unanimously. Becomes AI-3.

Following the Code of Procedure, the result of this election will be communicated to the Director-General of NRC-INMS for appointment for the term from Jan. 1, 2012- Dec. 31, 2015 (AI-4).

After appointment, the name and contact information concerning the new President of the CNC/CIE shall be sent to the CIE Central Bureau (AI-5).

11.2 CNC/CIE Members and Advisory Members:

R. Baribeau will contact the persons whose terms will expire on Dec. 31 to determine their willingness to serve again. J. Veitch and R. Baribeau will communicate with other members to recruit new members if needed. R. Baribeauwill run an email ballot to elect (or confirm the reappointment of) CNC Members (AI-6).

Following the Code of Procedure, the results of this election will be communicated to the Director-General of NRC-INMS for appointments of these CNC Members for terms from Jan. 1, 2012- Dec. 31, 2015 (AI-4).

11.3 Canadian CIE Division Members:

New Div. 1 Member is needed (AI-7) while S. McFadden continues to act as such.

New Div. 4 Member is needed to replace J. Bastianpillai.

New Div. 6 Member is needed to replace J.D.Y. Deslauriers.

R. Baribeau and J. Veitch will contact potential candidates and conduct a ballot by email (AI-8). Any proposed new Division Members who are not already CNC members will first be elected to CNC Membership (see 11.2).

Following the Code of Procedure, the result of this election will be communicated to the Director-General of NRC-INMS for appointments of these CIE Division Members for terms from Jan. 1, 2012- Dec. 31, 2015 (AI-4).

After appointment, the name and contact information concerning the new CIE Division Members of the CNC/CIE shall be sent to the CIE Central Bureau (AI-5).

12. Other Business:

12.1 Correspondence:

There was none to report.

12.2 Date and Place of next Year's Meeting:

General discussion concerning how to better connect to the lighting community led to a consensus decision to hold a 1-day technical workshop in conjunction with the AGM. V. Venkataramanan proposed U. of Toronto for the venue. A committee (V. Venkataramanan , J. Veitch ,R. Baribeau, M.Timmings, N. Renaud) will look at the coordination of this (AI-9).

12.3 Other Business:

N. Renaud presented the profile and business model of Institut National d'Optique in Québec City.
Michel Girard of Standards Council of Canada gave a presentation about enhancing cooperation on standardization activities. Jennifer Veitch and Réjean Baribeau committed to following up on increased co-operation, particularly concerning documents for review (AI-10).

13. Adjournment

L. Whitehead expressed his thanks, and that of the participants, to J. Zwinkels and J. Veitch for arranging the facilities at this meeting. The meeting was adjourned at approximately 14:30.

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Secretary, CNC/CIE
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CNC/CIE 56th Annual Meeting

2011-October-4

Action Items

Action Item Number (AI#)	56th Minutes Item Number	Responsible	Action
AI-1	5	R. Baribeau, K.F. Lin	Transfer money from the CB
AI-2	10	J. Veitch	Prepare response to APR questionnaire.
AI-3	11.1	R. Baribeau	Appointment of P and VP
AI-4	11.1, 11.2, 11.3	R. Baribeau	Communicate election results to DG NRC-INMS for formal appointment.
AI-5	11.1, 11.3	R. Baribeau	Communicate information regarding new President and CIE Division Members to CIE.
AI-6	11.2	R. Baribeau	Ballot on membership
AI-7	11.3	Arnold Gaertner, Sharon McFadden, Jim Love	Nominate a Div. 1 member
AI-8	11.3	R. Baribeau	Ballot on Div. 4 and 6 Canadian Members
AI-9	12.2	V. Venkataramanan, J. A. Veitch, M. Timmings, S. McFadden, N. Renaud	Organize workshop and AGM for autumn 2012 in Toronto
AI-10	12.3	J. Veitch, R. Baribeau	Follow up with SCC on documents for review and communications.
AI-11			
AI-12			

LIST OF APPENDICES

APPENDIX A

CNC/CIE 56th Annual Meeting

2011-October-4

Attendees

Réjean Baribeau	National Research Council (INMS)
[1]Cristian Suvagau	BC Hydro
Arnold Gaertner	National Research Council (INMS)
Sharon McFadden	DRDC Toronto
Martyn Timmings	Canlyte Inc./Philips
Jennifer Veitch	National Research Council (IRC)
Venkat Venkataramanan	University of Toronto
Lorne Whitehead	University of British Columbia
Joanne Zwinkels	National Research Council (INMS)
Yvon Deslauriers	Health Canada
André Laperière	Hydro Québec
Chrisnel Blot	Spectralux Laboratory
K. Frank Lin	Lighting Sciences Canada Ltd.
Nathalie Renaud	Institut national d'optique
John S. Richards	Plus Associates Designers and Consultants

Regrets

James Love	University of Calgary
Byron Jordan	
Allyson Chrysler	Consullux Lighting Consultants
Andrew Silbiger	
Alan Robertson	

Proxies

[1] Attended via teleconference.

APPENDIX B

CNC/CIE 56th Annual Meeting

2011-October-4, Tuesday

PROPOSED AGENDA:

1.	Call to Order and Approval of Agenda	L.A. Whitehead
2.	Minutes of the 55th Annual CNC/CIE meeting - Action items - Matters arising	L.A. Whitehead
3.	President's report	L.A. Whitehead
4.	Vice-President's report	J.A. Veitch
5.	Secretary's report	R. Baribeau
6.	Financial and Publications report	K.F. Lin
7.	Requests for Financial Support	L.A. Whitehead
8.	Reports from Division Members	
	Division 1: Vision and Colour	S.M. McFadden
	Division 2: Physical Measurement of Light and Radiation	J.C. Zwinkels
	Division 3: Interior Environment and Lighting Design	J.A. Veitch
	Division 4: Lighting and Signaling for Transport	J. Bastianpillai
	Division 5: Exterior and Other Lighting Applications	M.K. Timmings
	Division 6: Photobiology and Photochemistry	J.D.Y. Deslauriers
	Division 8: Image Technology	R. Baribeau
9.	CNC/CIE Subcommittee reports:	
	9.1 CNC/CIE website report	J.A. Veitch
	9.2 CNC/CIE Finance Subcommittee report	S. M. McFadden
10.	CISET Annual Performance Review of the CNC/CIE	L.A. Whitehead
11.	Nominations and Appointments (CNC/CIE) 11.1 Division Members 11.2 Members and Advisory Members	L.A. Whitehead
12.	Review of Division 2 publications	J. Zwinkels
13.	Other Business 13.1 Correspondence 13.2 Date and Place for next year's meeting (joint with USNC) 13.3 Any other business	L.A. Whitehead
14.	Adjournment 11.2 Members and Advisory Members	L.A. Whitehead

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APPENDIX C

CNC/CIE 56th Annual Meeting

Action items from CNC/CIE 55th Annual Meeting

Action Item Number (AI#)	55th Minutes Item Number	Responsible	Action	Result
AI-1	2	V. Venkataramanan, J. Love	Student Award	done
AI-2	2	M.K. Timmings, V. Venkataramanan	Send list of companies	done
AI-3	2, 11.1,13.3	Arnold Gaertner, Sharon McFadden, Jim Love	Nominate a Div. 1 member	failed
AI-4	6	R. Baribeau, K.F. Lin	Transfer money from the CB	done
AI-5	11.1	J. Veitch	prepare response to APR questionnaire.	Done; score improved.
AI-6	11.2	R. Baribeau	Ask B. Jordan about he continuation of his membership	Done. No continuation.
AI-7	11.2	R. Baribeau	Action regarding nomination of Tim Moggridge as an Advisory Member	Done. T.M accepted
AI-8	12.2	R. Baribeau	Contact the US NC for joint meeting	done
AI-9	12.2	J. Zwinkels, A. Gaertner, R. Baribeau, J. Veitch, V. Venkataramanan	Coordinate next meeting and workshop	done
AI-10	12.3	R. Baribeau	Inquire about the procedure to nominate A. Robertson for an award.	Done; A. R. got Wyszecki Award.

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AI-11	12.3	A. Gaertner	Prepare and circulate the response to NRCan .	done
AI-12	12.3	(M. Timmings, L. Whitehead, D. Kline	Discuss standards for LEDs	done

APPENDIX D

CNC/CIE President's Report
October, 2011

Lorne A. Whitehead, Ph.D., P.Eng.
lorne.whitehead@ubc.ca

I am pleased to present this brief report on my activities this year as CNC President.

- I assisted planning for special travel funding for the Sun City meeting, which required a special telephone meeting of the CNC for approval.
- I attended the 2011 General Assembly Meeting in Sun City in August 2011, where there were significant developments for the CNC – Alan Robertson was awarded the Wyszecki Gold Pin Award for exceptional outstanding contributions in Fundamental Research and Jennifer Veitch was awarded the Waldram Gold Pin Award for Applied Illuminating Engineering (as well as having become the Director of CIE Division 3).
- I have been active in TC 1-69 and I am serving on a subcommittee (with Ronnier Luo, Janos Schanda and Kevin Smet) to develop improved colour samples.
- This is my final year as President of the Canadian CNC. I have enjoyed this role and look forward to continuing to serve as a member of the CNC.
- I have been nominated to become the Treasurer of the CIE, a decision which is currently in process and would become effective upon approval.
- I have been continuing in my unofficial efforts in teaching and research related to light and lighting:
    - At UBC I have continued to work with a group of faculty members who last year submitted a funding request to NSERC for a new interdisciplinary graduate program in sustainable building physics, in which a lighting course would be an important component. On our second attempt, the program was approved by NSERC and is now underway. In November I will be giving a 4 hours lecture series on building illumination. One of my PhD students, Sepideh Kosravi, is enrolled in this new program.
    - My laboratory, in a partnership with the Lighting Technology Center at UC Davis, is leading a consortium of Canadian and University of California university researchers in identifying barriers to the acceptance of core sunlighting and developing means of overcoming them.
    - I have given presentations at five conferences this year, on the topics of improving the colour rendering index and the benefits of core sunlighting.

APPENDIX E

Vice-President's Report

CNC/CIE Vice-President's Report
October, 2011

Jennifer A. Veitch, Ph.D.
jennifer.veitch@nrc-cnrc.gc.ca

In my capacity as Vice-President of the CNC, this year I undertook two principal tasks.

The largest of these was to lead the preparation of the annual report to the NRC International Relations Office. Once again, we received an excellent score in the rating of this report. Thanks to everyone involved in lighting in Canada, and particularly through CIE, for this excellent performance. The NRC program through which these grants are made was itself evaluated in 2010 and recommended to continue, which is good news. However, its own Annual Performance Review process was seen as cumbersome, and therefore it is likely to change for 2011. It's not known right now what the new process will involve.

This year, CIE signed a renewed Memorandum of Understanding with the International Organization for Standards (ISO) and partly as a result of this we have made new contacts with the Standards Council of Canada. As a result we have a visitor from the SCC with us today to further our discussions concerning deeper co-operation.

In previous years, I have represented the CNC/CIE at the annual meeting of our sister committee, the CNC/CODATA. I was unable to attend this year's meeting because of other commitments, and no other CNC member was available to replace me

Appendix F

CNC/CIE SECRETARY'S REPORT TO THE 56th ANNUAL MEETING

2011-October-4

The following acronyms may be used in this report:

CEN:	Comité Européen de Normalisation
CIE-CB:	CIE Central Bureau in Vienna, Austria
CIE-BA:	CIE Board of Administration
CNC/CIE:	Canadian National Committee of CIE
CIE/USA:	US National Committee of the CIE
GA:	General Assembly
ISO:	International Organization for Standardization
NC:	National Committee
NRC:	National Research Council of Canada
CISET:	NRC advisory Committee on International Science, Engineering and Technology
NRC-IRO:	NRC International Relations Office
NRC-INMS:	NRC Institute for National Measurement Standards
NRC-IRC:	NRC Institute for Research in Construction
NRCan:	Natural Resources Canada

This report covers the period from 2008-October-24 to 2009-October-14.

CIE MATTERS:

1. Annual Membership Fee:
   The annual membership fee for the CNC/CIE as a member of the CIE for 2011 was 7,821 €. The NRC-International Relations Office has continued to make these payments on our behalf.

   The NRC, through a Grant Transfer Program, supports Canadian scientific organizations to affiliate with their corresponding international union and program bodies. As part of our CIE membership through the NRC, we are also affiliated with the International Council for Science (ICSU) and 29 other international scientific unions. The NRC membership to these international scientific organizations allows active participation by members of the Canadian scientific community in international scientific endeavors.

2. Revenues from Sales of Publications:

   An agreement was reached with the CIE-CB about the transfer of revenues from sales of publications to the CNC/CIE bank account. As a result, 4,258.52 € were transferred on 07-07-2011 to bring our closing balance to 0. It is intended to repeat this process every year.

3. CIE General Assembly Meeting 2011, July 10, Sun City/ZA
   The CIE General Assembly Meeting was held on 2011, July 10 in Sun City/ZA. Lorne A. Whitehead, Jennifer A. Veitch, Joanne Zwinkels and Alan R. Robertson attended the meeting. Dr. Robertson was honored with the Wyszecki Gold Pin for Fundamental Research, and Dr. Veitch with the Waldram Gold Pin Award for exceptional outstanding contributions in Applied Illuminating Engineering.

8. CIE Draft Standards:
   CIE DS 014-3.2/E:2010 "Colorimetry - Part 3: CIE Tristimulus Values". Sent to NC members for voting. CA voted yes.
   DS 017.2/E: 2009 "ILV: International Lighting Vocabulary". Sent to NC members for voting.

9. Mailings:
   CIE announcements and Press Releases have been received and mailed and/or emailed to the membership as appropriate: This material is now available on the CIE website (www.cie.co.at)

CNC/CIE MATTERS:

1. CNC/CIE 2011 Annual Meeting:
   The 56th annual CNC/CIE meeting will be on Oct. 4, 2011 at NRC, in conjunction with the biannual joint CNC/CIE and CIE/USA meeting.

2. Annual Performance Review of the CNC/CIE:
   The NRC International Relations Office has developed an Annual Performance Review (APR) questionnaire, requested by the NRC advisory Committee on International Science, Engineering and Technology (CISET), that focuses on assessing the impact of Canada's international affiliations supported through the NRC Grant Transfer Program. The questionnaire is distributed to all NRC Partners/CNCs. Annual dues and any other payments will be withheld until receipt and successful review of the questionnaire by CISET. We repeated this exercise this year and improved our score which was already excellent. Dr. Jim McLaren, our NRC/INMS Director General, has sent his compliments on the excellent report that we submitted, and the NRC-IRO has paid the CNC/CIE annual dues for 2011.

4. Requests for Funding:
   There was a request for partial coverage of the travel cost for Dr. Alan Robertson to receive in hand the Wyszecki Gold Pin award at the CIE general Assembly in Sun City ZA. It was accepted unanimously, during a special assembly meeting, to cover the accommodation and meal charges for the time of this meeting, which finally amounted to $1718.13 .

5. CNC/CIE website:
   The website operates at the web address of www.cie-cnc.ca. If anyone has suggestions for corrections, updates, or additions, please contact the Secretary or J.A. Veitch, our website coordinator. A report on the website will be given at the annual meeting.

6. Mailing Lists:
   6.1 At present I maintain 3 mailing lists: Members (15), Advisory Members (37), General Interest (29). In general, the difference between the first two and the third is that the third list tends to receive only CIE material (press releases of CIE publications, *CIE NEWS*) and notices of international conferences. Members and Advisory Members receive, in addition to the CIE material, more CNC information such as various ballots, and the Minutes of the annual meeting and related information.
   6.2 Electronic Mail: I have sent all documents to the CNC/CIE membership this year by email. I try to use the PDF format whenever possible. I now receive all the information from the CIE-CB, such as Press Releases, in electronic format. I also receive announcements of meetings in electronic format, and I forward these electronically rather than sending a large paper mailing. People on the mailing list need to keep me updated on their email address as I don't have the resources to recover that information.

7. Membership:
   A list of our Members and Advisory Members is available and will be discussed during the annual meeting for the purposes of making any changes.

   7.1. Officers:
   Same as last year.

   7.2. Members:
   Same as last year.

   7.3. Advisory Members:
   Tim Moggridge to become an Advisory Member.

   7.4. General Interest:
   As a result of requests during the year, I have added 10 names to our General Interest mailing list.

   7.5 Removals:

   A few names are to be removed from the General Interest list as the corresponding email addresses have become obsolete.

Respectfully submitted,

Réjean Baribeau
Secretary, CNC/CIE
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APPENDIX G

Financial and Publications Report

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2011 CNC/CIE Finantial Report: AS of Oct 1, 2011

2010 balance:   22043.81
income from CB:  5706.42
Bank charge:     - 71.4    (5.95x12)
2011 balance:   27678.83

Regards,
Frank Lin
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P.S. Allan's Check Of $1718.13 will be entered next year because it has not clear the bank

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Fax: (519)746-3156
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Web: http://www.lightingsciences.ca

APPENDIX H

CNC/CIE Web Site Report
October, 2011

Jennifer A. Veitch, Ph.D.
jennifer.veitch@nrc-cnrc.gc.ca

Usage

I regret that I have not compiled our usage statistics in time for this report.

Content

Our Webmaster, Bob Bridges, has converted the site to a Joomla platform. Joomla is an open-source content management system (www.joomla.org). We now have the possibility to create password-protected spaces for document downloads (eliminating the need for large attachments to e-mails) and to update the content quickly. For instance, it is easy to post the CIE press releases as PDF documents on the site, and I have done so already for the announcement of the International Lighting Vocabulary. I also used this facility to post the information about the technical meeting this week.

Although the platform is not difficult to use, like any software package it takes some learning. Regretfully I have to report that I have not mastered all of it because I have not had time to do so. As a result some of the content is out-of-date and some links remain broken.

Translation services for the web site have and will continue to be provided by the National Research Council of Canada Institute for Research in Construction.

Records of Canadian TC Involvement

The most difficult task each year is obtaining the information from Division delegates concerning the membership of TCs in their divisions. When I ask for the information, please send it along.

History of Lighting in Canada

I remain interested in adding content on the history of lighting in Canada, but other pressures have prevented making any progress on this task. When other things are complete, I will return to this.

Maintenance

The cost for the domain registration, site hosting, and maintenance remains low (under $400 even with the transition to Joomla).

It is not an onerous task to be the liaison for the web site, but I have found it difficult to keep up with because of other commitments. At mid-year I sought assistance and found one volunteer, which I myself failed to follow up on. I would be very happy to pass this task on to someone else if that person can make a more consistent effort than I have done; but if necessary I will carry on.

APPENDIX I

CNC/CIE MEMBERS

CNC/CIE			TERM (expiry)	CIE
President	L.A. Whitehead	British Columbia	2011-12-31	
Vice President	J.A. Veitch	Ontario	2011-12-31	Division 3
Secretary	R. Baribeau	Ontario	2013-12-31	Division 8
Publications/Treasurer	K.F. Lin	Ontario	2012-12-31	
	J. Bastianpillai	Ontario	2011-12-31	Division 4
	J.D.Y. Deslauriers	Québec	2011-12-31	Division 6
	B.D. Jordan	Ontario	2011-12-31	
	J.A. Love	Alberta	2011-12-31	
	S.M. McFadden	Ontario	2011-12-31	Division 1
	I.C. Pasini	Ontario	2010-12-31	
	C. Suvagau	British Columbia	2011-12-31	
	M.K. Timmings	Ontario	2011-12-31	Division 5
	V. Venkataramanan	Ontario	2011-12-31	
	J.C. Zwinkels	Ontario	2011-12-31	Division 2
ex officio	A.A. Gaertner	Ontario		NRC/INMS Member

[?] = have not returned letters of acceptance.

CNC/CIE ADVISORY MEMBERS

Martin Aitkenhead	Ontario
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CNC/CIE Division Members' Reports

CNC/CIE 56th Annual Meeting
2011–October–4

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Division 1: Vision and Colour
Report to CNC/CIE Annual Meeting

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The annual meeting of Division 1 was held 14-15 July 2011 in Sun City, South Africa. The meeting was attended by 4 officers, 14 country representatives, 17 TC Chairs, and several guests. Canada was represented by Dr. Alan Robertson. Seven Technical Committees (TC) met in conjunction with the meeting: TC1-68 Effect of Stimulus Size on Color Appearance (Peter Bodrogi HU), TC1-69 Color Rendition by White Light Sources (Wendy Davis US), TC1-71 Tristimulus Integration (C Li CN), TC1-73 Real Colour Gamut (C Li CN), TC1-74 Methods for Re-Defining CIE D Illuminants (Janos Schanda HU), TC1-76 Unique Hue Data Chairman: Sophie Wuerger GB, and TC1-80 Research Methods For Psychophysical Studies Of Brightness Judgments (Steve Fotios GB).

Highlights

Six new TCs and five Reporterships were proposed at the Division meeting and subsequently approved by the Board of Administration. They are:

TC1-XX (V) Standard on Mesopic Photometry and Guidelines for Defining Photometric Values in the Mesopic Region (Chair: Liisa Halonen FI)

Terms of Reference: 1. To investigate adaptation and viewing conditions in outdoor lighting. 2. To define lighting applications where mesopic photometry should be used. 3. To provide methods and guidelines for calculating photometric values in the mesopic region to prepare a standard on a system of mesopic photometry.

Note: The CB has yet to decide on the method of operation of this cross-division TC.

TC1-83 (V) Visual Aspects of Time-Modulated Lighting Systems (Chair: Dragan Sekulovski NL)

Terms of Reference: 1. To investigate and report on current research on the perception of visual artifacts of temporally modulated lighting systems, including flicker, the stroboscopic effect, ghosting, and digital artifacts. 2. Design methodology and gather data on the visibility of temporal artifacts. 3. Build a model for the visibility of temporal artifacts and their dependence on environmental, demographical and lighting parameters.

TC1-84 (V) Definition of Visual Field for Conspicuity (Chair: Nana Itoh JP)

Terms of Reference: To define and classify functional visual fields for universal tasks and develop guidelines for the layout of visual information to increase the visibility of visual signs, displays and markings.

TC1-85 (C) Update CIE Publication 15:2004 Colorimetry (Chair: Janos Schanda HU)
Terms of Reference: To update CIE Publication 15:2004 taking into consideration the current CIE/ISO standards on colorimetry and the work of TC1-36 Fundamental Chromaticity Diagram with Physiologically Significant Axes
Members: Francoise Viénot, Alan Robertson, Mike Pointer, Hirohisa Yaguchi, Ellen Carter
TC1-86(C) Models of Colour Emotion and Harmony (Chair: Li Chen Ou TW)
Terms of Reference: To recommend models of colour emotion and harmony based on existing psychophysical data obtained by different research groups or networks for applications in the colour design area.
Members: M. Ronnier Luo GB, Mike Pointer GB, János Schanda HU, Jose Luis Caivano AR, Osvaldo Da Pos IT, Tetsuya Sato JP, Shing-Sheng Guan TW, Monica Billger SE, Suchitra Sueeprasan TH, Rafael Huertas ES, Ferenc Szabó HU
TC1-87(C) New Aspects of Colour Rendering (Chair: Mike Pointer GB)
Terms of Reference: To investigate available methods for assessing the colour rendering capabilities of all types of white light source with a view to possibly recommending a new assessment index or indices.
R1-53 (C) Gloss Perception and Measurement (Frédéric Leloup BE)
Terms of Reference: 1. To establish a database of key research articles and terminology related to gloss perception and to gloss measurement. 2. To investigate if, from this database, improved measurement methods could be suggested in order to achieve a better correlation between gloss perception and measurement.
R1-54 (V) Variability in Colour-Matching Functions (Abhijit Sarkar IN)
Terms of Reference: To document available data that describe the variation in colour matching functions, together with an analysis of their variability.
R1-55 (C) Enhancement of Images for Colour Defective Observers (Po-Chieh Hung JP)
Terms of Reference: To review the literature for enhancing images to improve their quality for colour defective observers.
R1-56 (C) Skin Colour Database (Kaida Xiao CN)
Terms of Reference: 1. To assemble a database of skin colours, to include spectral data and measurement method. 2. To report on the variation in colour between different ethnic groups, genders and body parts.
R1-57 (V) Border Between Luminous and Blackish Colours (Thorstein Seim NO)
Terms of Reference: Study the literature that determines by psychophysical and physiological experiments the colour border between luminous and blackish colours in white surrounds.
Six TCs, (TC1-27 Specification of Colour Appearance for Reflective Media and Self-Luminous Display Comparison, TC1-41 Extension of *V*M (l) Beyond 830 nm, TC1-44 Practical Daylight Sources for Colorimetry, TC1-58 Visual Performance in the Mesopic Range, TC1-72 Measurement of Appearance Network: MApNet, and TC1-79 Limits of Normal Colour) and three Reporterships (R1-36, R1-37, and R1-48) were closed.

Future Meetings

The next meeting of CIE D1 will be at the National Taiwan University of Science and Technology, Taipei, Taiwan, on 26-27 September 2012.

Canadian Participation in Division 1

Based on the latest information available to me, Canada has representatives on 14 Technical Committees in Division 1. They are as follows:

TC1-37	W. Cowan	TC1-68	T. Nilsson
TC1-42	S. McFadden	TC1-69	I. Ashdown, L. Whitehead
TC1-55	A. Robertson	TC1-70	A. Rosemann
TC1-57	A. Robertson (Chair), J. Zwinkels, B. Jordan	TC1-71	B. Jordan, A. Robertson
TC1-60	S. McFadden	TC1-77	B. Jordan, J. Zwinkels
TC1-64	S. McFadden (Chair)	TC1-80	Keith Niall
TC1-67	Brian Tansley	TC1-86	A. Robertson

J. Zwinkels is also a liaison between Division 1 and ISO TC6/WG3. If anyone is interested in participating in one of the TCs, especially the newer ones, please contact Sharon McFadden.

CIE Publications

192:2010: Practical Daylight Sources for Colorimetry

195:2011: Specification of Colour Appearance for Reflective Media and Self-Luminous Display Comparison

196:2011: CIE Guide to Increase Accessibility in Light and Lighting

Summary of Progress of Technical Committees and Reporterships

The following summaries of activities in the various Technical Committees of Division 1 are based on the minutes from the 2011 Division 1 meeting. Additional information on some of the TCs can be found in the minutes as well as the Activity Report for 2011. These are available in PDF format on the Division 1 website at http://div1.cie.co.at/. The activity report includes the terms of reference and membership for all Technical Committees and Reporterships.

Progress in Vision Section (M. Ayama, Associate Director)

TC1-36: Fundamental Chromaticity Diagram with Physiologically Significant Axes (F Viénot): Chapters 6 and 7 of Part 2 of Technical Report CIE Publication 170-1:2006 have been sent to the TC members and D1 executive.

TC1-37: Supplementary Systems of Photometry (K Sagawa): The Technical Report (TR) has been completed and balloted.

TC1-41: Extension of $V_m(l)$ beyond 830 nm (P Walraven): This TC was closed at the D1 meeting.

TC1-42: Colour Appearance in Peripheral Vision (M Ayama): The text of the 2nd draft of a TR was distributed to the TC members and Division officers on 7 July 2011. Comments are awaited by September 2011.

TC1-58: Visual Performance in the Mesopic Range (L Halonen): The TR has been published as CIE191:2010 and the TC was closed at the D1 meeting.

TC1-60: Contrast Sensitivity Function (CSF) for Detection and Discrimination (M. Pointer): It is understood that the Chair is ill and unable to continue with the work. A draft of a TR has been partly prepared. The Chair was changed to Mike Pointer who will attempt to complete the TR.

TC1-67: The Effects of Dynamic and Stereo Visual Images on Human Health (H. Ujike): D1 decided to change the terms of reference to work on Photo-Sensitive Seizures only and to ask the Chair to complete a report by 2013.

TC1-78: Evaluation of Visual Performance in the Real Lit Environment (M. Billger): The TC is

currently reviewing the literature with the aim of defining the important parameters that may impact on visual performance in a lit environment.
TC1-79: Limits of Normal Colour Vision (J. Barbur): The members of this TC voted to disband the Committee because they felt that the TC could not meet the terms of reference within four years using available data and knowledge. A summary of the conclusions of the TC is available in the D1 minutes.
TC1-80: Research Methods for Psychophysical Studies of Brightness Judgements, (S. Fotios): At the Sun City meeting, the contents of the TR and timescale of the TC work were discussed. A review of basic procedures was circulated and revised following feedback; a review of experimental variables (size, evaluation mode, complexity etc) was circulated.

TC1-82 The Calculation of Colour Matching Functions as a Function of Age and Field Size (J. H. Wold) This TC was established in 2010 at the D1 Meeting in Princeton. A detailed work plan is available in the D1 minutes.
R1-36: Action Spectra for Glare (J. Fekete): A short report has been sent to the Division officers and it was agreed to close this Reportership.
R1-37: Definition of the Visual Field for Conspicuity (N. Itoh): A report has been completed that is downloadable from the CIE Division 1 website. A new TC was recommended. It was agreed to close this TC.
R1-40: Scene Dynamic Range (Jack Holm): The Reporter will continues his work; there is nothing new report.
R1-49: Above-threshold Pulsed Lights (M. Nicholson & D. Couzin): On the retirement of Ian Tutt, it was agreed that Malcolm Nicholson should replace him as reporter.

R1-51 Reconciling Maxwell vs Maximum Saturation Colour Matches (Mike Brill): The reporter sent a report on his efforts over the past year on task 4 (To examine in u'v' space the Wyszecki & Stiles reported discrepancy of the spectrum loci to assess the significance of the difference.) His conclusion is that the alarming Maxwell/Maximum-Saturation discrepancy reported by Wyszecki and Stiles is not nearly so large as one might gather from Fig 4(5.6.6), but places a significant limit on the applicability of Grassmann's laws.

Progress in Colour Section (E. Carter, Associate Director)

TC1-27: Specification of Colour Appearance for Reflective Media and Self-Luminous Display Comparison (P J Alessi): The TR has been published and the TC was closed at the D1 meeting.
TC1-44: Practical Daylight Sources for Colorimetry (R Hirschler): The technical report has been published and the TC was closed at the D1 meeting.
TC1-55: Uniform Colour Space for Industrial Colour Difference Evaluation (M. Melgosa): No report.

TC1-57: Standards in Colorimetry (A Robertson): The Tristimulus Value Standard was approved by the BA and D1 in December 2009, by the NCs in June 2011 and was published as CIE S 014-3E:2011 Colorimetry – Part 3: CIE Tristimulus Values. Work continues on the CIEDE2000 standard. Draft 3 was submitted for TC ballot on 15 June 2011 with a deadline of 15 Jul 2011.
TC1-61: Categorical Colour Identification (T. Ishida): A second draft of the TR is being prepared by the chair to circulate to the TC. The chair has asked for one more year to complete the technical report.

TC1-63: Validity of the range of CIEDE2000 (K. Richter): The TC members have agreed that

the TR shall include the following chapters:

1. CIE TC1-63: Terms of Reference
2. Test charts and CIELAB data for the study of large colour differences.
3. Results from different countries (DE, ES, CZ, GB).
4. Standard deviation and correlation in term of stress values.
5. Results for small colour differences (Kittelmann, Witt, Melgosa, Luo, Roseman, ...).
6. Standard deviation and correlation in term of stress values.
7. Conclusions.
8. Literature.

TC 1-64: Terminology for vision, colour and appearance (S. McFadden): Division 1 has several new terms, which have been distributed to the TC members for comment. It has to be decided how new terms will be added to the ILV once it is published. The TC will continue to prepare the new terms from Division 1 for future updates to ILV. In addition, the TC chair will continue to review new Technical Reports for additional terms.

TC1-68: Effect of Stimulus Size on Colour Appearance (P. Bodrogi): Draft five of the TR has been prepared. It includes three models of the colour size effect. They are intended to describe only the specific viewing situations of the experimental data underlying these models. The Committee considers these models tentative and no model is recommended in this Technical Report. To recommend a model, further exploratory and validating experiments are needed.

TC1-69: Colour Rendering of White Light Sources (W. Davis): At the 2010 meeting a proposal was made to recommend both the CQS and CRI-CAM02UCS. No meeting attendees objected. However, in follow-up e-mails after the meeting, one non-attendee objected and one attendee had a change of opinion. Some members wanted to go ahead and write the report, allowing dissenters to write minority opinions. Other members wanted to take a step back and dedicate more time to analyze options. A vote was conducted (60% of voting members (18/30) wanted more time; 40% (12/30) wanted to write the report). During the committee's previous "decision-making" phase, two outside groups asked to submit their proposed metrics for consideration and were denied. In light of changes in the TC's plans, they were subsequently invited to submit their proposals. In addition to the seven previously submitted proposals, the TC was presented with the Gamut Area Index (GAI) + CRI and a Monte Carlo method of assessment. During the intervening year, visible progress has been slow. However, there was a very active TC meeting held in Sun City and a number of presentations and a workshop on the topic of this TC. The TC is working on various matters to build a consensus. If this proves impossible a minority report may be necessary in addition to the main report.

TC1-70: Metameric Samples for Indoor Daylight Evaluation (B. Kranicz): To summarize the work of this TC: 1) Metameric pairs have been derived for ID65 and ID50. The standard specimens are the same as in standard ISO 23603:2005(E) – CIE S 012/E:2004. 2) Comparison specimens for ID65 and ID50 have been derived. The initial values of the optimization process were the comparison specimens for D65 and D50 in standard ISO 23603:2005(E) – CIE S 012/E:2004. The resulting comparison specimens look 'almost the same' as the original functions but fulfill the requirements of metamerism. The next step is to draft the TR.

TC1-71: Tristimulus Integration (C. Li): The TC had a meeting in 2010. In the meeting, it was agreed that it was time for further tests among methods selected by the TC. In order to do the testing, some data including 1nm illuminants and reflectance data were needed. Some members provided data. Others provided two new types of weighting tables based on local power

expansion, which will aid the ongoing testing of methods and recommendations for this TC. It is hoped that the TC will complete the work within one year.

TC1-72: Measurement of Appearance Network : MapNet (M. Pointer): The 2nd CIE Expert Symposium on Appearance held at KaHo St-Lieven University, Gent, Belgium from 8-10 September 2010. Included 36 presentations, 42 posters, 135 delegates, and 22 countries represented. Sessions were held on Colour Appearance, Measurement and Instrumentation, Gloss and Texture, Luminance and Glare, Luminance-Based Design, and Lighting Comfort. In the four years of this TC it has produced a mailing list of over 100 members, a bibliography of papers, had some excellent discussions and two very successful Expert Symposia. However, appearance measurement is complex and there are no quick fixes. Experimental work takes time and costs money – both of which are increasingly hard to obtain. It's a big subject that seems to be getting bigger. Therefore, the chair proposes: 1) to close the TC, 2) to establish a Reporter to monitor all aspects of the subject and make recommendations for future work, and 3) to organise the 3rd CIE Expert Symposium in Appearance in 2012 or 2014. Thus, the TC was closed.

TC1-73: Real Colour Gamut (C. Li): Four gamuts are currently being compared by the TC. They are: the Pointer real colour gamut, the Hewlett-Packard printer gamut, the PhotoGamut RGB and the ISO reference colour gamut. It was concluded that 1) defining the gamut in terms of coordinates under a particular illuminant is not sufficient; 2) The current gamuts do not represent available data well. Hopefully, this TC can derive a new gamut that represents available data and is defined in terms of reflectance functions.

TC1-74: Methods for Re-defining CIE D illuminants (J. Schanda): Draft 4 of the TR was circulated to the TC in May 2011. It includes: Introduction; History of daylight illuminants; Choice of daylight; CIE sources and illuminants B and C; The equienergy spectrum; The D illuminants; The ID illuminants; Experiments on advantages of smoothing; Possible smooth daylight spectral power distribution models; Smoothing between the fixed 10 nm values; Smoothing some absorption bands; Conclusions and recommendation; Tables. However, it must be decided how much smoothing should be recommended.

TC1-75: A Comprehensive Model of Colour Appearance (R. Luo): M Ronnier Luo reported on C. Fu's PhD data (Unrelated colours under photopic and mesopic regions), and K. Xiao's PhD data (Same colours under 6 different sizes). He then proposed to distribute the three accepted among members, then by March 2012 to complete the model, and by September 2012 to complete the TR.

TC1-76: Unique Hue Data (S. Wuerger): This TC met in Sun City and developed a comprehensive work plan. It involves collating existing set of unique hue data, providing the mean hue angles in a uniform colour space and computing intra- and inter-observer variability in colour difference units (CIE DE2000), and writing the TR which includes the generated database of unique hue data, comparing unique hue loci between different viewing conditions, and developing a model of unique hues as a function of the specified parameters.

TC1-77: Improvement of the CIE Whiteness and Tint Equations (R. Hirschler): The TC began collecting papers and publications related to their work and circulating them among TC members. They also identified three groups of on-going new research relating to the TC: 1) M. R. Luo and D. Chen (Leeds University) - CIE tint limits, correlation of visual evaluations and instrumental measurements, 2) R. Hirschler, C. Silva and D. Oliveira SENAI/CETIQT) - Correlation of visual evaluations and instrumental measurements, Ganz-Griesser vs. CIE calibration, WI for different light sources, and 3) R. Shamey (NCSU) correlation of visual evaluations and instrumental measurements under different light sources.

TC 1-81 Validity of Formulae for Predicting Small Colour Differences: (Klaus Richter): The chair described some of the fundamental problems that this TC will address.
R1-42: Extensions of CIECAM02 (C. Li): This reportership becomes purely liaison with Division 8 (TC1-11) since the set up of TC1-75 on *Comprehensive Model of Colour Appearance*. There is no new activity from TC8-11.
R1-48: Colour Emotion and Harmony (L. C. Ou): The report has been completed and is posted on the Division 1 website. The report includes a proposal for a new TC on modelling of colour emotion and harmony. The reportership was closed at the D1 meeting.
R1-50: 3D Aspects of Visual Appearance Measurement (D. Simmons): A report was submitted in the in June, 2011 which is now on the D1 website. Progress has been made on the 1st and 2nd Terms of Reference, but it is probably premature for the 3rd Term to be actioned. However, the 4th Term to liaise with other Divisions could be actioned in Sun City. The report went on to say that 3D visual appearance is not really a research field in its own stead yet. However, there is considerable activity in 3D vision research. Following in the wake of technical developments in 3D graphics, storage and display, there is much interest in the human factors of 3D imaging.
R 1-51 Spectral Data Interpolation (Hugh Fairman): The text portion of the report is nearly completed and some additional data points are yet to be calculated for the tables. The report is presently scheduled to be completed by 31 December 2011.

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Division 2: Physical Measurement of Light and Radiation

Report to CNC-CIE 2011 Annual Meeting
Ottawa, Ontario, 4 October 2011

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The most recent CIE Division 2 General and TC meetings were held 11-15 July 2011 in Sun City, South Africa in conjunction with the 27th Session of the CIE. There were 60 participants from 22 countries, including 19 country representatives. I attended this meeting as Country member for Canada but also as new Associate Director for D2 (since March 2011 due to retirement of Mr. Norbert Johnson).
The detailed minutes of the meeting should be available shortly at the web-site: http://cie.co.,at/div2.

Ten Technical Committees (TCs) met in Sun City: TC 2-43 *Determination of measurement uncertainties in photometry* (Sauter); TC2-47 *Characterization and calibration methods of UV radiometers* (Sperling); TC2-50 *Measurement of optical properties of LED assemblies* (Distl); TC 2-51 *Calibration of multi-channel spectrometers* (Young); TC2-58 *Measurement of LED radiance and luminance* (Kohmoto); TC2-59 *Characterization of imaging luminance measurement devices* (Krüger); TC2-63 *Optical measurement of high-power LEDs* (Zong – Ohno chaired this meeting in Sun City); TC2-64 *High speed testing methods for LEDs* (Heidel); TC2-65 *Photometric measurements in the mesopic range* (Goodman); and TC2-71 *CIE standards on test methods for LED lamps, luminaires and modules* (Ohno).

For the next quadrennium (2011-2015), there is a change in the D2 Director to Peter Blattner (Switzerland) with out-going D2 Director, Yoshi Ohno (USA) assuming his new role as VP Technical. There were no other changes in the D2 Officers.

Highlights

The new version of the International Lighting Vocabulary (ILV) was held up because there was no agreement on the definition of "radiance". An ad-hoc Task Group comprising: VPP (Goodman), VPT (Schanda) and CB (Zwick) had reviewed the various proposals and prepared a succinct document outlining 5 possible options (one being the removal of all radiance terms) along with the opinions (for and against) these various proposals. To resolve this impasse, it was decided that a vote at the D2 meeting would decide which option would be implemented. The majority of members favoured Option 1 (i.e. the status quo with the definition from the previous version of the ILV). However, Canada favoured Option 3 (using a limit notation which is more mathematically correct and intuitive). I want to gratefully acknowledge the contributions of Alan Robertson who briefly attended the D2 meeting and provided further background and rationale for Canada's position. As a result, the majority of Country members were persuaded to favour a new compromise Option which gave the radiance definition as in the previous version, but included a Note that provided the alternate formulation using limit notation. This was widely approved with no negative votes and 2 abstentions (Australia, Switzerland).

Thus, with this issue resolved, the new ILV will be published at the end of August 2011.

Note: after the meeting, the new ILV was published as CIE Standard S017:2011/E.

Five(5) new TCs and three(3) new Reportership were established by D2 and approved by the Board. Two (20 TCs and six (6) Reporterships were closed/recommended for dissolution (see details below).

Editorial and publication activities over the past year:

- Publication 198:2011from TC 2-43 (*Determination of Measurement Uncertainties in Photometry*).
- The following documents were edited by the D2 Editor: TC2-32, TC2-40, TC2-48, TC2-60 and R2-38.

Proposals for New Technical Committees (5):

(1) Proposal by Georg Sauter based on the TC meeting of 2-43 (Determination of measurement uncertainties in photometry).

Title: The Evaluation of Uncertainties in Measurement of the Optical Properties of Solid State Lighting Devices, including Coloured LEDs.
TCC: Georg Sauter (DE)
TR: To expand the supplement to CIE 198-2011 to include further principles and examples for evaluation of the uncertainties associated with the measurement and testing of LEDs and other solid state lighting devices. Examples include distribution photometry, spectral measurement and derived quantities, goniospectroradiometry and other priority measurements as advised by industry.
Initial members: TBN
Note: after the meeting, the BA approved this TC as TC2-72.

(2) Proposal by Tongsheng Mou (CN) based on the work of R2-46 (Photobiological Safety Measurement of Lighting Products).

Title: Measurement of Quantities Relating to Photobiological Safety of Lighting Products.
TCC: Tongsheng Mou (CN)
TR: To prepare a Technical Report for the measurement of optical radiation related to photobiological safety of lighting products, focusing on LED products.
Initial members: TBN
Note: after the meeting, the BA approved this TC as TC2-73.

(3) Proposal by Jiangen Pan based on the work of R2-42 (Measurement of LED Luminaires)
Title: Goniospectroradiometry of Optical Radiation Sources
TCC: J. Pan (CN)
TR: To prepare a Technical Report on goniospectroradiometry to summarize measurement principles for evaluating radiometric, photometric and colorimetric quantities and related traceability.
Initial members: TBN
Note: after the meeting, the BA approved this TC as TC2-74.

(4) Proposal by J-L Yu on the work of R2-47 (Photometry of curved surface sources)
Title: Photometry of Curved and Flexible OLED and LED Sources
TCC: Hsueh-Ling Yu (TW)
TR: To prepare a CIE recommendation on methods for the characterization of photometric and colorimetric quantities of curved and flexible sources especially for OLED and LED, including traceability.
Initial members: Tonsheng Mou/Zhejiang U. (China), Thorsten Gerloff/PTB (Germany), Seung-Nam Park/KRISS (Korea), Hiroshi Shitomi/NMIJ (Japan), Meena Lysko/CSIR (South Africa), Hsueh-Ling Yu/ITRI (Taiwan)
Note: after the meeting, the BA approved this TC as TC2-75.

(5) Proposal by P-T Chou on the work of R2-48 (The measurement of AC-driven LEDs)
Title: Characterization of AC-Driven LED Products for SSL Applications
TR: To prepare a technical report on existing material and regional classification systems of Photometers and to recommend a CIE classification system.
TCC: Pei-Ting Chou (TW)
Initial members: TBN
Note: after the meeting, the BA approved this TC as TC2-76.

Those interested to become a member of the new TCs, should fill out the form on the D2 website (www.cie.co.at/div2, under DOCUMENTS and FORMS near the bottom) and send it to TC chair following instructions in the form.

Proposals for new Reporterships (3):

(1) Proposal by G. Eppeldauer
Title: Standardization of Broad-Band UV Measurements
Reporter: G. Eppeldauer (US)

TR: To investigate the needs and feasibility for standardized spectral responsivities and spectral distributions of UV sources for uniform and reproducible calibration of broadband UV meters.
Scope of the work: The CIE standardized rectangular UV-A function can be realized only with large spectral mismatch errors. The spectral power distribution of 365-nm excitation sources has not been standardized so that readings made with different types of UV meters, even if they measure the same UV source, can be very different. The spectral responsivity of commercially available UV detector and UV meters are very different. The broad-band signal measurement errors are to be evaluated based on spectral characteristics of UV sources and detectors. Development of a calibration measurement standard is needed based on both the source distribution and the meter spectral responsivity to perform uniform broadband UV measurements with low uncertainty. The standard must be developed such that it can be applied for new and existing UV irradiance meters and UV sources.

(2) Proposal by T. Bergen
Title: Metric for Comparison of Luminous Intensity Distributions
Reporter: T. Bergen (AU))
TR: To investigate the need for recommended calculation methods for comparing luminous intensity distributions, resulting in a metric that can be used as a quality index. The report shall include results of comparisons undertaken in multiple laboratories using a variety of lamps and luminaires.

(3) Proposal by J. P. Wang
Title: Characterization and Measurement of LED Lighting Sources with Dynamic Control
Reporter: Jian Ping Wang (CN))
TR: To prepare a CIE recommended method for characterization and measurement of LED lighting sources with dynamic control, including power consumptions, optical performance and photobiological effects relating with health issues.

Dissolution and Changes of TCs and Reporterships

- Two TCs closed:
  - TC2-19 (Johnson); no recent progress; useful material to be posted to Col/Tool
  - TC2-43 (Sauter); work has been finished; proposal for new TC (see TC proposal 1)
- Six Reporterships closed/recommended for closure:
  - R2-34 (Rastello); work has been finished and published in Metrologia; list of publications to be posted in ColTool
  - R2-40 (Pointer); work is finished; ISO 10617:2010 published.
  - R2-42 (J. Pan) has finished work and proposed a new TC (see TC proposal 3); formal call for closure of this reportership will take place by email vote.
  - R2-46 (T. Mou); has finished work and proposed a new TC (see TC proposal 2); formal call for closure of this reportership will take place by e-mail vote.
  - R2-47 (Hsueh-Ling Yu); work has finished; proposal for new TC (see TC proposal 4).
  - R2-48 (Pei-Ting Chou); work has finished; proposal for new TC (TC proposal 5).
- *Note: after the meeting, there was an e-mail ballot for closure of Reporterships R2-42 and R2-46.*

- The Chair of TC 2-28 (Characterization of Spectrophotometers) has been changed to a Co-chair (T. Goodman, UK; T. Bergen, AU).

Summary of Progress of Technical Committees and Reporterships

Additional information on the terms of reference and membership for all Technical Committees and Reporterships can be found at the website: http://cie.co.at/div2

Progress in TCs: 2-29, 37, 40, 43, 47, 48, 58, 59, 60, 62, 63, 64, 65, 68, 69 and 71 (Sauter, AD)

TC2-29 Measurement of Detector Linearity (Eppeldauer). The DD read the report. The official title of the TC will not be changed; however, the content of the document covers mainly the nonlinearity of optical detector systems. The new Draft 11 describes the following chapters: Introduction; Definitions; Reasons for non-linearity, including Detectors; Detector: operating circuits; Measurement conditions; and DC detector signal measurement modes. Extension of the document is to be continued based on the updated Table of Contents.

TC2-37 Photometry using Detectors as Transfer Standards (Ohno). The TCC gave the report. The document is very close to the final and will be finished by the end of August.

TC2-40 Characterization of luminance/illuminance meters (Blattner). The TCC gave a report. The draft already passed the TC ballot and is now in D2 ballot since 6 June with deadline 1 August.

TC2-43 Uncertainty (Sauter). The TC Report has been published (CIE 198:2011 plus suppl.) as 5 documents: 1 main document and 4 supplements. The TCC held a TC meeting in Sun City and discussed other examples that could be included in further Supplements. The TCC proposed the creation of a new TC to further this work (see above).

TC2-47 Characterization and Calibration Methods of UV Radiometers (Sperling). The TCC gave a short report. The TC work is in progress. Recent measurements and calculations showed that the quality indices f_u and fr have to be revised. A revised draft will be available early September.

TC2-48 Spectral responsivity measurement (Eppeldauer). The DD reported that the TCC had completed the final draft after the Bern meeting. The draft (ED) went through the Div/BA ballot with deadline 2011-06-19. 42 comments received. Approval draft (AD) is being prepared. The next step will be the TC ballot.

TC2-58 Measurement of LED radiance/luminance (Kohmoto). Due to sudden illness of the TCC, there was no report available.

TC2-59 Characterization of imaging luminance measurement devices (Krüger). TC met in Sun City. The TCC presented the recent changes in Draft 1.50 and explained the procedure of the

"single point calibration". He also introduced the model of Uncertainty Contribution Images (UCI), which was decided in Bern to replace the internal modeling of camera systems.

TC2-60 Effect of instrumental bandpass function and measurement interval on spectral quantities (Wooliams). Report was given by VP Goodman. The TC had very active discussions on the draft by email until April, when TCC went on maternity leave until early 2012. TCC distributed Draft 5.1 (April 2011). Goodman was asked to follow up to complete the document during the period of her absence. The draft is almost in the final stage.

TC2-62 Imaging-photometer-based near-field goniophotometry (Steudtner). The TCC had planned to have a meeting in Sun City but it was cancelled because the TCC could not attend. The TCC will distribute a 2nd draft of TC report in September 2011 including major parts of the work prepared in the DIN draft. The TCC plans to have the next meeting in 2012.

TC2-63 Optical measurement of high power LEDS (Zong). This TC met in Sun City but was chaired by Ohno. Draft 1.1 was distributed at the end of June. At the TC meeting, the structure of the document and completed sections were discussed. The scope is mostly agreed with questions on some terms like high voltage LEDs. It was agreed that the recommend methods are based on Tj and DC methods only and do not include pulse methods (covered by TC2-54), and include (pure) luminous intensity, though LED averaged intensity will still be included. During the meeting, A. Poppe presented new standard proposals at JEDEC JC15 committee and points relevant to TC2-63.

TC2-64 High speed testing methods for LEDs (Heidel). This TC met in Sun City. The TCC presented a possible structure of the document to be prepared. During the meeting, P.-T. Chou and D. Konjhodzic presented their work on wafer testing and single chip testing which will be the basis for a chapter in the first draft. A. Poppe gave an introduction on thermal modeling which will also be a part of the document. It was decided to include electrical issues as far as they have influence on optical measurements. The TCC promised to send the first draft by the end of July.

TC2-65 Photometric measurements in the mesopic range (Goodman). This TC met in Sun City. The TCC reported that it was decided to start with measurement issues regarding applications in the field of road lighting where mesopic photometry is most important. However, some important questions, like the adaptation point in the field of view, have to be forwarded to D4 for clarification. To educate people and to avoid the use of inappropriate terms like "mesopic lumen", a small task group will work out a public technical note presented on the CIE website. An "Expert Symposium on Mesopic Measurements and Measurement Systems" is planned for the fourth week of January 2012.

TC2-68 Optical measurement methods for OLEDs used for lighting (Gerloff)**.** This TC met in Sun City. The TCC reported on the current status of investigations on OLEDs used for lighting. Flexible light sources, transparent OLEDs and OLED displays will be excluded from the report. Terminology for OLEDs, which was excluded in TC2-66 and the temperature issues which affect optical measurements will be discussed in the Collaboration Tool. The TCC will work out the structure of the document.

TC2-69 CIE classification system of illuminance and luminance meters (Blattner). The TCC reported that he is still collecting existing documents on classification systems used within the various member states. After this process is completed, a side-by-side comparison will be worked out and discussed using the Collaboration Tool.

TC2-71 CIE Standard on test methods for LED lamps, luminaires and modules (Ohno). This TC met in Sun City. The TCC reported that this TC was established in May 2011 as part of a new strategy to produce CIE standards on SSL products. The aim is to work with CEN TC169/WG7 (Chair: Guy Vandermeersch) to develop a test method standard for LED lamps, luminaires, and modules and publish as CEN and CIE standards. At the meeting, a presentation was given by P. Blattner on the CEN project and G. Heidel introduced a project of DIN, complementing parts of the CEN project. The TCC also received a Japanese draft standard document from Dr. Shitomi. The membership structure was discussed and it was agreed to use the NCs to connect to manufacturers of SSL products.

Progress in TCs: 49, 50 and 66 (Vandermeersch, AD)

TC2-49 Flashing lights (Ohno). TCC gave report. The document is nearly finished and the final report will be ready for TC ballot by the end of August.

TC2-50 Measurement of the optical properties of LED assemblies (Distl). This TC met in Sun City with 42 participants (10 members). The TCC reported on the current status of the TC. The structure of the measurement section was discussed and it was decided to make an annex with examples of LED assemblies. The TCC will send out a 2nd draft prior to the next TC meeting.

TC 2-66 Terminology of LEDs and LED assemblies (Schanda). The enquiry draft technical report on this subject has been sent out for Division ballot with a closing date of 2011-09-06.

Progress in TCs: 2-17, 19, 28, 32, 51, 53, 56, 57, 67 and 70 (Zwinkels, AD)

TC2-17 Simulated solar radiation (Zerlaut). The TCC has prepared Draft 6, dated 2011-06-23, entitled "Standard Reference Solar Spectrum" which has been sent to the DE for editing. The TCC expressed his wish to resign due to lack of support and recommended that Daryl Myers of NREL, who supplied the solar spectral irradiance data tables in the report, to become the new TCC to complete the stages of bringing this TR to publication. The DD will follow up to ensure that the transition of TCC, if necessary, will take place with no gap in the continued TC work.

TC2-19 Spectral coefficient of retroreflection (Johnson). There has not been notable progress of the TC draft for the last several years. The draft is still not in complete form and its contents, which focus on intercomparison results, were considered outdated. D2 voted unanimously to close this TC; any materials from the TC that are judged to be still useful will be posted on the website.

TC2-28 Characterization of spectrophotometers (Goodman). The TCC reported that she is unable to complete this TR on her own and recommends that it be co-chaired with Tony Bergen

(Australia), who is willing to provide substantial assistance in completing this draft which still needs a few items. The target is to send out the complete draft to TC members by the end of the year.

TC2-32 Wet horizontal road markings (Johnson). The TCC reported that the draft is, in principle, ready for ballot. However, some comments made by the DE on the WD have still not been addressed in the CD. In case of positive vote of the TC, an Enquiry Draft will be produced soon and sent out for BA and D2 comments.

TC2-51 Multi-channel spectrometers (Young). This TC met in Sun City. The TCC changed in 2010 and reported that the Draft 3 of the TC report, prepared previously, is outdated. The TCC will provide the next draft with no missing sections by the end of June 2012.

TC2-53 Multi-geometry measurements (Roesler). The TCC sent a report. Draft 4 of part 1 on Measurement is nearly finished. Part 2 on Metrics for visual correlation will need more work and help is welcome. Distribution of Part 1 to TC is expected before Sept. 2011. The final draft is estimated to be ready before Nov. 2011.

TC2-56 Standard on retroreflectance (Miller). The TCC sent a report. The TCC made many revisions to the current draft. The new version will be sent out very soon. Once it has been reviewed by TC members, it will be submitted to D2 for review.
.
TC2-57 Revision of CIE S014-2 (Balázs Kránicz). B. Kranicz took over chairmanship from A. Robertson. There was no report available at the meeting.

TC 2-67 Photometry of lighting and light-signalling devices for road vehicles (vacant). TCC, G. Werner retired. Karl Manz, an active member, reports that a new chairman can possibly be found at the next meeting of the working group Photometry of the GTB which is expected to be held in Spring 2012, possibly in Sweden. He suggests c combined TC2-67/GTB meeting. It was suggested that K. Manz would be a good person to take over this TC.

TC2-70 Standards for the measurement of reflection and transmittance properties of materials (Rich).-This TC was officially established after BA approval in March 2011. The TC membership has been formed and the TC is ready to start its work with 17 members.

Progress of Reporterships

R2-32 Visual appearance measurement (M. Pointer).TC 1-72 organized a 2nd CIE Expert Symposium on this topic at Gent, Belgium in September 2010. Over 135 delegates attended from 22 countries. A host is now being sought for the 3rd Expert Symposium.

R2-33 Measurement of laser based projection displays (K. Niall, CAN). The reporter sent a comprehensive report at the last D2 meeting which was temporarily posted on the D2 website. The DD contact K. Niall but he is not ready to undertake a new TC. At the Bern meeting, T. Mou was asked about taking over this reportership if necessary. As a new TC will be considered in the future, the reportership is kept open.

R2-34 Methods for characterizing and calibrating detectors in photon counting regime (M. Rastello). This was closed (see above)

R2-38 Measurement of spectral properties of photometers and colorimeters (J. Pan). This reportership was closed in Bern but since then, its report was reviewed by the DE and was posted on the D2 website, then to the Col. Tool.

R2-39 Display measurement standard – liaison with ICDM (T. Mou). In Bern, the reportership was changed to T. Mou who gave a short PP. The 554 page IDCM document entitled "Information display measurement standard" is nearly finished. The ratification and reviewing process has been started.

R2-40 Spectral and colorimetric electronic data exchange (M. Pointer). This was closed (see above).

R2-42 Measurement for LED luminaires (J. Pan). See proposal (3) above for new TC

R2-45 Measurement of the illumination uniformity for critical applications (M. Lysko). No report was received.

R2-46 Photobiological safety measurement of lighting products (T. Mou). See proposal (2) above for new TC.

R2-47 Photometry of curved surface sources (H-L Yu). See proposal (4) above for new TC.

R2-48 The measurement of AC-driven LEDs (P-T Chou). See proposal (5) above for new TC.

Reports of Liaisons

I submitted written liaison reports for the two liaisons that I serve with other organizations. These liaison reports will be included as Attachments in the official D2 Minutes. These are:

ISO/TC6 Paper, pulp and board: optical properties *(*Zwinkels, CAN)

ISO/TC 145/SC2: N519 Safety colours and safety signs – Specification of colorimetric and photometric properties of materials (Zwinkels, CAN)

There were no action points arising from any of the ten liaison reports.

Future D2 Meetings and Symposia

2012 Hangzhou, Taiwan, 22-26 September 2012

2013 Open. Possibility: in conjunction with CIE Midterm Meeting in Paris, France, 12-19 April, 2013.

Canadian Participation in Division 2

Canada has representation on 11 Technical Committees:

TC2-28	J.C. Zwinkels, A.R. Robertson (NRC, retired)
TC2-43	A. Gaertner (NRC)
TC2-47	L.P. Boivin (NRC retired), B. McArthur (AES)
TC2-48	L.P. Boivin, B. McArthur
TC2-53	J.C. Zwinkels
TC2-57	J.C. Zwinkels
TC2-59	T. Moggridge (Westboro Photonics)-
TC2-60	J.C. Zwinkels, R.Baribeau (NRC)
TC2-63	V. Venkatarananan (UoT)
TC2-65	J.C. Zwinkels (NRC)
TC2-70	J.C. Zwinkels, N.Rowell(NRC)

Two Liaisons:
ISO TC6: Paper, Pulp, Board: J.C. Zwinkels (NRC)
ISO TC 145/SC 2 Safety colours and safety signs J.C. Zwinkels (NRC)

One Reportership:
R2-33: K, Niall (DCIEM)

COMMISSION INTERNATIONALE DE L'ECLAIRAGE
DIVISION 3 – INTERIOR LIGHTING AND LIGHTING DESIGN

2011 Activity Report to the Canadian National Committee
2011-October-04

Jennifer A. Veitch, Ph.D. – Canadian Delegate and Division Director (2011-2015)
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2011 Division 3 Meeting
The meeting was held on July 14, 2011 at the 27th Session of the CIE in Sun City, South Africa. I was in attendance, serving as Secretary and as Canadian delegate. Minutes of the meeting are available from me or on the CIE web site (http://div3.cie.co.at).

At the conclusion of the meeting, I left the role of Secretary and took on the role of Division Director for the 2011-2015 term.

Current Division 3 Activities
Completed reports and publications
No publications were completed between October 2010 and today.

Active TCs and Reporterships
Including decisions taken at the Sun City meeting, there are 12 active technical committees and no open reporterships in Division 3. Terms of Reference and current status of the committees are available on the Division 3 web site. *New activities are in italics.*

TC	Title	Chairman
3-25	Coordination and development of the IDMP and its data	N. Igawa
3-34	Protocols for describing lighting	J. Veitch
3-39	Discomfort glare from daylight in buildings	W. Osterhaus
3-42	Lighting design applications	K. Pero
3-44	Lighting for the elderly	Y. Akashi
3-45	Luminance-based design approach	Y. Nakamura
3-46	Research roadmap for healthful interior lighting applications	J. Veitch
3-47	Climate-based daylight modelling	J. Mardaljevic
3-48	CIE standard method of UF table calculation for indoor luminaires	P. Thorns
3-49	Decision scheme for lighting controls for tertiary lighting in buildings	P. Dehoff
3-50	Lighting quality measures for interior lighting with LED lighting systems	M. Knoop
3-51	CIE standard general sky guide	S. Darula
3-52	*Energy performance of buildings – Energy requirements for lighting*	*D. Schornick*

Key highlights of TC activities:
TC 3-43, Determination of discomfort glare, was closed following the publication of its report in 2010.

TC 3-34, which I chair, has a draft report under review by the Division Editor prior to its TC ballot. It is expected to go to its Approval Draft ballot (Division and BA) in a few months and be published by spring 2012.

Several TCs reported being close to having final reports: TC 3-39, 3-45, 3-48, 3-51. These committees had all met in the days prior to the Division meeting and had resolved technical issues. Their TCCs reported the intention to return home to complete the editing of their reports in a timely way.

The Chair of TC 3-42, Karen Pero, seeks additional members for the committee.

TC 3-46, which I also chair, has made little progress this year as committee members missed deadlines, but aims to have a first complete draft in spring 2012. The Division agreed to extend the life of this committee until the mid-session meeting in 2013.
TC 3-47 requested and was granted a longer term for its report (to 2014), as it will require time for scientists to validate new software.

TC 3-52 was established in spring 2011 by e-mail ballot. The committee (which has a Canadian representative, see below) will have its first meeting in Vienna at the Central Bureau in November 2011. No new committees were created during the Sun City meeting. Several ideas were discussed (see the Division minutes) and will be pursued by e-mail discussion over the coming months. The most active division members already sit on multiple TCs, and it was felt that these should finish their work before new committees were created.

Current Canadian Participation in D3 Technical Committees (October 2011)

TC#	Title	Canadian Members
3-34	Protocols for describing lighting	J. Veitch (Chairman); D. Smith (Corresponding Member)
3-42	Lighting design applications	K. Pero (Chairman)
3-46	Research roadmap for healthful interior lighting applications	J. Veitch (Chairman)
3-47	Climate-based daylight modelling	I. Ashdown (Member)
3-49	Decision scheme for lighting controls for tertiary lighting in buildings	C. Suvagau (Member); J. Veitch (Corresponding)
3-50	Lighting quality measures for interior lighting with LED lighting systems	E. Dikel (Corresponding)
3-52	Energy performance of buildings – Energy requirements for lighting	A. Rosemann (Member)

Other D3 Activities
Division 3 contributed to two workshops in Sun City. We partnered with Division 6 to moderate a workshop on Lighting and Health at which general issues related to this broad field were discussed. Notably, the discussion no longer concerns whether to adapt lighting recommendations to take non-visual effects into account, but turns on precisely which recommendations we might make within the bounds of existing empirical evidence. The other workshop concerned Discomfort Glare and was particularly focused on the search for a valid model to integrate discomfort arising from both daylight and electric light. Although this is primarily an indoor lighting concern, there are parallels with roadway lighting and sports lighting situations, as audience members reminded us during the session. Both workshops delivered final reports in August 2011 to the Central Bureau for inclusion in the Volume 2 of the Sun City proceedings.

Issues for Division 3
All Divisions and all technical committee chairs and members will need to familiarize themselves with the new CIE Code of Procedure and with the online collaboration tool (CollTool) that is to be used for TC business. The training sessions are available throughout autumn 2011; information is available from the Central Bureau (cie@cie.co.at).

CIE has been developing a broad network of associations with interests in lighting quality and energy-efficiency and in particular with the Global Lighting Forum (www.globallightingforum.org), an industry consortium. In furture it is expected that Divisions might be asked to form specific technical committees in response to industry requests to address a given topic. Exactly how this interaction is to work remains to be seen.

Next Meetings
WebEx meeting in Spring 2012
CIE Centennial and Mid-Session meeting, Paris, France, April 2013

DIVISION 6

PHOTOBIOLOGY AND PHOTOCHEMISTRY

Report to the Canadian National Committee
October 4, 2011

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Introduction

The Division 6 Annual Meeting took place on July 12, 2011 in Sun City, South Africa in conjunction with the 27th Session of the International Commission on Illumination. The meeting gathered 20 participants from 10 countries. Canada was represented by Dr. Jennifer Veitch from the Institute for Research in Construction, National Research Council.

Terms of Reference of Division 6: To study and evaluate the effects of optical radiation on biological and photochemical systems (exclusive of vision). The list of TCs, their terms of reference and current status is available on the Division web page: http://www.cie.co.at/div6/tcs.htm

Division Officers

New Director: (DD) Dr. John O'Hagan (UK)
Stepping down Director: Dr. Ann R. Webb (UK)
Associate Director, Photobiological Standards:
(ADD) Dr. Kohtaro Kohmoto (JP)
Associate Director, Photobiological Measurements and Dosimetry:
(ADD) Dr. Karl Schulmeister (AT)
Secretary: (DS) Dr. Andrew Smedley (UK)
Editor: (DE)

Report from the Director

Dr. Webb (DD) is standing down from her position. The current DE Dr. John O'Hagan has accepted to take over as Division Director, and is welcomed to the position. DD indicated that in light of this change, the position of Editor is vacated and that the incoming DD may want to reconsider the ADD posts (absent). The Division sent its best wishes to ADD Dr. Kohmoto who is unwell. For continuity, the current DS remains in post.

News from the Board of Administration (BA)

The CIE has created an International Network on Lighting Quality and Energy Efficiency to reposition itself. This includes the Global Lighting Forum (GLF), a group that represents the lighting industry and its needs. This will allow truly Global Standards to be created, but to do so CIE must act more quickly than in the past, as the

industry, especially Solid State Lighting (SSL) equipment and products, is moving very fast at present. GLF will provide input as to their perceived needs. The BA would like to make better use of Divisions and DDs. It is planned that the DD meeting will be a think tank and steering group, rather than just a reporting mechanism. As Division members are in close contact with industry and stakeholders they should be able to feed that information into CIE and increase the relevance of the CIE and its publications.

New Technical Committee (TC) Guidelines and Procedures
All TC Chairs (TCCs) and members should note that new Technical Committee Guidelines are now in force. These new guidelines are contained in a toolkit recently distributed by the DS and are available online. The aim of the guidelines is to assist TCs in their work by streamlining the process to produce final TC reports and subsequent publications. Together with the Collaboration Tool, (training was available at Sun City, required to be undertaken by all TCCs), this technology should help TCs progress and enable things to move forward without the need for face-to-face meetings. The guidelines are part of a new Code of Procedures, which also contains procedures for Divisions, and publications routes.

In particular, the procedures require the following:
• TCs must produce an agreed work plan including estimated timescales,
• Each TC must undergo a formal review of relevance every 4 years,
• TC membership requires formal application to reviewed annually. TCC are to keep record of active members for the publication author list. Members are to use the Collaboration Tool,
• TCCs are to be reviewed every 4 years, and are to serve a maximum of 8 years. TCCs must produce a short annual progress report of work completed in previous year, and
• CIE publications now make a clear distinction between authors and advisors.

The intention is to make the work of TCs easier, encourage more timely outputs and properly recognise contributions made.

Note that drafting stages of reports are now approximately aligned with those of other standards organisations:
• Now called working drafts, committee drafts, enquiry drafts
• Responsibilities and timescales at all stages are clearly defined
• Fast track procedure now available for selected standards
• Notation, formatting and numbering of publications now standardised
• All publications are now subject to a regular review (every 4 years) and are marked as current, superseded, etc.

These requirements are intended to help ensure ongoing quality and relevance of CIE publications.

TC Members
There is an issue with TC members; TCs, at the discretion of the chair, can invite observers. However, this should not be at the expense of slowing the work down. It is the CIEs' opinion that the CIE should not be a closed club and that inexperienced and young TC members can usefully contribute and learn at the same time by giving technical help, editing, figure production, etc.

International Lighting Vocabulary
The International Lighting Vocabulary (ILV) is now just about ready. It is awaiting one decision from D2 and then will be available on the internet. Once completed, it will need a system of rolling review, akin to that for publications. DEs shall check that all terms in received TC editing reports are included and correctly used in the ILV, and if not are noted for future inclusion.

Joint TCs
The BA recognises that a mechanism is needed for joint TCs, both internal and external (e.g. with IEC, CEN etc). This will be inserted in the CIE by-laws once decided upon.

Dissemination ideas
There is a suggestion that CIE members could write Wikipedia articles, with links to CIE documents. These articles would be considered as CIE publications, and would need to be approved through the short process. This

would also require agreement of Wikipedia because this stands outside of their regular editing method [DS]. In addition, it could offer training sessions associated with new publications. This would be carried out in person, but could be filmed and commercially available.

Format of Quadrennials
A different format than in previous years has been adopted. It is composed of conference sessions in the morning followed by Divisional and TC meetings in the afternoon. DD is asking whether this was preferred, or whether the old format of science sessions in the week, followed by TC business after the weekend was better or preferred. Comments and suggestions should be sent to the DD or DS.

Report from the Secretary

Dr. Smedley (DS) is requesting to be informed by members changing their contact details so that the Division records can be kept up to date. The request extends to anyone who would like to be on the D6 mailing list, but does not receive circulars at present.

All National Committees should check the Division website, hosted at http://div6.cie.co.at/, to ensure that the D6 representative information for their country is correct. Martina Paul at Central Bureau (CB) should be informed of any changes as well as the DS.

→ *Action: National Committees*

A warm welcome is extended to the new NC representatives.

A request is extended to older Technical Committees, while not specifically bound to follow the TC new guidelines, to make every effort to try to conform. The guidelines are intended to assist efficient and timely running of TCs. It is of benefit for Chairs of all open TCs to complete an annual progress report, with a timeline of planned work required for completion of the technical report, and a review of their active membership list. The information should be forwarded to the DS in advance of the next Division 6 annual meeting.

→ *Action: TC Chairs*

Report from the Editor

Dr. O'Hagan, standing down as DE, has sight of a number of drafts, particularly for some of the older TCs that are subject to the 2011 Closure Clause. The impacts affecting the TCs opened before 2003 will be dealt with on a case-by-case basis.

Progress Reports from Technical Committee Chairs

Reports on TCs have been provided by the TCC, a proxy or have been sent to the Secretary. Only currently open TCs are listed below.

Where the Division feels that TCs highlighted as "to be closed" should remain the subject of a technical report, there is, of course, the option of reopening the subject.

6-08 Guidelines for Obtaining Action Spectra.
TCC: David Sliney (USA).
The final draft of this TC has been completed, and is now subject to a committee vote. The DS has been informed that some TC members were difficult to contact. DS will assist so that draft can be passed to DE.

→ *Action: DS and TCC*

6-15 A Computerized Approach to Reflection, Transmission and Absorption Characteristics of the Human Eye.
TCC: David Jack Lund (USA).
This report has been completed and sent to Peter Zwick at CB along with the ballot form in May.

6-20 Phototoxicity in Domestic and Industrial Environments.
TCC: Neil Gibbs (UK).
No update has been received by the DS. No objections to close have been voiced. If needed, could always apply to be reopened.

→ *Action: To be closed*

6-21 Cataractogenesis by Low-Level Exposure to Ambient UVA Radiation.
TCC: David Sliney (USA).
Report was received by the DE and has now been returned to TCC to add some missing references. The report is almost completed, having passed the 'editor ready draft' test.

→ *Action: TCC*

6-28 Standardization of Sunscreen Testing: Method of UV-A Sunscreen Testing.
TCC: Uli Osterwalder (Switzerland) / Jean-Pierre Césarini (France).
TCC is awaiting input from TC 6-24. Deadline extended to 2013 although no update was received.

→ *Action: Extended to 2013*

6-33 Photoimmunological Effects Mediated through the Skin.
TCC: Edward C. de Fabo (USA).
Final draft was sent to CB some years ago and deemed "too technical", not sufficiently accessible. However, DD considers this an important subject. The old report is likely to be out of date. DD proposes closure. TC can be reopened with new TCC if deemed important in future.

→ *Action: To be closed*

6-36 UVR Protective Materials Used in Shading.
TCC: Natasha van Tonder Nel-Sakharova (South Africa).
No update was received by DS. Rheinhardt Sieberhagen intends to present report for TCC. TC report is completed. TCC is the only active member and so report requires review. Dr. Veitch suggested Dr. Deslauriers as possible reviewer. Dr. Gies or someone at Health Protection Agency (UK) may be able to assist. TCC should provide copy of report. DS should obtain a copy and get in touch with these possible reviewers.

→ *Action: TCC and DS*

6-37 Light and Retinal Disease.
TCC: David Sliney (USA).
Final draft is currently in committee vote. TC will continue until completion.

→ *Action: TCC to complete*

6-39 UV Radiation in Lighted Environments.
TCC: Kohtaro Kohmoto (Japan).
No progress report has been received from this TC. TC will be closed.

→ *Action: To be closed*

6-42 Lighting Aspects for Plant Growth in Controlled Environments.
TCC: Mojtaba Navvab (USA).
TC is active with TCC presented the committee's work and related results in a paper at the 27th CIE Session. TC closure extended to 2013.

→ *Action: Extended to 2013*

6-43 UV Water Disinfection
TCC: Alexander Cabaj (Austria).
TCC Cabaj has retired and no progress report has been provided to DS. No objection has been received to close this TC.

→ *Action: To be closed*

6-44 Illuminators for Treatment of Infant Hyperbilirubinemia.
TCC: Vacant ().
DD has received and edited draft. Draft was sent to Dr. Agati in Prof. Riccardo Pratesi (Italy) group for checking. A request was also sent to Dr. A. McDonagh by Dr. Sliney. According to Dr. McDonagh, the draft still needs some work as parts are in error. An invited speaker at the 27th CIE Session, Dr. Refuoe Pepenene, gave an oral presentation on the subject. The future of the TC will be clarified after DD contacts Pepenene.

→ *Action: DD to contact Dr. Pepenene for more info.*

6-45 Optical Radiation Hazard Measurements in the Work Space.
TCC: Robert Angelo (GER).
The TC has had long running issues with the European Committee for Standardization (CEN) that delayed things. A progress report has been received. Comments from TC members are being included in the final report. TC work to be extended until end of 2011.

→ *Action: TC to complete by the end of 2011.*

6-46 Standardized Action Spectrum for UV Disinfection
TCC: (Vacant).
TC has been taken over by Mr. R. Vincent, but no formal TCC. Mr. Vincent and Mr. Wengraitis planned to complete report, but no progress report has been received. DD proposed closure for now. Mr. Vincent can reopen later when he has time.

→ *Action: To be closed*

6-48 Typical Minimal Erythema Doses.
TCC: Janusz Z. Beer (USA)/ Sharon Miller, co-chair (USA).
TC ballot was unanimous on the final report. Contact was established with DE to finalise. The title will be changed to "Sensitivity of Human Skin to Ultraviolet Radiation, Expressed as Minimal Erythema Dose (MED)". Active member list has been received.

6-49 Infrared Cataract.
New TCC: Tsutomu Okuno (Japan).
No activity has been recorded since last year. A meeting was cancelled, as some active members could not attend. Mr. Okuno is relatively a new TCC. Closure deadline is extended to 2013. DS will inform TCC about the extension.

→ *Action: DS - Extended to 2013*

6-50 Photodegradation of Pharmaceuticals.
TCC: Hanne Hjorth Tønnesen (NOR).
DS was informed that TCC intends to simply merge two published scientific papers to draft the TC report. DD noted that this would give rise to copyright issues. DS will ask TCC about the content of the CIE report. If no additional material is added then the TC will possibly be closed.

→ *Action: DS - to clarify copyright issues*

6-51 Standardized Solar Simulator Spectral Irradiance for Sunscreen Testing.
TCC: Robert M. Sayre (USA).
No information has been received. TC will be closed.

→ *Action: To be closed*

6-52 Proper Measurement of Passive UV Air Disinfection Sources.
TCC: Richard Vincent (USA).
TCC Vincent requested extension to 2013 due to illness of key contributor and other delays. TCC is sending updated draft. TC will be extended to 2013.

→ *Action: Extended to 2013*

6-53 Personal Dosimetry for UV Radiation.
New TCC: Vacant ().
No activity.

→ *Action: To be closed*

6-55 Photobiological Safety for LEDs.
TCC: Werner Horak (GER).
TCC is the only active member and no comments have been received to recent circulation of final draft. DE has the draft for editing. The report is close to ballot and is clearly an important issue according to DD. TCC is unable to continue as TCC. TCC will send the members list. Other reviewers should be sought. Simon Hall (UK) could review. DS will liaise and assist.

→ *Action: DS and TCC*

6-57 Standardization of Terms and Action Spectra for Blue Light and Retinal Thermal Hazard Functions.
TCC: K. Kohmoto (Japan)
No activity. TC will be closed.

→ *Action: To be closed*

6-58 A Recommendation on Lower Limits for UV Exposure.
TCC: Wim Passchier (NL).
BA and DIV commenting stage has started. Comments received; TCC prepared to make changes in line with comments received. Close to completion.

6-61 Measurement of Radiation Using the Phytometric System for Plant Applications.
TCC: Gilberto J.C. da Costa (Brazil)
No progress report has been received at annual meeting. Brazilian delegates not present at Sun City. DS will chase for progress report.

→ *Action: DS*

6-62 Action Spectra and Dosimetric Quantities for Circadian and Related Neurobiological Effects.
TCC: Howard Cooper (France)
Preliminary report was expected by the end 2010, but no progress report has been provided in 2011.

6-63 Photobiological Strategies for Adjusting Circadian Phase to Minimize the Impact of Shift Work and Jet Lag.
TCC: Stephen Lockley (USA)
No progress report has been provided to DS. D3 has reportership on topic, but making contact has been difficult. It would be useful to vote but vote is not required. DS will enquire and inform the TCC.

→ *Action: DS*

6-64 Optical Safety of Infrared Eye Trackers Applied for Extended-Durations.
TCC: David Sliney (USA).
DS will chase for progress as Division expected this TC to be almost completed.

→ *Action: DS*

6-65 Photobiological Dosimetry for Low Level Laser/Light Phototherapy.
TCC: Terry L. Lyon (USA).
There are some issues with getting this TC opened. It has only effectively been opened since 2010.

→ *Action: DD*

6-xx/1-67 The Effects of Dynamic and Stereo Visual Images on Human Health.
TCC: Hiroyasu Ujike (JP)
This is a joint TC with D1, but D6 rep: Dr. Sliney is not getting feed back from D1. DD will talk to D1 about this.

→ *Action: DD*

Progress Reports from Reporters

R6-37 Definition of UV wavebands.
Reporter: Masako Sasaki (China)
The second draft is completed. Reporter hopes to finalise the work by 2012 and asked DD to provide comments.
→ *Action: DD*

R6-40 A survey of action spectra in the scientific literature: 19XX – 200X.
Reporter: Alois Schmalweisser (Austria)
Part 1 of the report was provided to DE in 2009. The rest was approaching completion in 2010. DS will find where editing is at and will request a progress report from Reporter. Then the best publishing route due to length of the publication will be considered.
→ *Action: DS*

R6-41 The issues of vitamin D kinetics.
Reporter: Irina Terenetskaya (Ukraine)
A new reportership was proposed in 2009. No update was received. DS will enquire about the status.
→ *Action: DS*

Liaisons with ICNIRP, CEN, WHO, IEC and ISO

There are no liaisons to report. CB has created much closer links with IEC and ISO. CIE TCs are now included in IEC and ISO work programmes so CIE should be much more visible in their meetings.

Proposals for dissolution of TCs and reporterships

In line with the 2011 closure clause, several old and inactive TCs will be closed as indicated above. Others have their deadline extended for the most part this is until 2013. This should bring them in line with the next completion or closure criteria as outlined at the last Division meeting: i) - TCs started in the 2003 to 2007 cycle are requested to have submitted the final draft for balloting by the mid-sessional in 2013, providing that they are demonstrably still active; ii) - TCs started in the last quadrennial cycle (2007 to 2011) continue for now.

Older TCs, i.e. pre-2003, that are almost completed are expected to enter the balloting process without any undue delay.

Proposals for new TCs and reporterships

TC 6-55 TCC suggested a TC on the remaining safety issues of LEDs, keeping comparison to conventional light sources, in particular with regard to glare. Prof. Tongsheng Mou (China) suggested that the subject could be health and safety of total environmental exposure. DD indicated that such a TC would have to work with Division 2. Dr. Jennifer Veitch noted that there is a need for a mechanism for Divisions to collaborate to address the measurement issues and report on healthy lighting.

The UV index is currently being reviewed by WMO/WHO. DD noted that Dr. Richard McKenzie (New Zealand) has presented a draft report to WMO concerning the units used in UV exposure. WMO is also a standards body and asked if CIE would agree to a joint TC, leading to a future standard. UV is sometimes reported as unspecified wavebands, sometimes as Vitamin D weighting and overall can be quite unclear. McKenzie's draft gives more details of the problems and suggests new units, akin to the erythema dose, i.e. related to SI units that are not person specific. Consensus is that CIE should be involved. DD will take back a positive message to WMO, although inter-organisational procedural issues will have to be resolved. This should

be helped by fact that DD is WMO liaison and also Chair of WMO's Scientific Advisory Group on UV radiation (UVSAG). This may need fast tracking and DD will look at process and formulate Terms of Reference.

Review of Division Publications

CB is requesting that Division Publications be reviewed on a four-yearly cycle. The Division is particularly considering older publications that may require updating, or be better archived. DD requests that those receiving a request to review a publication respond in a timely fashion and indicates that it should not be a too onerous task. It should be simple to consider whether the publication is still current, requires a fuller review, or should just be archived.

Dr. Rolf Bergman (USA) questions how to deal with IEC cross TCs, who does labelling, how the voting track operates, who can make modifications? The DD is aware of this issue and will talk to the CB.

→ *Action: Dr Webb*

The review of CIE S009 "Photobiological Safety of Lamps and Lamp Systems" is progressing with Dr. Bergman, Dr. O'Hagan and an active group. There was a meeting in Seattle with general agreement except for two numbers in a table. Blue light is a major problem and the contention is elsewhere. Review also addresses continuous wave LEDs that are pulsed and definitions of what the two concepts mean. A TC vote is expected by the end of 2011. ICNIRP standard is not out yet.

Future Division Meetings

2012 – Next year's meeting is left with the incoming DD to organise. Usually the D6 meeting venue is chosen to coincide with a larger conference of relevance to Division 6. If Division members have any suggestions for a venue, they should contact the DS and new DD. The DS will circulate details once a date and location are chosen.
2013 – The mid-sessional and Centennial meeting should be held in Paris (April 12 to 19, 2013).

Closing remark

Our most sincere thanks are going out to our standing down DD Dr. Ann Webb for her hard work over the last eight years.

Canadian members and chairs of D6 Technical Committees

TC 6-49 A.P. Cullen

TC 6-55 J.D.Y. Deslauriers

TC 6-62 M. Dumont

The CIE Division 8 "Image Technology" and its Activities in 2010/2011

Report to the CNC-CIE, 4 October, 2011

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1- Highlights

The CIE Division 8 Image Technology division meeting took place in Sun City, South Africa on 12 July 2011. It was chaired by outgoing Director, Sabine Süsstrunk with incoming Director, Jan Morovic present by Skype. It was attended by 20 persons. Dr. Alan Robertson represented Canada in my place as Division 8 member. Jan Morovic wants to revitalize D8, create new TCs, attract new participants and provide better online presence (Google, Wikipedia, Facebook, Twitter etc). Reports were received by TC chairs, and some details are given in Paragraph 3 below. There were no proposals to open or close a TC or Reportership. An "informal" meeting was also held during the IS&T/SID Color Imaging Conference in San Antonio, TX, USA in November 2010, with minutes available from D8 website http://div8.cie.co.at/ .

2- Organization

Terms of Reference:

To study procedures and prepare guides and standards for the optical, visual and metrological aspects of the communication, processing, and reproduction of images, using all types of analogue and digital imaging devices, storage media and imaging media.

Domaine d'activité:

Etudier les méthodes et préparer des recommandations et des normes, relative aux aspects optiques, visuels et métrologiques de la communication, du traitement et de la reproduction des images, applicables à tous les types de dispositifs d'acquisition, de conservation et de restitution, aussi bien analogiques que numériques.

Web sitehttp://div8.cie.co.at/

2.1 Division Officers

Director of Division Jan Morovic
Secretary of Division Po-Chieh Hung
Editor of Division Ann McCarthy

2.2 Official Division Members

Canadian Member: Réjean Baribeau

2.3 Liaisons

CIE Division 8 has liaisons with the following organizations and liaison officers:

ISC/TC42: Photography (Mike Pointer)
ISO/TC130: Graphic Technology(Danny Rich)
ISO/IEC/JTAG2:Joint Technical Advisory Group (JTAG) 2 for Imagery(J. Schanda)
ICC -- International Colour Consortium (Cacant)
IEC/TC100 Multimedia Equipment and (Danny Rich)
ASTM/E12 Color and Appearance (Mike Pointer)

2.4 Publications and Technical Reports from Division 8

CIE 156-2004, Guidelines for the Evaluation of Gamut Mapping Algorithms (TC8-03)
CIE 159:2004, A Colour Appearance Model for Colour Management Systems:
CIECAM02. (TC8-01)
CIE 162:2004, Chromatic Adaptation Under Mixed Illumination Condition When Comparing Softcopy and Hardcopy Images (TC8-04)
CIE 163-2004, The Effects of Fluorescence in the Characterization of Imaging Media (R8-05)
CIE 168:2005, Criteria for the evaluation of extended-gamut colour encodings (TC8-05)
The work of TC8-06, Vocabulary, has become part of the revision of CIE Publication 17, International Lighting Vocabulary.
CIE 162:2010: (incl. Erratum 1): Chromatic Adaptation under Mixed Illumination Condition when Comparing Softcopy and Hardcopy Images.
199:2011: Methods for Evaluating Colour Differences in Images.

2.5 Technical Committees

TC8-02: Colour Difference Evaluation in Images – to be closed

TC8-07: Multispectral Imaging
TC8-08: Spatial Appearance Models – to be closed
TC8-09: Archival Color Imaging
TC8-10: Office Illumination for Imaging
TC8-11: CIECAM02 Mathematics
TC8-12: Video Compression Assessment

2.6 Reporterships

R8-08 Image Appearance Model Framework (M. Fairchild) – to be closed.

3- Technical Committees work in progress

TC8-02: Colour Difference Evaluation in Images

Terms of Reference:
To study, develop and standardize methods to derive colour differences for images.

Chair: Ronnier Luo
Web site: http://www.colour.org/tc8-02/

The technical report has been published at the end of 2011. The Summary/Résumé are:

SUMMARY
This Technical Report is concerned with the evaluation of colour differences between two similar images where the output media and the output viewing conditions are similar for both images. It is based on previously published work by CIE and other experts in this field. The report begins by reviewing the factors affecting the evaluation of these colour differences. Various methodologies are described to evaluate colour differences using both visual and instrumental methods. A series of reference colour digital images are presented. A method for statistically analysing average colour differences is described. All the activities of the Technical Committee in charge of this report are finally summarized and recommendations are made to apply either CIELAB or CIEDE2000 for evaluating colour differences for a pair of images displayed in the same medium side by side under the same illumination conditions.

TC8-07: Multispectral Imaging

Proposed Terms of Reference:
To study, develop, and recommend encoding techniques and data formats for the exchange of multispectral images, and to provide test procedures for the evaluation of multispectral imaging systems..

Chair: Dr. Yamauchi

in replacement of Dr. Jussi Parkinen

This TC was formed in 2002 and was to cover the following subjects:
1. Spectral test sets
    1.1 data sets for simulation and testing,
    1.2 definition and fabrication of an experimental spectral test chart,
    1.3 test chart of pairs of metameric colors.
2. Definition of sets of color matching functions of typical human observers to be used in multispectral imaging systems for the definition of observer metamerism.
3. Encoding of multispectral image data
    3.1 linear encoding and quantization,
    3.2 nonlinear encoding and quantization,
    3.3 mixed spectral and spatial encoding.
4. Definition of data formats for the exchange of multispectral image data.
5. Recommendations for the definition of quality of a multispectral system and test procedures.

A TC meeting was held in conjunction with SCIA2009. At that meeting Markku Hauta-Kasari introduced the status of the Technical Report preparation for the definition of the multispectral image format. He has the forms from CIE and is contacting the groups who proposed spectral image formats to begin writing the technical report

TC8-08: Spatial Appearance Models for High dynamic range

Terms of Reference:
To study high-dynamic range imaging and to provide methods and examples for evaluating spatial appearance models for such images. The priorities are to provide the community with techniques for testing and improving existing algorithms, as well as providing a repository for hosting HDR images and tone-mapped versions (as well as experimental results) of said images.

Chair: Garrett Johnson

This TC was closed as there has been no report for the last three years.

TC8-09: Image Archiving

Proposed Terms of Reference:
To recommend a set of techniques for the accurate capture, encoding and long-term preservation of colour descriptions of digital images that are either born digital or the result of digitizing 2D static physical objects, including documents, maps, photographic materials and paintings.

Chair: Robert Buckley

The TC is collaborating with the US Federal Agencies Digitization Guidelines Initiative, which is a collaborative effort to establish guidelines for the digitization of static visual materials by agencies of the US government. Several members of this initiative are TC members.
In early review of the results from the survey conducted in 2009, the committee recognized that one encoding will not meet the needs of all use cases and content types. Rather than focus on one particular use case and content type combination, the committee will review a range of encoding methods, including spectral and tristimulus based methods, and discuss the applicability, practicality and risk of each in digitizing originals for use cases from the cultural heritage community.
Working with the Still Image Group of the Federal Initiative, the committee initially is concentrating on practical solutions that concentrate on existing RGB and other tristimulus-based methods to encode the data from imaging content in a manner that has a known accuracy, can create an accurate representation of the object when displayed, and where the encoding model is sustainable. A table comparing evaluations of Raw, XYZ, LAB and various RGB encoding exists in draft form.

A Technical Report is planned for 2013.

TC8-10: Office lighting for imaging

Terms of Reference:
To report on the spectral power distribution and illuminations levels used to view images in office lighting conditions. The report is to be based on empirical research.

Chair: Dr. Yasuki Yamauchi

A reference light source fixture, for use in comparing measurements to the common reference, has been constructed and circulated to test locations in US, Europe, and Asia. A detailed experimental procedure to use for measuring office illumination characteristics has been written and used in a US, European and Asian locations. The data collected so far has been evaluated with the result that confidence is gained in the measurement procedure and in the value of the reference light source.

Circulation of the reference light source was re-scheduled, and it completed after getting 4 new data in US/Canada, 6 in EU (Switzerland, Netherland, France and Germany). Oceania and Africa are the last two world areas that are not measured. As for the measurement in Oceania, it is going to be scheduled. As for the measurement in Africa, the Chair is planning to contact the CIE President.
Discussion on how to analyze the data has been started. Due to the Chair's unexpected move from industry to academia, the activity of TC has been unfortunately slowed down. The initial trial for categorizing the data into several groups has been done, and it was reported in Green's talk at AIC, but it has not discussed in detail.
Moreover, no progress has been made in how to use the measurement data obtained with a reference light source. It is assumed that the same light source, which served as a standard,

should always emit consistently, it is possible to calibrate each measurement instrument by compensating the data.

TC8-11: CIECAM02 Mathematics

Terms of Reference:
To improve CIECAM02 model to avoid the mathematical inconsistencies; to enable CIECAM02 to work in colour management applications.

Chair: Changjun Li (GB).
At the fall 2009 meeting, the Chair of Changjun Li gave an overview of the history of the committee, including the work of Gill, Süsstrunk, and Brill. Then, M. Mahy gave a presentation on the feasibility regions in chromaticity space for test and reference colors under various conditions.
The following was decided as the way forward:

1. A new version of CIECAM02 with the HPE primaries used in place of any version of CAT02 should be vetted. Then, the documentation of the model should be rewritten to reflect the simplification. (Several matrix operations will go away.)
2. The corresponding-color data sets that were used to validate CAT02 should be compared with the predictions of HPE-based chromatic adaptation to discover how much change is made in prediction quality relative to CAT02.
3. Graeme Gill's CIECAM02 modifications should be reviewed and tested. Starting from any point in the valid domain (inside the spectrum locus), if one uses HPE adaptation, one will never encounter most of the pathologies noted by Gill. However, the model may still benefit from Gill's repair of the post-adaptation infinite-slope problem:

The present goal is to develop an interim standard until further improvements can be made. Specifically, the two remaining issues are anticipated to be:

1. Improving the robustness of the revised appearance model to the use of arbitrary range points such as might be commanded in a color-management system.
2. Improving the predictive accuracy of the chromatic adaptation model.

A Technical Report is planned for 2013.

TC8-12: HVS-based quality assessment for video imaging Video Compression Assessment

Terms of Reference:
To establish and report on the display and viewing conditions and materials for video compression quality evaluation in different applications including, but not limited to, web, mobile phones, HDTV, home cinema and digital cinema.

Chair: Christine Fernadez-Maloigne (FR).

The overarching project name is HAVPQoS (End-to-end Hybrid Audio-Video Perceived Quality of Handheld Services).
The project is addressing the following key issues:

- Scalability.
- Audio–Video coding, adaptation and transcoding.
- IPMP and digital right management.
- Network QoS to Perceived QoS mapping
- End-to-end Perceived QoS (subjective test methodologies and objective implementation).

An update on the TC's progress was given at the March 2010 Vienna.

4- Reporterships

R8-08 Image Appearance Model Framework (new)

Prof.. M. Fairchild

The reporter resigned and the reportership will be closed.

5- Canadian Participation

Byron Jordan	TC8-10
J. A. Veitch	TC8-10

COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

Canadian National Committee Comité National Canadien

56th Annual CNC/CIE Meeting
2011–October–3

Joint CNC/CIE – USNC/CIE Technical Conference

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CNC/CIE – USNC/CIE Technical Conference

National Research Council

Ottawa, Ontario

3 October 2011

Abstracts

Paper #1
The CIE Colorimetry Standards

Alan R. Robertson
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The CIE series of six Standards covering the basics of colorimetry is now almost complete. This talk will describe the rationale for writing the Standards, summarize the contents and discuss some of the trials and tribulations involved in writing them.

Paper #2
Consideration of Meta-Standards for Color Rendering Metrics

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There is compelling, largely agreed-upon evidence that the CIE Color Rendering Index (CRI) is not a sufficiently accurate measure of the fidelity of color rendering. This has become particularly evident with the consideration of white light sources employing several narrow band light emitters. Although there are numerous suggestions for improving the CRI, the CIE has had difficulty reaching agreement on this matter. In this presentation an approach is suggested for reducing the difficulty, which is first to agree upon meta-standards for evaluation of proposed replacement metrics. Most experts already agree with the most basic requirement, which is the need to avoid ranking error. That is, if one light source is perceived, by most people, to render colors more accurately than another light source does (when both are compared to the color rendering of a defined ideal source), then the metric should not reverse that ranking. However this meta-standard, when taken alone, is not very discriminating because of the diversity and variability of human perception. As a result, secondary supplemental meta-standards are needed to make a selection decision. To be helpful, they should ensure that any new metric will be sensible, practical and will not cause undesirable unintended consequences in the future optimization of light source spectra. There already are proposed metrics for color rendering that satisfy all of these meta-standards to some degree. Therefore, it is hoped that if such meta-standards can be agreed upon, it will be possible to make quicker progress toward a significantly approved, widely accepted, replacement metric for the CRI.

Paper #3
Goniocolorimetry of diffusely reflecting and regularly reflecting surfaces.

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A new gonioreflectometer has been developed at the National Research Council of Canada to measure the angular variation of colours from reflecting surfaces. It incorporates a five-axis robot manipulator that holds the sample, a rotation stage that holds an extended uniform light source of precisely known emitting area, and an array spectroradiometer that measures the reflected radiance from the sample, which is compared to the radiance of the source itself to allow the calculation of the Bidirectional Reflectance Distribution Function (BRDF) from first principles. The BRDF is then used to predict the colour appearance for Standard illuminants such as daylight D65 . The system can be used for either diffuse or shiny samples, and in the later case the regular reflectance of the material is obtained. The system has the advantage of being very fast compared to other techniques thanks to the inherent diode array parallel processing. Examples of use will be given for two cases of iridescent samples: diffuse surfaces that incorporate interference pigments and shiny Atomic Layer Deposited thin films.

Paper #4
Cross-referencing Calibration Standards in a Photometric Laboratory

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Photometric laboratories normally have illuminance meters, luminance meters, irradiance standard lamps, candlepower and lumen standard lamps. These devices all require scheduled calibration. Cross-referencing these standards in the photometric laboratory would help screen out poor calibration devices and increase the reliability of commercial photometric reports. Illuminance meters are reliable and easily maintained to 3% expanded uncertainty. This paper would describe how an illuminance meter could be used as the centre device for cross-referencing other standards.

Paper #5
EPA Energy Star Certification for Lighting Products

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rolf.bergman@sbcglobal.net

Over the last year or so the US Environmental Protection Agency (EPA) has revised the Energy Star requirements for lighting products. A major change from previous DOE Energy Star rules is the requirement that Certifying Bodies (CBs) be the major interfaced between the manufacturer and EPA. In addition the Accrediting Body (AB) which previously was limited to the National Voluntary Laboratory Accrediting Program (NVLAP) has now been opened up by EPA to allow other ABs to accredited laboratories for making measurements on lighting products.

I will present lighting Energy Star requirements for EPA, manufacturers, laboratories, ABs and CBs from the perspective of a NVLAP assessor of lighting laboratories. The current requirements cover most lighting products, fluorescent, HID, halogen and particularly SSL products, including luminaires. I believe this to be of interest to the CIE NCs as some CIE documents are listed as part of the requirements for test methods that the laboratories must know and the AB must assess.

Paper #6
Advanced Lighting Technologies: LED Street Lighting in Rouyn-Noranda

André Laperrière
Laboratoire des technologies de l'énergie d'Hydro-Québec
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In the field of lighting technologies, LED technology is beginning to offer energy saving opportunities in some applications. But as with any new technology, we need to know how it works, its physical underpinnings and its limitations, among other things. The US Department of Energy and other bodies have started to promote use of the technology for street lighting. Some studies, however, have shown that caution should be used and that the energy savings are not as impressive as claimed in all cases.

Concurrent with a pilot project in the city of Rouyn-Noranda, a laboratory test campaign was conducted including measurements of photometric, colorimetric and electrical factors, including mesopic correction and nighttime vision, for both LED and conventional high pressure sodium (HPS) technologies. The City of Rouyn-Noranda conducted a survey regarding the pilot project. The analysis showed that it is possible to reduce electricity consumption from 130 watts (100 watt HPS lamp) to 55 watts with LED technology. However, illuminance levels diminish in comparison with previous levels. Nonetheless, luminosity levels in local streets were satisfactory. As for collector roads, i.e., roads that "collect" traffic flowing from local streets, illuminance levels were low. The laboratory tests, including numerical simulations, confirmed the performance observed in the field.

Thus LED technology provides adequate performance in some applications. With this rapidly evolving technology, new applications will become feasible. Caution is in order, requiring that findings be formulated with great care. This presentation will outline the issues that need to be taken into account in order to make informed decisions regarding the new technologies for street lighting.

Paper #7
The real lit environment: Measurements from NRC's POE of Green Buildings project

Benjamin J. Birt, Guy R. Newsham, Jennifer A. Veitch and Chantal D. Arsenault
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As part of a larger project on the post occupancy evaluation of buildings, we measured a range of parameters associated with the lit environment across 19 buildings. At 70 work stations, the reflectance of work station surfaces were measured, and lighting levels (and other parameters) logged over several days. General work station characteristics were also noted (e.g. luminaire and lamp type). At nearly 700 work stations, a "snapshot" measure was made of the desktop illuminance, illuminance on the sides of a cube at head position and HDR images taken of the occupant's field of view. The work station characteristics (window location, orientation, shading, etc.) were also noted. Accompanying the physical measures was an online survey about environmental satisfaction and other issues that was completed by nearly 1600 building occupants. We report the results of these measurements and discuss their implications to related lighting fields (modeling, design, systems control etc.).