CIE NEWS

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INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

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Proceedings of the 24th Session of the CIE Warsaw, Poland, 24 - 30 June, 1999

CIE 133-1999 ***ISBN 3 900 734 93 3***

Vol. I (Part 1 and 2):

This volume contains on over 700 pages the texts of the Invited Papers, Presented Papers, Presented Posters and Displayed Posters received at the Organising Committee by the deadline for inclusion in the Proceedings, as well as the introductions to the Workshops.

IN THIS ISSUE

Vol. II:

The second volume of the Proceedings contains on 164 pages the text of the Welcome Addresses, Officers Reports, Reports from the Closing Ceremony, as well as a list of participants.

It presents an overview on the technical work achieved during the quadrennium in the form of Quadrennial Reports, minutes of the Divisional Meetings and Workshop Reports.

Both volumes are available from the CB. The CB offers an introductory price of EUR 142,- for the two volumes. This offer expires on 2000-06-30. After this date the volumes will be available at the National Committees as every other CIE publication.

The Proceedings are also available on a CD-ROM containing all the papers in a searchable form (price: EUR 73,–).

The next CIE Session will be held in early July 2003 in San Diego, USA.

Education, a new CIE Project

After the Warsaw meeting the President of the CIE asked the new Board of Administration members to address different tasks within the CIE. In this respect he asked the Secretary to look into the question of education: what could be the task of the CIE to improve light and lighting education.

CIE dealt with the education question already in the past. Several decades ago CIE produced a slide collection and this was available for a considerable time. The collection became, however, outdated and is not available anymore. Several years ago a Technical Committee looked into the question of education, mainly into the subject of education and architecture. CIE 99-1992 “Lighting education, 1983-1989” is the publication this committee produced.

During the past decade the scope CIE is dealing with has enlarged considerably, and the Board of Administration decided to check what the role of CIE could be to improve light and lighting education in the new Millennium. It has been realized that lighting education has to be started at an early level in primary schools. Different demands exist at secondary school, trade school and university level, again tasks are different for art and architectural students, and for those studying physics, chemistry, electrical engineering, computer sciences, etc. As a first step it has been decided to collect information, what the pressing needs are, what curricula could be recommended.

An announcement was posted at the CIE Sounding Board, requesting the feed-back of interested persons who would be willing to help collecting information on the following subjects:

1) Set up a structure on educational material (e.g.: general education, trade and professional education, university courses in architecture, electrical engineering, arts, computer sciences, etc.).
2) Collect WEB sites where educational material can be found, and organize them according to point 1.
3) Provide help for students to find appropriate courses in the different areas of light and lighting.

It was a pleasure to register the willingness of over 60 persons to contribute.

As a next step a mailing-list was established, the text of the first message on this list should be reproduced here to the benefit of those who do not have Internet access:

1) First question: Why have you joined the group; what do you expect to achieve?

Please enumerate items where our group should provide information for CIE; which are the issues where the present educational system is not adequate. What are the most critical issues we should address.

2) For further discussions I would like to set up sub-groups, where single questions can be discussed in detail. A first list of items is:

- general education,
- trade and professional education,
- university courses in arts,
- university courses in architecture,
- university courses in electrical engineering,
- university courses in computer sciences.

Please add further items to the list and indicate in the list for which item you could contribute, and whether you are available to co-ordinate the efforts of the group. My intention is that the correspondence should go to the entire group, but in the subject area we will clearly describe the interest group (e.g. cie-edu: architecture), so that you can concentrate on the subject you are interested in, but have the overview of the whole subject.

Task of these sub-groups would be to work out model curricula for each group, and build up a data-base where educators could look for material for their courses (annotated bibliography of books, WEB sites, etc.). From CIE NEWS book reviews I know that even with well known authors one finds some small errors, and I find it very important to call the attention to such inconsistencies - even if this is not

the most easy task to do, without offending the author. But to get the information to the reader is more important.

3) Further items you would like the group to address. Please answer to above questions in a structured form:

Comments to

item 1)

item 2)

item 3)

I will try from time to time to summarise the discussion, and perhaps to provide some structure, will ask you to concentrate for a given period to one issue or the other. Please do not forget that we are a multidisciplinary, multi-language group, try to express yourself clearly using only basic English.

If you know about somebody, who is still desperate to join us, ask him/her to send me an e-mail to kntsj@almos.vein.hu and I will put the address onto the mailing list. Such requests should be accompanied by a short résumé of the activity of the applicant. Also if you think that you are no longer interested in the cie-edu mailing list activity, write directly to me, not to the mailing list!: kntsj@almos.vein.hu and I will take your name off of the list. (Getting on and off of the mailing list goes only via the moderator of the list, you cannot do it yourself.)

János Schanda, co-ordinator of the mailing list

Thus if readers of this CIE NEWS announcement think that they could contribute to one of the subjects enumerated – or have recommendations for further subjects and would be willing to work on them – they should contact the co-ordinator of the mailing list, Dr. János Schanda, Secretary of the CIE. Correspondence will have to go electronically, from time to time a summary will be published in CIE NEWS.

🕮 New Publications

New publications available from the CIE Central Bureau:

Guide to the Lighting of Urban Areas

CIE 136-2000 *ISBN 3 900 734 98 4*

The purpose of this guide is to supplement the lighting recommendations and standards for roads and areas of public use as detailed in the Publication CIE 115-1995. It replaces CIE 92-1992: Guide to the lighting of urban areas.

The recommendations cover the effect of light on night time crime and suggest lighting requirements for residential roads and community areas, industrial roads, central business districts and malls, pedestrian paths and access facilities and cycle tracks.

In addition to proposing levels of luminance and illuminance the recommendations consider aspects such as modelling of people and structures within the environment, the effects of glare and sparkle, suitability of light sources as far as colour appearance and colour rendering are concerned, the effect of the lighting on the environment and the general aesthetics of the lighting equipment used.

This publication is written in English, with a short summary in French and German. It contains 38 pages with 5 figures and 11 tables.

The Conspicuity of Traffic Signs in Complex Backgrounds

CIE 137-2000 *ISBN 3 901 906 00 2*

The purpose of this technical report is to summarise and review the literature concerned with the visual conspicuity of traffic signs in complex road environments and to make recommendations that will guide authorities in the design of traffic signs so that the signs will be noticed by drivers.

The report covers the topics of what is meant by visual conspicuity, how it has been measured and the factors that influence it. Recommendations are made, based on current knowledge, on what the traffic engineer can do to increase the conspicuity of road traffic signs during the day and at night-time.

This publication is written in English, with a short summary in French and German. It contains 40 pages.

Special Volume: 24th Session of the CIE Warsaw, 24-30 June 1999 Late Papers

CIE x017-2000 *ISBN 3 901 906 01 0*

The Proceedings of the 24th Session of the CIE, Warsaw, 24-30 June 1999, were published in two volumes, CIE 133-1999, containing the papers read at the Session, as well as the Introductory Papers for the Round Table Discussions. Volume 2 contains reports on General Functions, Divisional Meetings and Workshops.

Every effort was taken both on the side of the Organising Committee and the CIE Central Bureau to publish in these two volumes an accurate and up to date overview of CIE activities and contributions of its members. As this is most often the case, a compromise had to be drawn between completeness and timely publication, and thus several post deadline manuscripts had to be left out. These manuscripts had been collected at the CIE Central Bureau and it had been decided to devote a special volume, x017-2000, to these late papers and make them available to the CIE community.

Thus in this publication - which is not an official CIE Publication - you will find the text of 15 papers left out from CIE 133-1999, due to the fact that they were not available at the time of sending the volume to the printers.

The CIE Central Bureau hopes that with this special volume it not only contributes to the proper archiving of all the activities that took place at the 24th Session, but also provides to the interested reader a number of important papers.

The publication contains 62 pages.

Proceedings of the CIE Symposium '99 "75 Years of CIE Photometry"

CIE x018-1999 *ISBN 3 900 734 96 8*

The 1999 Symposium of the CIE was held at the Hungarian Academy of Sciences, Budapest, between 30 September and 2 October 1999, celebrating the 75th anniversary of the CIE photometric system. Papers dealt with the present photometric system, and discussed its shortcomings and possible extensions.

The presented papers and discussions made it clear that the 75 year old photometric system is still the internationally accepted basis for all visually significant light measurements. It defines one of the base units of the SI system, the candela, and as such it should have a permanent status also in the future. Contributions pointed out, however, that since 1924 great progress has been achieved that found only partly its way into CIE recommendations and standards. By now it is clear that one has to differentiate between foveal vision photometry, to be used when it is important to see and recognise small details, and a photometry that can help illuminating engineers to describe parafoveal vision, brightness perception in the lit environment and mesopic vision.

An introduction was presented by Dr. Hengstberger, at the time of starting the organization of the meeting Director of CIE Division 2 and now Vice President for Publication. Highlights of the meeting were: Professor Valberg, one of the leading scientists in vision research, described underlying vision research that makes the difference between flicker photometry based V(λ) and opponent colour channel influenced brightness perception understandable. Dr. McGowan's paper discussed the application of photometry in lamp industry. Prof. Rea dealt with the applicability of V(λ) based photometry for foveal recognition of tasks, also in the mesopic range, and possible extensions for parafoveal vision, where at mesopic levels a photometry based on a 10 degree observer with rod participation seems to be necessary. Photometry is important in interior design, this question and some of the necessary extensions of the present photometric system to cope with the requests interior designers have were dealt with by Prof. Loe. Papers by Dr. Blevin and Dr. Wallard explained the interaction between CIE and the Meter Convention and how new scientific results could find their way into the system of international units and measures. Dr. Walraven reported on the progress CIE TC 1-36 made to recommend a fundamental chromaticity diagram, and to provide data for the extension of the V(λ) function into the infrared. Dr. Sagawa, Director of CIE Division 1 showed in his closing paper the vision of a future photometer, which is an image photometer, where you can switch among a number of evaluation functions, depending on the actual task to be checked.

A printed Proceedings and a CD-ROM containing all the papers in a searchable form are available at the CIE Central Bureau.

CIE Draft Standard DS 008.2/E-2000 Lighting of Indoor Work Places

Good lighting will create a visual environment that enables people to see, to move about safely and to perform visual tasks efficiently, accurately and safely without causing undue visual fatigue and discomfort. The illumination may be daylight, electric light or combination of both.

Good lighting requires equal attention to the quantity and quality of the lighting. While the provision of sufficient illuminance on the task is necessary, in many instances the visibility depends on the way in which the light is applied, the colour characteristics of the light source and surfaces together with the amount of glare the system gives. In this standard opportunity was taken to specify for various work places and task types not just the illuminance but also the limiting discomfort glare and

minimum colour rendering index of the source. Parameters to create comfortable visual conditions are proposed in the body of this standard. The recommended values are considered to represent a reasonable balance, having regard to the requirements for safe, healthy and efficient work performance. The values can be achieved with practical energy efficient solutions.

Lighting requirements for indoor work places of a wide range of working environments are enumerated in 31 sections and numerous subsections in this Draft Standard, they include many areas of industry, agriculture, service, education, health care, entertainment, etc. The Draft Standard does not explain how lighting systems or techniques should be designed to optimise solutions for specific work places. This may be found in the relevant CIE guides and reports.

The draft standard has been sent to National Committees for comments and sales by interested parties. It is still subject to changes and may not be referred to as a CIE standard. When approved by CIE NCs, it will be published as a CIE Standard and later on eventually as a joint standard with ISO or IEC.

Joint ISO/CIE Standards

Road Traffic Lights - Photometric Properties of 200 mm Roundel Signals

ISO 16508:1999/CIE S006.1-1998

Erythema Reference Action Spectrum and Standard Erythema Dose

ISO 17166: 1999/CIE S007-1998

The CIE Standards S006-1998 and S007-1998 have been re-published as joint ISO/CIE Standards. These joint standards are now also available from the CIE Central Bureau.

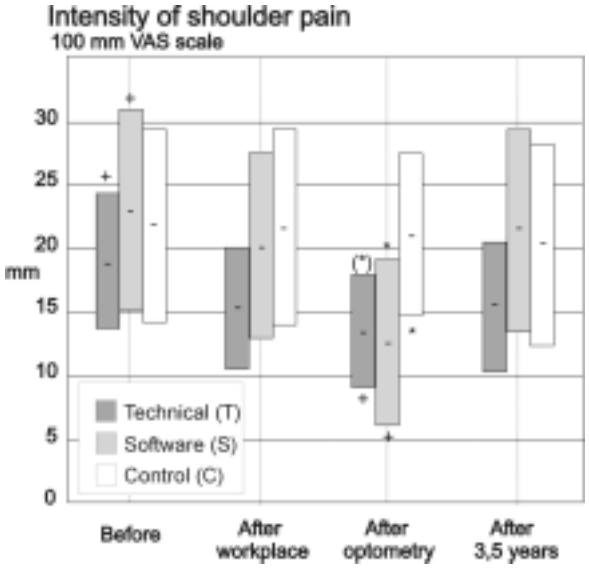
Errata to Publication 133-1999:

Proceedings of the 24th Session of the CIE Warsaw, Poland, 24-30 June 1999

Vol. I. Part 1.

"A comprehensive study of lighting, ergonomics and optometric interventions of workplaces for VDU operators", by Arne Aarås & Hans-Henrik Bjørset (pp 263-266)

On page 265, Figure 5 should be replaced by the following figure . The text to the figure was correct.



Vol. II.

A printing error was spotted on page 138: The Division 8 website address should read:

http:/www.colour.org

Errata to Publication CIE 135-1999:

CIE Collection 1999: Vision & Colour, Physical Measurement of Light and Radiation

A printing error was spotted on page 25:

In Table 1. Spectral reflection factors of virtual metamers for assessing the spectral quality of D50 simulators, by the CIE method:

Row 1. Last column (Wavelength 555, Metamer set 5): the correct value is 0,119.

New Publications in the Field of Light and Lighting

Colour in Computer Graphics, Lecture Notes and Photo CD, 2nd ed., 1998

Lindsay MacDonald

MacColour Ltd.

We received at the CIE Central Bureau a CD-ROM with 108 Photo CD pictures and accompanying notes written by Professor L MacDonald. The images are a substantially enlarged set of the 1st edition (36

pictures) and cover a wide area of colour in computer graphics. 12 pictures deal with human colour vision, they do not cover every aspect of colour vision, but help the tutor of a class to show some phases of colour vision. Similarly with colour models, it is not a complete treatise of colour models, but highlights some aspects of colour modelling. Further modules – 12 pictures each – deal with using colours in displays, art and design, psychology and perception, printing and reproduction, etc. To every picture a 10 – 15 line explanatory text is found in the lecture notes, helping the tutor to convey the message the expert writer intended to submit to the students. The notes contain for every section a number of suggested readings, an annotated bibliography of the subject. These slides and lecture notes are probably a must for every colour course teacher. It is highly recommended for all types of classes dealing with the physics, visual science or art of colour related to computer graphics.

This CD-ROM is reproduced and sold for education purposes only. Please contact Lindsay MacDonald (e-mail: L.W.MacDonald@colour.derby.ac.uk), if you are interested in receiving a copy.

Introduction to Radiometry

William L Wolfe

SPIE Optical Engineering Press, Bellingham, USA
Tutorial Texts in Optical Engineering Vol. TT29
1998
ISBN 0-8194-2758-6

A tutorial text on the fundamentals with which one of the CIE Divisions is dealing with, is always of major interest to CIE circles. This book deals with items falling into the area of Division 2, one of our Divisions dealing with subjects everybody has to know if he or she would like to work in CIE related disciplines. If the tutorial is a relatively short, concise treatment of the subject (some 180 pages), written by an expert of the subject, and based on the experience of the author giving short courses on radiometry, it certainly interests some wide circles of our society.

The book covers the fundamentals of radiometry. It starts with a short introduction to radiometric quantities. It was this chapter where your reviewer had to find some errors rather difficult to understand, as e.g. on p. 10, where the author writes: “Since visible light is so important, a special set of quantities has arisen for use strictly in that domain. These include the lumen, luminous intensity, illuminance,…”. Does the author think his audience is not able to distinguish between a photometric quantity and its unit, that he mixes a unit (lumen) into the enumeration of quantities?

Although the error comes back on p. 83, where in Table 9.2 , under “Photometric Names” you will find lumen, but not lux or candela. It enumerates otherwise correctly illuminance and luminous intensity. If, however, the unit lumen has been introduced here, then equation 2-8 should be written correctly, introducing Km as well.

The book discusses radiative transfer, the fundamentals of material-radiation interaction, sources and detectors, measurement of radiant flux, material properties and many other items. For such a short course treatise the author has to be selective, and Professor Wolfe probably had a special audience in mind when he selected the subjects he has chosen. In some areas one would like to argue with the author whether he has selected the most important issues for the subject or not. As e.g. in discussing different radiometric temperature definitions one would have liked to see the CIE definition of distribution temperature, a mention of correlated colour temperature (even colour temperature is dealt with very-very shortly, at least compared to some other quantities related to radiometric temperature descriptions).

The book must have been written for a very special readership, who appreciate the style and the examples the author uses. As an example I would like to take here not a scientific citation but one from the biography of the author: “ William L Wolfe was born in Yonkers, New York, at a very early age”. But let us give also an example from the tutorial part of the book: “The radiance of coeds (I like that term) is surely the number per unit area and per unit solid angle streaming out of the stadium”. Your reviewer seems to be much older by heart, and he does not like such examples, but this is a question of taste, and if Prof. Wolfe thinks that he can keep his readership more interested in the subject, one can live also with this style.

Summing up, the book is an eclectic treatise of radiometry, nobody should think that if he or she has learned what is in this tutorial, he is already and expert in radiometry, but some very useful information is available in this tutorial, and it can be recommended as a selective introduction or as an extension reading.

Distributed Multimedia through Broadband Communications

Daniel Minoli and Robert K Bellcore

Artech House, Boston – London, 1994
ISBN 0-89006-689-2

With CIE's recent involvement in imaging technologies the attention of our readers is growing towards multimedia and different applications of imaging. Although this book was published more than five years ago, and multimedia – a young subject – changed considerably during these years, the book is an interesting reading for everybody who would like to get an overview of the subject.

Main areas covered are: multimedia technologies and applications, the hardware components that made multimedia distribution available. A separate chapter is devoted to UNIX systems, although already in the introduction authors state that "in five years we can expect the same functionality and power on workstations and PCs". Further chapters deal with communication technologies, compression standards, and video-conferencing. The final chapter of the book shows examples of multimedia applications, in audio-video conferencing, CD-ROMs for learning different disciplines.

Electronic Imaging Technology

Edited by Edward R Dougherty

SPIE Optical Engng Press, Bellingham USA, 1999
ISBN 0-8194-3037-4

Another review deals with a book by Minoli and Bellcore, published five years earlier than this book. It is now interesting to see the progress in some of the subjects, covered in both books. Video compression standards reached some maturity, and it became clear which technique should be used in one segment of multimedia applications or in another.

In the present book one chapter is devoted to multimedia systems, now already based on PC architecture. The readers of CIE NEWS will probably be interested in the chapters discussing visualisation, vision and colour imaging processing. While the vision and visualisation chapter provides an interesting short overview of a number of visual perception phenomena, such as motion perception, interaction, contrast effects, cognitive influences, etc., the chapter dealing with colour image processing is far from what a CIE expert would like to see. In figure 5.5, e.g the colour matching functions are depicted (in an a little bit unusual form) and called "three colour components as defined by the CIE". Statements like "the three tristimulus values X, Y, and Z are directly related to the three primary colors of red, green, and blue" (see p. 127) will certainly not help the novice to understand colorimetry. Finally a sentence that "The sum of the tristimulus values gives the total luminance (brightness) perceived by the eye: L=X+Y+Z" provokes the assumption that not the proper author has been selected for the chapter. The question is of course whether for the chapters where CIE NEWS readers would like to learn new subjects the right author was selected or not. It is a recurring question with many SPIE Optical Engineering Press books why the optical parts show more problems than the chapters discussing electrical phenomena.

Also in this book the reviewer found chapters dealing with enhancement of digital documents, halftoning, document and word recognition, scanning and hardware architecture much better and more informative than chapters discussing optical phenomena.

Basic Electro-Optics for Electrical Engineers

Glenn D Boreman

SPIE Bellingham, 1998
ISBN 08194 2806-X

The book belongs to the "Tutorial Texts Series" of SPIE , it is Vol.: TT31. The text of the book evolved from the short courses the author gave on behalf of SPIE. It is not a comprehensive treatise of electro-optics, but a collection of six subject areas the author found important for engineers who have to deal with optical and electro-optical components.

The first chapter deals with geometric optics, it provides an overview how a lens functions, how focusing with lens systems can be built up in the laboratory. It covers items a high-school student should know, but it is a good recapitulation for somebody who has learned the subject a long time ago. Modulation transfer function is discussed in Chapter 2, again a very basic approach, but useful. In Chapter 3 the author tries to summarise the fundamentals of radiometry on 15 pages. As such it must be very selective, it deals with items the author found basic for his laboratory work. The next two chapters discuss sources and detectors of radiation. In the Chapter on sources your reviewer found it somewhat short that the author discusses only blackbody radiation and emissivity. For a practical book under sources of radiation one would expect the discussion of different types of sources and their characteristics, used in the laboratory. The Chapter on detectors is a little bit more detailed, emphasis is

on electro-optical properties, as e.g. noise. The functioning of different detector types is discussed very briefly. A final Chapter on lasers gives very little information on the lasers themselves, but provides some basic knowledge on laser radiation properties.

The author is probably right when he states that the book is “most likely to be useful in an entry-level, laboratory-oriented setting”. “The treatment is at an elementary conceptual and computational level”. The only exception to this is perhaps modulation transfer function calculation and noise of detectors.

Nevertheless it is a well written booklet and can be recommended to those, who would like to get a first quick introduction on how things function in an electro-optical laboratory.

Color Technology for Electronic Imaging Devices

Henry R. Kang

SPIE Opt. Engng. Press, Bellingham, 1997
ISBN 0-8194-2108-1

The first six chapters of the book provide a short introduction to the fundamentals of colour science and colour processing. The first chapter deals with colour spaces and it is of advantage that besides the RGB and CIE colour spaces, well known and discussed in every book, short descriptions of some industry specific spaces are also dealt with. (It is difficult to understand why some authors deviate from well established practices of nomenclature, and e.g. in describing CIE tristimulus values use P as symbol for reflectance and I as symbol of power.) In this book too, as in so many hastily produced publications a number of simple – and obvious – printing errors occur, thus e.g. on p. 15 “CIE 1931 10° observer” stands.

Chapter 1.5.1 White-Point Conversion treats the question already a little bit loosely and lumps everything under this heading and does not distinguish between concepts of chromatic adaptation, colour rendering, etc. For practical purposes it is, however, interesting to find here a proper description of the “Xerox Color Encoding Standard” not found so easily in other textbooks. (Naturally we would have liked to see the description of some other chromatic adaptation transformations as well.) Gamut mapping is dealt with in a qualitative way in this introductory chapter, one might question why one item is dealt with mathematically while the other only qualitatively, leaving a more detailed treating for a later section of the book. Chapter 2 discusses subtractive colour mixture and the production of colours in print in some detail. It is a good introduction for those, who are not too familiar with the rules of subtractive colour mixing. With Chapter 3 we get into some more fundamental parts of the book: Chapter 3 discusses the fundamentals of transformation needed in characterising the colour spaces of different peripheral devices. Chapter 4 discusses the use of lookup tables in colour space conversion, while Chapter 5 provides an introduction to the use of neural networks and fuzzy logic in performing the necessary transformations. Chapter 6 uses the techniques described in previous chapters in showing as examples some colour space transformations.

The next three chapters of the book deal with the tools of colour image processing: sampling, quantization and half-toning. The final chapters of the book use above techniques to characterise and calibrate the system, the input and output devices. With CIE’s involvement in imaging technologies (Division 8 ”Image Technology”) it can be recommended to everybody who would like to get a thorough introduction to the subject how colour can and should be used in computer periphery equipment to read this book.

Future Meetings

CIE Expert Symposium on the Communication of Colour Information in Digital Systems

11 November 2000, Scottsdale, USA

CIE TC 8-05 “Communication on Colour Information” will host this CIE Expert Symposium. The Symposium will be held at the SunBurst Hotel Resort in Scottsdale, Arizona in conjunction with the Eighth IS&T/SID Color Imaging Conference.

Representatives from standards groups, industry, and academia will discuss the colour interoperability problems they are addressing, the criteria that will be used to evaluate solutions, and some proposed solutions. There will also be a forum for open discussion. TC 8-05 plans to use the meeting's output in its future technical reports.

For further information please contact:

Mr. Todd Newman
Canon Information Systems
20300 Stevens Creek Blvd., Suite 100
Cupertino, CA 95014
U.S.A.
e-mail: Todd_Newman@cisn.canon.com

We have received the following job ad from NRC Canada:

Lighting Researcher
2 year term (renewable)

The Institute for Research in Construction (IRC) of the National Research Council Canada (NRCC) invites applications for a Research Officer within the Indoor Environment Program. The successful candidate will develop, participate in and manage strategic and client-supported research activities, and transfer the research findings to stakeholders. Preferred qualifications are: a Ph.D. in Engineering (or other related discipline) with a specialisation in lighting OR a Masters degree in Engineering (or other related discipline) and 3 years relevant experience in lighting research. Expertise in one the following areas is a must: photometry, vision, lighting design practice, energy-efficient lighting; expertise in the following areas would be an asset: lighting calculations, lighting simulation software, computer-aided design, human factors. IRC's lighting research activities are aimed at energy-efficient lighting that maintains or improves occupant satisfaction, performance and health. Salary commensurate with qualifications; excellent benefits package.

For more information, please visit the website: http://www.nrc.ca/careers.

Send your resumé to: Sylvie Brault, Human Resources Assistant, IRC (M20), NRC, Montreal Rd., Ottawa, Ontario, Canada K1A 0R6. Tel: (613) 993-9504; e-mail: sylvie.brault@nrc.ca .

Closing date is June 30th, 2000. Quote competition # 44-99-58.

8th Color Imaging Conference

Color Science and Engineering: Systems, Technologies, Applications

7-10 November 2000, Scottsdale, Arizona, U.S.A.

The Color Imaging Conference is the premier technical conference for scientists and engineers working in the areas of of colour science, colour engineering, and their application to colour products and colour imaging technology.

The conference program is designed to promote interaction among the participants. It will also feature a series of tutorials and “How-to” workshops on both basic and advanced topics.

For further information please contact:

IS&T
7003 Kilworth Lane
Springfield, VA 22151, U.S.A.
fax: +1 703 642 9094
e-mail: info@imaging.org
http://www.imaging.org/conferences/cic8/

Light and Lighting 2000

11-13 May 2000, Bucharest, Romania

The theme of the Light and Lighting 2000 is “Comfort, Aesthetic, Functionality, Energy, Efficiency of Interior and Exterior Lighting Systems". This international conference and exhibition will be organised by the Romanian National Committee of the CIE (CIE-CNRI). The meeting will include papers and poster presentations.

Registration fee: US$ 60,-

For further information please contact:

Conference Secretariat
Bd. Pache Protopopescu nr. 66 sect.2
Bucuresti - Romania
tel./fax. +40 1 252 43 67
e-mail: cnri@pcnet.pcnet.ro

The Bulgarian National Committee on Illumination informed us that they will organise together with the Union of Scientists in Bulgaria and the Scientific and Technical Union of Energy the:

First Balkan Youth Conference on Lighting

BalkanLightJunior’2000 Lighting Architecture Design

15-16 June 2000, Varna, Bulgaria

Topics will include:

- energy efficiency in lighting and economy
- vision and colour
- daylight and ergonomy of lighting
- lighting - interior, exterior, street, tunnel, museum and special

- general aspects of lighting, terminology, standardization
- architectural lighting, stage lighting, advertising and exterior effects lighting
- problems in the design of lighting installations

During the Conference an exhibition of lighting products will be held, and the following competitions will be organized:

- for the best lighting article
- for the best implemented project in lighting
- for the best diploma work

The registration fee for young participants up to the age of 35 is 50 DM. For the elder people the fee is 100 DM.

For further information please contact:

Balkan Light Junior '2000
Bulgaria, Sofia 1465,
Buzludja str. 59, IKIS Ltd., Eng. Filip Shkembov
Tel. (+359 2) 650940, 650955
Fax (+359 2) 654883
E-mail: denima@omega.bg; abctex@dir.bg
www.abctex.dir.bg

4th International Lighting Conference Vologda 2000

"Illuminating Engineering at the Cross-Roads of Centuries - Summary and Perspective"

19-22 June 2000, Vologda, Russia

The Illuminating Engineering Society of Russia will host the 4th International Lighting Conference from 19 to 22 June in the ancient Russian town of Vologda.

The conference will include plenary and poster papers, seminars, workshops and an exhibition.

Topics covered:

- energy saving problems in lighting
- lighting devices
- light sources and ballasts
- outdoor and indoor illuminating installations
- light and architecture
- irradiating installations in industry, agriculture and medicine
- computer technologies in illuminating engineering (image technology)
- lighting measurements
- ecological problems in lighting

Registration fee: US$ 150,-.

For further information please contact

Illuminating Engineering Society of Russia
(Executive Vice-president L. Pricupets)
106 Prospect Mira
Moscow, 129626 Russia
tel.: (095) 287 13 52
fax: (095) 287 08 91

Lighting 2000 – The Millenium Lighting Conference

9-11 July, 2000, York, Great Britain

The Lighting Division of the Chartered Institution of Building Services Engineers and the Institution of Lighting Engineers have launched the programme for a millenium lighting conference. The conference aims to provide a lighting forum for the whole profession and will include sessions and case studies appealing to all lighting professionals. Subjects to be addressed will include:

- remote source lighting
- quality in lighting
- light pollution

as well as education and professional issues.

For further information, please contact

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tel.: +44 208 675 5211
fax: +44 208 675 6554
e-mail: nwingfield@cibse.org

2nd International Conference on

Energy Efficiency in Household Appliances and Lighting

27-29 September 2000, Naples, Italy

This conference will be organised - in the framework of the SAVE Programme of the EC Directorate General Agency - by AIEE (Italian Association of Energy Economists), ISIS (Institute for Systems Integration Studies), Van Holsteijn En Kemna BV and ISR (University of Coimbra).

It will address the full range of topics related to energy efficiency:

- energy consumption and energy efficiency improvements of domestic appliances and lighting
- energy efficiency policies and measures, labelling, standards, voluntary agreements procurement and DSM in geographically varied situations
- technological innovations and new performing cost effective systems
- contributions and perspectives of energy efficiency in domestic appliances and lighting with regard to sustainable development.

Linked to the conference, a three-day Energy Efficiency Showcase Exhibition will allow visitors to gain updated insight on energy efficiency technology of products, prototypes, multimedia and interactive software tools in household appliances, consumer electronics, lighting and HVAC.

For further information, please contact:

AIEE Secretariat
Via Giorgio Vasari, 4
00196 Rome, Italy
tel.: +39 06 3250 1610, +39 06 322 7367
fax: +39 06 323 4921
e-mail: aieeconference@mclink.it
http://www.aiee.org

AIC informed us on their

2000 AIC Meeting Seoul

6-7 November 2000, Seoul, Korea

The theme of the 2000 AIC Meeting Seoul is "Colour and Environment," and all papers covering all areas of colour science, colour technology and colour design are welcome as oral and poster presentation papers.

Also, Seoul's first International Colour Exhibition will be held from November 4 to 7, 2000, to report on the new technologies related to colour.

There will also be interesting and exciting workshops of the unique use of colour in traditional Korean culture at the exhibition site.

Deadline for the submission of abstracts :
May 31, 2000

Deadline for advanced registration:
Aug. 31, 2000

For further information, please contact:

Secretariat of 2000 AIC Seoul
Korea Economic Daily Building 10f
441, Chunglim-dong, Chung-gu
100 - 791 Seoul, Korea
Tel: +82 2 365 5114 Fax: +82 2 365 0014
E-Mail : interad@unitel.co.kr
Homepage : http://www.eventnet.co.kr

The South African National Committee on Illumination has informed us on their

47th Annual General Meeting and Congress

Light and Lighting 2000

6-8 November 2000, Port Elizabeth, South Africa

Call for Papers:

You are cordially invited to submit a paper for presentation at the congress.

Deadline for abstract: 2000-03-31.

For further information please contact:

South African National Committee on Illumination
37 Wenning Street
0181 Groenkloof
tel.: 012 46 3719
fax: 012 46 4264
e-mail: drcronje@mweb.co.za

LUX EUROPA 2001

18-20 June, 2001, Reykjavík Iceland

Call for Papers

The theme “Light - Life – Health and Environment” should open up a wide range of possibilities for authors e.g. on effect of light on health generally, and what to avoid, new views on what is most suitable for people relying on lighting for their days work in all kind of surrounding.

- Can visual comfort, wellbeing and alertness of office workers go together?
- How does light or lack of light affect the health of people? How do people react and is the reaction possibly genetic?
- How should lighting installation be designed now and in the near future based on what is now known about people's reaction to different kinds of light?
- How is light pollution affecting our environment?

The format of the meeting will include invited and contributed papers as well as poster presentations. There will be ample time for roundtable discussions.

Authors should submit two page extended abstracts for their proposed contribution in English no later than 2000-05-01.

Lecturers will have from 10 - 15 minutes to present their papers. There will be simultaneous presentations in different auditoriums. Posters will

get 5 - 10 minutes each, and they will be on show during the Conference in foyers.

Conference Language: English, French and German, with simultaneous translations for the lectures.

For further Information and abstract submission please contact:

LUX EUROPA 2001
Háaleitisbraut 68 - 103
PO Box 5414
IS-125 Reykjavík, Iceland
Tel: +354 515 9000
Fax: +354 515 9008
e-mail: luxeuropa@lv.is
www.centrum.is/lfi

Liaison Matters

We have received the following documents from IEC:

34A/909/FDIS:

Draft-amendment 13 to IEC 60357, Ed.2: Tungsten halogen lamps (non-vehicle)

(parallel voting IEC-CENELEC)

Deadline for vote: 2000-03-31.

34A/912/FDIS:

Amendment 2 to IEC 60969: Self-ballasted lamps for general lighting services - Performance requirements

(parallel voting IEC-CENELEC)

Deadline for vote: 2000-05-15.

34D/548/FDIS:

Amendment 1 to IEC 60598-2-23, Ed.1: Luminaires - Part 2-23: Particular requirements - Extra low voltage lighting systems for filament lamps

(parallel voting IEC-CENELEC)

Deadline for vote: 2000-03-31.

76/210/CD:

Amendment to IEC 60825-4, Ed.1: Safety of laser products - Part 4: Laser guards

Deadline for comments: 2000-03-31.

Readers interested in one of the above documents are asked to contact their National IEC Committee.

✞ In Memoriam

Yasuyuki Otani ✞

Member Emeritus of Japanese National Committee of CIE, and Professor Emeritus of Kyoto University, Dr. Yasuyuki Otani passed away on 5th January 2000.

He had contributed to CIE for a long time in the field of light sources by taking the chairmanship of TC 2.1 Light Sources from Barcelona Session in 1971 to Amsterdam Session in 1983. He showed a strong leadership in managing the TC which lead the field in the CIE very actively and fruitfully. His name was also famous as a chairman of the steering committee of CIE Kyoto Session in 1979. It was his distinguished services that led the Kyoto Session to the great success. He also served as President of Illuminating Engineering Institute of Japan. The Japanese National Committee of CIE owes a debt of gratitude to this remarkable man in the field of light and lighting.

Prof. Elemér Nagy ✞

On behalf of the Hungarian National Committee of the CIE we would like to inform you with great sadness that the Past President and Honorary President of the National Committee, Prof. Elemér Nagy passed away on 29 February 2000 at the age of 80.

Professor Nagy was President of the Hungarian National Committee of the CIE during the quadrennia 1975-79 to 1995-1999, and Honorary President of the Hungarian National Committee since 1997. He was Member of the Hungarian Academy of Sciences.

Professor Nagy worked in fields of lighting science, especially the physics of light sources as researcher and as professor at different universities and as Director of the Research Institute for Technical Physics of the Hungarian Academy of Sciences. Generations of young scientists and engineers grew up under his leadership. The death of Prof. Nagy is a major loss both to the Hungarian lighting science and the field of solid state physics. The Hungarian National Committee will keep his memory.

Leo Mori ✞

The Japanese NC has just informed us with regret that Dr. Leo Mori, the former President and Member Emeritus of the Japanese National Committee of CIE, has passed away by myocardial infarction on February 22nd, 2000. He had been very active in the Division 1 and made considerable contributions to the CIE colorimetry particurlarly in the field of colour rendering. An obituary will be published in one of the next CIE NEWS issues.

From the Lighting Journals

Color Research and Application

Volume 24, Number 6, December 1999

Representation of memory prototype for an object color
S.N. Yendrikhovskij, F.J.J. Blommaert, H. de Ridder

Learning color-appearance models by means of feed-forward neural networks
P. Campadelli, C. Gangai, R. Schettini

Proposal of an abridged color-appearance model CIECAT94LAB and its field trials
Y. Nayatani, T. Yano, K. Hashimoto, H. Sobagaki

On the field trials of CIECAM97s and its model structure
H. Sobagaki, T. Yano, K. Hashimoto, Y. Nayatani

Volume 25, Number 1, February 2000

A critical review of spectral models applied to binary color printing
D. R. Wyble, R. S. Berns

Color selection in the consideration of color harmony for interior design
Y.-C. Shen, W.-H. Yuan, W.-H. Hsu, Y.-S. Chen

Prediction of experimental results on additivity-law failure
Y. Nayatani, H. Sobagaki

Color of natural tooth crown in Japanese people
A. Hasegawa, A. Motonomi, I. Ikeda, S. Kawaguchi

Testing CIELAB-based color-difference formulas
M. Melgosa

Uniform color space modeled with cone responses
R. G. Kuehni

A Euclidian color space in high agreement with the CIE94 Color Difference Formula
K. Thomsen

On the relationships between colors
T. Mayer

Ergonomics

Volume 43, Number 2, 2000

Temporal variation in the luminance level of stimuli displayed on a cathode-ray tube monitor: Effects on performance on a visual vigilance task
Blanco, M.J., Leiros, L. I.

Journal of Light & Visual Environment
(published by the IES-Japan)

Volume 23, Number 2, November 1999

Quantitative measurement of the evaporation and absorption of mercury from Zn-Hg amalgams
T.R. Brumleve, S.C. Hansen, P.W. Lehigh, D.A. Stafford, K.S. Wilcox

Technical issues on the electronic compact fluorescent lamp covered with a diffusive glass globe
T. Yasuda, T. Tanaka, K. Nishio, M. Izumi

Starting time-lag estimation of electronic compact fluorescent lamps
T. Yasuda, H. Itou

A fundamental study of a backward emission method to detect an unknown light source position by Monte Carlo Simulation
T. Morita, H. Iwai, S. Kai, M. Nagata

Applicability of CIE's glare (GR) evaluation system for outdoor facilities to indoor sports facilities
K. Kawakami, S. Kohko, T. Uozumi

Estimation of brightness and lightness in all adaptation levels
H. Takahashi, H. Yaguchi, S. Shioiri

Hight brightness and full color LEDs
Y. Suehiro, T. Sato, K. Uchida, S. Yamazaki

Time dependence of the spectrum in bioluminescence and removal of CO_2 for firefly Luciferin
N. Nameda, S. Itoh

Lighting Design + Application

December 1999: Holiday Lighting
January 2000: Disney
February 2000: Residential Lighting

Luce (in Italian)

Volume 38, Number 5, October 1999

L'Associazione Italiana di Illuminazione al servizio del Paese
U. Dagnino

La "Domus Aurea" esce dal buio
S. Rosati, A. De Luca

La manutenzione programmata degli impianti di illuminazione
M. Fauri, M. Carraro, C. Collerone

AEM e il piano urbano della luce a Milano
G. Grassi, F. Mazzi, A. Paschetto

La Mole Vanvitelliana ad Ancona
A. Mazzoni, C. Di Perna

Calcolo dell'illuminamento diretto in giorni chiari - Impiego di dati atmosferici
A. Lauritano, S. Trapani

Volume 38, Number 6, November 1999

La valutazione teorico-pratica delle caratteristiche del fascio luminoso emesso dai proiettori
L. Tassi

La scuola illuminata
G. Novi, F. Basso

Illuminazione pubblica: La gestione automatica degli impianti
M. Fauri

L'illuminazione dei negozi Benetton
P. Ceregioli

Lucio Fontana: la luce e lo spazio
S. Dalla Torre

Progettazione: Quale luce per i musei ?
L. Milani

Lys (in Danish)

Volume 10, Number 4, December 1999

The challenge
J. Klausen

Strategy for beautiful roads
U. Egebjerg

Floodlighting
J. Gelbjerg-Hansen

Frederica station
G. Hansen

Our man in London
J. Klausen

The Light Emitting Diode (LED)
L. L. Larsen

Applications of LED's
J. Gudum

House of the Engineers
P. L. Johansson

Windows and daylight
J. Christoffersen, E. Petersen, K. Johnsen, O. Valbjörn

Danish Lighting Fair 1999
A. Espenhain

The vault of heaven
J. M. Lindhe

Residential home in new light
C. Christensen

REF-DIG-ART
B. Brodersen, U. Klausen

Psychological Review

Number 1, Volume 107, 2000

Articles - Foundations of spatial vision: from retinal images to perceived shapes
Lappin, J.S., Craft, W.D.

The Lighting Journal

Volume 65, Number 1, January/February 2000

How to do it No.3: Choosing the lamp
I. Graves

The social benefits of street lighting
G. Willis

Developments in electronic HID control gear

Underground mouvement
G. Lee

The social history of street lighting (Part 2)
K. Painter

Visibility factors in outdoor lighting design (Part 2)
I. Lewin

For your Diary

Date	Title of Meeting	Organizer	Place of Meeting
2000			
April 3-5	NPL Colour and Visual Scales 2000	NPL fax: +44 (0) 208 943 6283, julie.taylor@npl.co.uk	Teddington, Great Britain
April 6-8	CIE Division 1 Meeting	CIE Division 1	Teddington, Great Britain

Date	Title of Meeting	Organizer	Place of Meeting
April 6-8	CIE Division 2 Meeting	CIE Division 2	Teddington, Great Britain
April 10	CIE Division 8 Meeting	CIE Division 8	Derby, Great Britain
April 10-12	Colour Image Science 2000	W.MacDonald, Univ.Derby fax:+44 1332 622218 L.W.MacDonald@colour.derby.ac.uk	Derby, Great Britain
May 8-10	CORM 2000 "Optical Radiation Accreditation & Standards"	CORM,Mr.Wychorski fax: 716-722-4793 philip.wychorski@kodak.com	Rochester, NY, USA
May 11-13	Light & Lighting 2000	CNRI, fax: +401 252 4367, cnri@pcnet.pcnet.ro	Bucharest, Romania
May 15-19	GKPO'2000: International Conference on Computer Graphics & Image Processg	Polish Assoc.for Image Processing, wmokrzyc@IPIPAN.Waw.pl	Poland
May 15-18	Argencolor 2000 - Fifth Argentine Color Congress	Argentine Color Group, fax:5411-4702 6009 jcaivano@fadu.uba.ar	Mendoza, Argentina
May 30-31	Fachtagung der LTG 2000	LTG, Postf.148, A-2340 Mödling, tel/fax:+43 2236 426 51	Eisenstadt, Austria
June 15-16	Balkan Light Junior 2000	NC Bulgaria, fax: +359 2 654883, denima@omega.bg	Varna, Bulgaria
June 19-22	4th International Lighting Conference	Illum.Eng.Soc. of Russia fax: (095) 287 08 91	Vologda, Russia
July 1-6	International Congress on Photobiology	Secretariat 13th ICP fax: +1 706 722 7515 maps@csranet.com	San Francisco, USA
July 2	CIE Division 6 Meeting	CIE Division 6	San Francisco, USA
July 8-9	CIE Division 3 Meeting	CIE Division 3	York, Great Britain
July 9-11	Lighting 2000 - The Millenium Lighting Conference	CIBSE, fax: +44 208 675 6554, e-mail: lighting2000@cibse.org	York, Great Britain
Aug. 24-25	2000 Annual Conference of the Illum.Eng.Inst. of Japan	IEIJ fax: +81 3 5294 0102 ieijsomu@sepia.ocn.ne.jp	Tokyo, Japan
early Sep.	CIE Division 5 Meeting	CIE Division 5	Toronto, Canada
Sep. 3-7	CIE Division 4 Meeting	CIE Division 4	Toronto, Canada
Sep.13-15	Northern Lighting Congress 2000	IES Finland, fax: +358 9 456 7042	Helsinki, Finland
Sep. 20–22	Licht 2000	LiTG, Germany fax: +4930 2601 1255	Goslar, Germany
Sep. 27-29	Energy Efficiency in Household Appliances and Lighting	AIEE, fax:+396 3234921 aieeconference@mclink.it	Naples, Italy

Date	Title of Meeting	Organizer	Place of Meeting
Nov. 6-7	2000 AIC Meeting: Color & Environment	Korean Soc.of Color Studies fax:822-3650014 interad@unitel.co.kr	Seoul, Korea
Nov. 6-8	Light and Lighting 2000 - SANCI Annual General Meeting	SANCI, fax: 012 46 4264 drcronje@mweb.co.za	Port Elizabeth, South Africa
Nov 7-10	8th Color Imaging Conference Color Science and Engineering: Systems, Technologies, Applications	IS&T fax: +1 703 642 9094 e-mail: info@imaging.org	Scottsdale, Arizona, USA
Nov 11	CIE Expert Symposium on the Communication of Colour Information in Digital Systems	CIE TC 8-05 Todd_Newman@cisn.canon.com	Scottsdale, USA
Dec. 13-16	InterLight 2000	OWP, fax: 49 961 32035 OWP-Weiden@t-online.de	Moscow, Russia
2001			
May 17-18	CIE Division 2 Meeting	CIE Division 2	USA
June 18-20	Lux Europa 2001	Ill.Eng.Soc.Iceland, fax: +354 515 9008, luxeuropa@lv.is	Reykjavik, Iceland
June 24–29	AIC Quadrennial Congress	AIC, pjalessi@kodak.com	New York, USA
Sept.	CIE Midterm Meeting	CIE	Istanbul, Turkey

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