CIE NEWS

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

NUMBER 56

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2001 CIE MIDTERM MEETING

International Lighting Congress and Exhibition

Istanbul, Turkey

The next CIE Midterm Meeting will be held in Istanbul, Turkey on September 6-8, 2001. In addition to meetings of various CIE Board Subcommittees (Division Directors, Publication Committee, Finance Committee, etc.) on September 6th, there will be a CIE Board Meeting on September 7th and a CIE General Assembly Meeting on September 8th. In conjunction with these meetings the Turkish National Committee on Illumination (ATMK) is hosting the Technical Committee Meetings, Division Meetings and an International Lighting Congress & Exhibition.

The timetable of these events is given below:

September 6-8	**September 9**	**September 10-11**	**September 12-14**	**September 12-16**
Thu., Fri., Sat.	Sun.	Mon., Tue.	Wed., Thu., Fri.	Wed., Thu., Fri., Sat., Sun.
CIE Midterm Meeting		Meetings of Divisions and Technical Committees	Intern. Lighting Congress	Exhibition

IN THIS ISSUE

The second Announcement covering further details is in preparation and will be sent to the participants and National Committees shortly. The main theme of the Congress is *City Lighting and Beautification*. City lighting is important in terms of emphasizing the historical, architectural, artistic, cultural values and making effective and meaningful appearance of these values within the city, including security, transportation and some open-air activities.

Other topics are:

- Lighting and Signalling for Transport,
- Exterior and other Lighting Applications,
- Photobiology and Photochemistry,
- Image Technology,
- General Aspects of Lighting (Terminology, Education, Economics of Lighting, Development of Light Sources, Luminaires etc.).

The official language is English.

An exhibition of lighting products will take place during the congress. Companies wishing to participate should contact the Organisation Committee.

Registration fees

	Until 2nd July 2001	After 2nd July 2001
Participant	USD 250	USD 300
Accompanying Person	USD 100	USD 120
Student	USD 125	USD 150

Registration fee covers the proceedings, refreshments, city tour and the opening cocktail. More detailed information including social programm will be given in the next issues of CIE News. You may contact

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✉ News from the Divisions

Division 1 - Vision and Colour

http://nml.csir.co.za/~cie1/

The Division had its meeting on 7 April 2000. Minutes are available from the Division 1 website.

Division 2 – Physical Measurement of Light and Radiation

http://nml.csir.co.za/~cie2

The Division had its meeting on 8 April 2000. Minutes are available from the Division 2 website.

Division 3 – Interior Environment and Lighting Design

http://ciediv3.entpe.fr

The following new TCs have been established:

TC 3-36: *The Use of Satellite Images to Derive Daylight Data* (Chair: D.Dumortier, France)

Terms of Reference: Assessment of the techniques used to derive the global, the direct and the diffuse horizontal illuminances from the images provided by the current generation of satellites. Work towards defining a standard procedure, which could be used to provide these quantities for any part of the world.

The first output will be a review of the different techniques to derive the components of daylight used around the world. The amount of extra information (i.e. not part of the satellite image) needed by each of these techniques will be highlighted and the accuracy claimed by each technique will be weighted against the results expected by final users (i.e. accuracy of daily means vs. accuracy of monthly means).

The second output will be the definition of a CIE standard procedure to derive daylight data from satellite images.

The third output will consist in CIE recommendations to space agencies on the satellite ideally suited for the production of daylight data.

TC 3-37: *Guide for the Application of the CIE General Sky* (Chair: Y. Uetani, JP)

Terms of Reference: To prepare a guide for users who apply the CIE General Sky to the practical daylighting calculation.

The CIE General Sky is the draft standard being prepared by CIE TC 3-15. The relative luminance distribution of the whole sky is defined by a series of equations. The wide range of sky conditions from the CIE overcast sky to the CIE clear sky are classified in 15 categories by the sets of standard parameters.

The guide will provide the following:

1) Recommended procedure to derive absolute values
2) Recommended procedure for the classification and frequency analysis
3) Recommended interface for applications of daylighting calculation.

Division 4 – Lighting and Signalling for Transport

http://www.tut.fi/cie4/

The Division had its meeting on 4 and 7 September 2000. Minutes are available from the Division 4 website.

🕮 CIE Publications

New publications available from the Central Bureau:

A Method for Assessing the Quality of Daylight Simulators for Colorimetry

CIE 51.2-1999 ISBN 3 901 906 03 7

In 1999 the Technical Report CIE 51-1981 was amended by the quality assessment of a further daylight simulator realising CIE D50 illuminant. The present publication contains both the original report (Part I.), prepared by CIE Technical Committee 1.3 Colorimetry, and the Supplement (Part II.), prepared by CIE Technical Committee 1-45 “Revision of CIE Publication 51 to Include D50 Simulators”.

In the Technical Report a method is provided for evaluating the suitability of a test source as a simulator of CIE Standard Illuminant D65 and CIE Illuminants D50, D55, D75. For each of these illuminants, spectral radiance factor data are supplied for five pairs of non-fluorescent samples that are metameric matches. The colorimetric differences of the five pairs are computed for the test illuminant; the average of these differences is taken as the Visible Range Metamerism Index, and this is used as a measure of the quality of the test illuminant as a simulator for non-fluorescent samples. For fluorescent samples, the quality is further assessed in terms of an Ultraviolet Range Metamerism Index; this consists of the average of the colorimetric differences computed with the test illuminant for three further pairs of samples, each pair consisting of a fluorescent and a non-fluorescent sample which are metameric under the Illuminant.

This publication contains 34 pages with 1 figure and 12 tables.

CIE Collection in Photobiology and Photochemistry 2000

CIE 138-2000 ISBN 3 901 906 02 9

This volume contains short Technical Reports prepared by various Technical Committees within Division 6.

138/1 - Blue Light Photochemical Retinal Hazard

The results of studies of acute photochemical retinal injury, frequently referred to as the "blue light hazard (BLH)" are described in this Technical Report. The BLH results from a photochemical injury to the human retina and is termed by ophthalmologists "photoretinitis". The studies were performed by a number of scientists, these works provided the basis for threshold limit values (TLV) and the BLH action spectrum recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) in the 1970's, and more recently, after completion of the work of TC 6-14, by the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

The potential for photoretinitis resulting from viewing the sun, tungsten-halogen lamps, high intensity discharge lamps, xenon short-arc lamps, welding arcs, etc., is provided in this report. Means and methods to evaluate potential BLH were studied by the CIE committee and one technique employing the ACGIH TLV is proposed for general use.

Both national and international standards for eye protectors exist. The recognized international standard (ISO 4850: Personal Eye Protectors for Welding and Related Techniques - Filters - Utilization and Transmittance Requirements) is followed internationally. It is concluded that actual specifications for maximal blue-light transmittance may be a desirable addition to future editions of eye protection standards.

138/2 - Action Spectrum for Photocarcinogenesis (Non - Melanoma Skin Cancers)

Solar ultraviolet radiation (UVR) is recognized as a major cause of non-melanoma skin cancer in man. Skin cancer occurs most frequently in the most heavily exposed areas and correlates with degree of outdoor exposure. Describing the relationship of exposure (dose) to risk (skin cancer) requires the availability of a biological hazard function or action spectrum for photocarcinogenesis. This is true for estimating risks from sunlight under a variety of conditions, and from optical radiation from artificial sources. As classically defined and executed in other systems, directly determining an action spectrum involves monochromatic radiation; very few data points for photocarcinogenesis would ever be available using that approach. However, using a

variety of sources capable of repeatedly exposing relatively large surface areas, candidate weighting functions can be tested, and response curves can be fitted to sizeable data bases. This committee report proposes the adoption of an action spectrum (weighting function) derived from experimental laboratory data and modified to estimate the non-melanoma tumor response in human skin. On a log-linear plot, the weighting function follows the calculated SCUP-h curve from 280 nm to 340 nm, and then a straight interpolation line from 340 nm to 400 nm (at effectiveness $3{,}94 \cdot 10^{-4}$). The experimental data are sufficient for estimating effectiveness down to about 250 nm, but experimental data are not sufficient for specifying effectiveness above 400 nm.

138/3 - Standardized Protocols for Photo-carcinogenesis Safety Testing

Solar ultraviolet radiation (UVR) is recognized as a major cause of non-melanoma skin cancer in man. Skin cancer occurs most frequently in the most heavily exposed areas and correlates with degree of outdoor exposure. The incidence of skin cancer is also increased by contact with photosensitizing drugs and chemicals such as psoralens, coal tars and petroleum stocks. Other substances which do not act as photosensitizers, such as immunosuppressants taken by organ transplant recipients, also increase the risk of skin cancer. The U.S. Food and Drug Administration requires on a case-by-case basis that the risk of enhanced photocarcinogenesis is assessed for many classes of drugs. Health Canada's Therapeutic Products Programme has issued a Notice of Intent to regulate pharmaceutical products which may enhance carcinogenicity of the skin induced by ultraviolet radiation. Other national regulatory agencies review such data when they exist, but their own requirements emphasize batteries of short-term in vitro and in vivo tests. While they may support drug development strategies, short term tests have yet to be validated as predictors of the ability of drugs or chemicals to enhance photocarcinogenesis. Published protocols now describe study designs and procedures capable of determining whether test agents enhance the rate of formation of UVR-induced skin tumors.

138/4 - A Proposed Global UV Index

Increasing public concern over declining ozone levels and the resultant ultraviolet (UV) radiation reaching the earth has brought about a need to communicate daily information to the public in a credible and understandable manner. Several dozen countries have implemented a wide variety of UV index programs, utilizing different scales and methods of communication. This has created confusion for several years. A single scale for communicating UV dose rate to the public has been proposed and endorsed by the World Health Organization (WHO), the World Meteorological Organization (WMO), and the International Commission on Non-Ionizing Radiation Protection (ICNIRP). This scale may also be useful for communication within the scientific community. The scale is addressed and summarized here. A definition of the Global UV Index is recommended, for addition to the CIE International Lighting Vocabulary.

The Technical Collection consists of 54 pages with 10 figures and 8 tables.

Road Lighting Calculations

CIE 140-2000 ISBN 3 901 906 03 7

The purpose of this report is to update and to replace CIE 30.2-1982, *Calculation and measurement of illuminance and luminance in road lighting*. It gives the methods which CIE 115-1995 and CIE 136-2000 require for their recommendations.

It includes the calculation of luminance, illuminance, and their associated measures of uniformity, as well as disability glare. The conventions adopted for luminance and illuminance grids are also included.

The Technical Report consists of 33 pages with 16 figures and 5 tables.

🕮 New Publications in the Field of Light and Lighting

Lidt om Farver, Notes on Colour

Verner Panton

Danish Design Centre, 1997
ISBN 87-87385-88-0

This design-oriented booklet, printed on black paper with many coloured pictures is another example how different disciplines deal with the subject colour. The author deals on 48 pages with items like:

- what is colour
- the structure of the eye
- history
- psychology of colour
- colour for product differentiation, for indicating function, for marking a visual identity.

All text items are in English and Danish. You get a flavour of the book just by looking on the list of references, where you find the names of Albers, Gerritsen, Itten, Küppers, etc., but no author who would tackle the question from a scientific or

technical point of view. The introduction states "Colours are a subjective, physical perception...". This shows how an artists mixes up physics with subjective, perceptive concepts.

If you are interested in interesting and nicely coloured pictures, you will enjoy this book. Even for the more scientific-oriented mind the examples how background influences colour perception, is interesting to see.

The colour examples for psychology of colour, text prints on coloured background, are perhaps less interesting for the applied colour engineer for their content, but show very well the effect colour and lightness contrasts have on readability.

You will find a short description of NCS and examples of using colour in design. It is interesting that colour designers think their colour design will be perceived in a similar way as they see it by a user, who has a different colour experience. Thus e.g. the book shows a coloured key-board, with many small coloured key surfaces. The experienced computer user will handle the key-board almost without looking at the keys, the inexperienced will be annoyed by the many coloured after-effects. But the colour designer does not think about such items, but just enjoys using colour.

Acousto-Optic Correlators and Spectrum Analyzers

V. Egorov, K.P.Naumov & V.N.Ushakov

SPIE 1997
ISBN 0-8194-2258-2

In this monograph the results of acousto-optic processor investigations carried out by a research team in the St. Petersburg State Electrotechnical University are presented. The acousto-optic phenomenon is based on the interaction of light and acoustic fields in some special materials. The diffraction in the material depends among others on the wave characteristics of both the light and acoustic waves. Acousto-optic correlators are used for information processing, for example for the convolution of two fields, this is not in the main field of interest of CIE members, but spectrum analyzers should be of interest for Division 2 members. This book is dedicated to the processing of the information carried in the acoustic wave, i.e. spectrum analyzing the acoustic field, but the introductory chapters describe the acousto-optic phenomenon generally, providing the necessary mathematical equations to understand the theory of operation. The book is primarily addressed to electrical engineers that are interested in applications of AO methods in radio electronic systems.

Analysis of Sampled Imaging Systems

Tutorial text in optical engineering

R. H. Vollmerhausen & R. G. Driggers

SPIE 2000
ISBN 0-8194-3489-2

Advancing technology in solid state detector arrays, flat panel displays and digital image processing has led to a greatly increased variety of sampled imaging possibilities. These technology developments provide new opportunities and problems for the design engineer and system analyst. This tutorial text in optical engineering is written to give an overview on quantifying the effect of sampling on imager performance. It is assumed that the reader has some background in linear systems and Fourier transform methods.

Sampled systems are linear, so Fourier transform theory can be used to analyze sampled systems. However sampled systems are not shift invariant, this differentiates sampled systems from other systems. The book describes the sampling phenomenon both in the space and frequency domain using the techniques of point spread function and modulation transfer function, respectively. The transfer function is separated into the individual transfer functions of the optics, the detector array and the display. Marginally the transfer function of the human eye is mentioned, too, based on a very primitive model.

Chapters 1 through 4, that can be of interest for Division 8 experts, describe the theoretical basis of sampled imaging. After the introduction that discusses several subjects important to sampled imaging, chapter 2 describes the Fourier representation of the imaging systems that in chapter 3 is extended to sampled systems. In this chapter a response function for sampled imagers is derived by examining the image formed on the display by a point source of light in the object. The response of a sampled system to a point source depends on the sample phase, that is the response depends on the distance between the point source and a sample location. In chapter 4 the design of sampled imaging systems is discussed. First the effect of interpolation on display quality is described, then the optimization of sampled imaging systems is performed using a number of classical design guidelines. Finally a new optimization technique, the MTF squeeze, is described and compared to classical techniques.

The second part of the book, chapters 5 through 8, is not as well written as the first, it is dedicated to practical examples and realization techniques that are mainly important in low resolution infrared imaging to increase spatial resolution. An appendix

provides a short summary on Fourier integrals and series, as well as on the characteristics of impulse functions.

The IESNA Lighting Handbook Reference & Application

Mark S. Rea, Ed.

Illuminating Engineering Society of North America 2000
ISBN 0-87995-150-8

The new edition of the IESNA Lighting Handbook is already the nineth in the row started almost half a century ago. The previous editions were highly esteemed by the lighting engineers as a valuable lighting reference handbook used in the everyday practice of design, realization and maintenance of lighting installations and it is sure this new edition will be appreciated, too.

The handbook is divided into five main sections each with subsections (given in parenthesis):

- The science of lighting (Optics, Measurement, Vision, Photobiology);
- Lighting engineering (Lamps, Luminaires, Daylighting, Lighting calculations);
- Quality of the visual environment (Lighting quality, Design guide);
- Lighting applications (Office, Education, Hospital, Public places, Theatre, Health care, Retail, Residential, Industrial, Sport, Road, Transportation and Underwater lighting);
- Special topics (Lighting Economy, Management, Control, Maintenance, Emergency).

This edition was considerably extended, a new section is dedicated to lighting quality emphasising that not only quantity, the value of illuminance, but the quality is equally important that incorporates among others the aspects of visibility, mood, health, visual comfort. The handbook introduces a formal system considering a wide range of lighting design criteria aiming to guarantee lighting quality. At the end of this section a Lighting Design Guide is included for a wide range of applications in the fields of interior, industrial, outdoor, sport, transportation and emergency lighting. Beside the illuminance values there are 23 criteria defined and at every application categorised according to their importance in that application, thus providing the designer the opportunity to evaluate both quantity and quality.

"There are new application chapters on outdoor, security lighting, parking facilities, retail, shopping mall and industrial lighting and significant revisions to chapters on measurement of light, vision and perception, photobiology, aviation and transportation", as stated in the foreword.

The reviewer cannot claim being an expert in all of the wide ranging aspects of lighting engineering covered in this handbook on about 1000 pages, therefore only some personal remarks are given. It is a pity that the section "Science and Lighting" contains disturbing errors, inaccuracies mainly connected to semiconductor physics, wave optics, instrumentation, thermophysics and sometimes to photometry and vision. Just to give one example to each: On pp. 1-15 it is stated that in a photodiode photons are absorbed in the p-n junction, but the fact is that it depends on the wavelength of the radiation most likely in the bulk. On pp. 1-23 it is stated that if the amplitudes of the vertically and horizontally polarized components of a beam are equal than the light is unpolarized, but this light can be circularly polarized, too. On pp. 2-7 it is stated that Si photodiodes are linear over more than ten decades, but no responsible institution has claimed more than eight. On pp. 6-7 fig. 6.5 shows incorrectly that the spectral distribution of a 3000 K blackbody peaks at less than 1000 nm. On pp.1-17 the term "spread reflection" is used instead of diffuse reflection. On pp. 1-3 the candela is defined differently as adopted by CGPM. The definition of some terms differ from the ones used in CIE circles like scotopic vision pp. 3-9, equivalent veiling luminance pp. 3-39, erythema action spectrum pp. 5-7, etc.

However, these inaccuracies, found mostly in the introductory chapters, essentially do not decrease the usability of this reference handbook for the practitioner lighting engineers.

The Colour of Metal Compounds

A.Bartecki & J. Burgess

Gordon and Breach Sci. Publ.
Australia-Canada-France, 2000
ISBN 90-5699-250-3

This book is an English translation of a book by the first author published first in Polish in 1993. It starts with a short but good introduction to the fundamentals of colorimetry, discussing colour perception, provides a short description of the most important colour terms and of two colour order systems (Ostwald and Munsell), then gives an insight into the fundamentals of CIE colorimetry, both the XYZ system and CIELAB and CIELUV, ending with the discussion of the phenomenon of metamerism.

Section 2 provides an introduction to metal compounds as coloured objects. The following two chapters expand on the subject discussing the colour

formation in transition metal compounds and the role of lantanide ions in colour formation.

The next chapter discusses the use of colorimetry in chemical analysis.

It is not quite clear for the reviewer, why the authors have put the next section at this place of the book: colour centres in alkali halides and other compounds. It could have been discussed earlier in the book.

The next two chapters discuss the influence different electronic spectra have on the colour of minerals, pigments, gemstones and coloured glasses.

An interesting chapter deals with the question of teaching colour in inorganic chemistry.

The book can be recommended for everybody who is interested in how the chemical structure influences the colour of one of the important classes of materials that surround us in our everyday life.

Digitales Colormanagement, Farbe in der Publishing-Praxis

(2nd Ed. with CD-ROM)

J.-P. Homann

Springer Verlag, Berlin-Heidelberg-New York, 2000
ISBN 3-540-66247-X

The book, written in German, provides in a lavishly coloured form some basic information on colour management. The emphasis is on the use of colour in desk-top publishing, and therefore the author has paid less attention to reproduce the basics correctly than to show with many coloured insets the results one can achieve using the computer.

One has to be careful in using the pictures the book tries to overwhelm you with. Just some examples: On p. 18 the spectrum of an incandescent lamp is depicted as a source with a spectral maximum at about 630 nm.

Depicting the additive and subtractive real primaries of the cathode ray tube (CRT) and of the printing dyes, respectively, provides a good input for the novice, but stating that the CRT primaries excite only one cone type at a time, is misleading.

The introduction to visually meaningful colour spaces is interesting and the many good pictures might help the understanding of the subject, but sometimes one finds didactically unsatisfactory explanations as well (the introduction of the LCH colour space and its evolvement from the LMS responses).

Despite of above, one can recommend the book that discusses the subject in nine chapters, dealing with an introduction to so-called ideal colours (using the approach of the RGB colour cube, understandable from the point of view of simple colour monitor representation, but difficult to accept from the point of view of colorimetry), discussing the differences between ideal (block) and real colours.

A section provides colour atlas data in an L-C-H colour space with numerical values in Lab, LCH space and CMYK values in the Euroscale. It is a pity that the author never specifies these spaces in an internationally accepted colour space. His L values are not CIE L*, neither are the a, b values correct a*, b* values. This makes the generously coloured pages of little practical usefulness.

The next two sections deal with the fundamentals of colour management and of printing and reproduction, followed by a chapter on ICC-Profiles and PostScript description.

The last three chapters discuss monitor calibration and image correction using different colour management software and the question of building a colour profile for the equipment used.

The book shows on one side how by using modern techniques very pretty books can be produced, and on the other side provides a further example that a bridge is still required between colour science and the practical desktop application of colour. Nevertheless, colour experts who are not working in the field of computer colour management can get an insight, how the experts of this field handle colorimetry, and novices in the subject will acquire a reasonable practical experience so that they can use colour management, even if their colorimetry knowledge will need some further brush-up.

CIE Conferences and Symposia

CIE Expert Symposium on UNCERTAINTY EVALUATION

Tutorial and Workshop

Methods for Analysis of Uncertainties in Optical Radiation Measurement

22-24 January 2001
CIE Central Bureau, Vienna, AUSTRIA

Any measurement has an uncertainty associated with it. In order to compare the results of one measurement with another, or to demonstrate that an artefact meets a given specification, it is essential to make an analysis of the magnitude of the measurement uncertainty. Typically it is necessary to prepare an 'uncertainty budget', which identifies the individual effects which contribute to the overall

uncertainty. Recommendations on the methods to be used for evaluation and combination of these component uncertainties in radiometric and photometric measurements are being considered by CIE TC 2-43, with an initial emphasis on photometric measurements. The first part of this symposium will present the progress which has been made so far within TC 2-43, in order to provide guidance to those working in the area of photometric measurements. More complex issues, for example correlations within spectral data, will be addressed during the second part of the symposium.

The goals of the meeting are to:

- Provide guidance on techniques for the evaluation of photometric uncertainties;
- Present the latest developments relating to methods for assessment of uncertainties for quantities which are derived from spectral measurements;
- Provide a forum for discussion of related effects such as correlation of data.

This meeting is open to all participants, but prior registration is required. The following individuals are specifically encouraged to attend:

- Scientists, engineers and technicians whose work involves optical radiation measurements, particularly photometric measurements;
- Those working on optical radiation metrology at research laboratories and National Measurement Institutes.

The meeting is split into 2 parts; participants can attend either or both parts. The first part includes tutorial presentations given by experts from CIE Division 2 "Physical Measurement of Light and Radiation", together with opportunities for round-table discussions and demonstrations. The second part is a Workshop with Invited Papers relating to the evaluation of uncertainties for optical radiation measurements and an extended discussion session on the issues raised. It is anticipated that this Workshop will aid towards the future development of best practice guidelines in this area.

The Tutorial Sessions will cover fundamentals for uncertainty evaluation, particularly for photometry:

- Fundamentals of uncertainty analysis, including evaluation of standard uncertainty for repeated measurements, degrees of freedom and expanded uncertainty;
- Development of a measurement equation for photometric measurements and its use in uncertainty evaluation;
- Practical examples;
- Introduction to the work of CIE TC 2-43.

The Workshop Sessions will cover recent work related to uncertainty evaluation for optical radiation measurements:

- Correlations and interdependencies between data;
- Uncertainties for spectrally-integrated measurements;
- Uncertainties for detector-based measurements;
- Key comparisons and the development of a database for international measurement capabilities.

Registrations are accepted for

- Uncertainty tutorial, 22 - 23 January 2001.
  Registration fee: US$ 300,-
- Uncertainty workshop, 23 - 24 January 2001.
  Registration fee: US$ 100,-

For participants of both parts a reduced registration fee of US$ 350,- holds.

Registration fee to be sent to the CIE Central Bureau Bank Account: 04610-665-450 at BAWAG Landstraßer Hauptstraße 60, A-1030 Vienna, Austria. VISA, Master Card, American Express credit card also honoured.

☞ Future Meetings

Strategies in Light 2001
Lighting the Future with LEDs

8-9 February, 2001, Burlingame, California, USA

This conference will focus on the exploding opportunities for high-brightness LEDs in:

- signs
- signals
- automotive lighting
- illumination

The one-and-one-half day conference provides opportunity for the LED and lighting communities to come together to review emerging LED markets, applications, and technologies in the company of leading experts in the field.

The program includes:

- HB LED market trends and forecasts
- application details and market potential
- perspectives on the market
- business and financial issues
- technical issues

Registration fee: $ 1195

For further information please contact:

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http://www.strategies-u.com

Vision Science and Its Applications (VSIA) Topical Meeting

9-12 February, 2001, Monterey, California, USA

Topics include:

- colour vision
- development
- low vision
- electro-physiology
- macular degeneration
- lens/myopia
- night vision
- virtual reality
- clinical trials
- opthalmic optics

For more information, please contact:

Wendy Yanis
VSIA 2001 Meeting Manager
wyanis@osa.org
http://www.osa.org/mtg_conf/2001/vsia/

Lightfair International 2001

29 May - 1 June, 2001, Las Vegas, Nevada, USA

This trade show and conference will showcase new products, introduce new technology and services, demonstrate applications, and effectively solve design problems. Pre-conference workshops will be held on 29 May, followed by the general conference featuring 27 seminars, on 30 May - 1 June.

Topics will include:

- lighting design of the built environment
- energy & technology
- lighting of exterior spaces
- building blocks for professional development
- designing for the future
- controlling the source
- lighting and health

Lightfair International is sponsored by the Illuminating Engineering Society of North America (IESNA) and the International Association of Lighting Designers (IALD). The event is produced and managed by AMC, Inc.

For further information please contact:

for exhibit information:

Libby Morley (libbym@lightfair.com)

for conference information:

Renee Gable (reneeg@lightfair.com)
or Cassi Kaiser (cassik@lightfair.com)

The Bulgarian National Committee on Illumination (BNCI) have the pleasure to invite you to their

XI National Conference on Lighting

Light'2001

Lighting Architecture Design

Energy - Efficient Technologies at the threshold of XXIst century

13-15 June 2001, Varna, Bulgaria

Topics of this conference will be:

- energy efficiency in lighting and ecology
- vision and colour
- daylight and ergonomic of lighting
- lighting-interior, exterior, street, tunnel, museum und special
- general aspects of lighting, terminology, standardization
- architectural lighting, stage lighting, advertising and exterior effects
- problems in the design of lighting installations

An exhibition of lighting products will be held during the conference.

Deadline for abstracts: 15 February 2001.

For further information please contact:

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http://acstre-ma.vmei.acad.bg/light-2001/

First Announcement and Call for Papers

International Conference
ILUMINAT 2001
2nd Balkan Lighting Conference
BALKANLIGHT 2001

28-30 June 2001, Cluj-Napoca, Romania

The conference's main theme is Lighting Energy Efficiency developed on following sections:

- vision and colour
- interior environment and lighting design
- exterior lighting
- general aspects of lighting
- other applications

Deadline for submission of abstracts and/or return of provisional registration form is 10 January 2001.

The official languages are Romanian and English (simultaneous translation).

Registration fees:

- 100 Euro (includes proceedings, cocktail, lunches and refreshments)
- 50 Euro (for young participants, under 35 years)

An exhibition of lighting products will take place during the conference. Companies wishing to participate should register to the Conference Secretariat.

For further information please contact the

CONFERENCE SECRETARIAT at:
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Lighting Engineering Center
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or the

PRESIDENT OF ORGANIZING COMMITTEE:
Dr. Florin POP, Professor
Vice-president of CNRI
E-mail: Florin.Pop@insta.utcluj.ro

AIC Color 2001

24-29 June 2001, Rochester, NY, USA

The 9th AIC Color Congress will be hosted by the Inter-Society Color Council (ISCC) and coincide with the ISCC Annual Meeting.

The congress will include special and invited lectures, symposia and oral and poster presentations covering the whole field of colour science, technology and design. Topics are as follows:

- What is colour;
- What is colour for (colour styling, colour design, colour in art and culture, colour in architecture, graphic arts, colour coding);
- How does colour work (colour vision, colour preference, colour harmony, colour image processing);
- How can we control colour (colorimetry, colour difference, colour appearance, colour measurement, photometry, colour rendering, colour adaptation, colour constancy, metamerism, colour imaging, colour reproduction, device independent colour, colour management systems, colour communications, colour displays, colour order systems, industrial colour matching);
- How should we teach colour (colour education, teaching aids, educational needs, continuing education).

An exhibition featuring the latest developments in Colour Technology will be held from June 24-29, 2001. Displays will include:

- colorimetry tools and instruments
- image processing/software
- newest books and publications, colour samples, etc.

For further information please contact:

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www.iscc.org/aic2001

❑ Liaison Matters

IEC has sent us the following document:

IEC/31/347/FDIS:

Electrical apparatus for explosive gas atmospheres - Electrical resistance trace heating - Part 2: Application guide for design, installation and maintenance

Deadline for vote: 2001-01-19.

Readers interested in the above document are asked to contact their National IEC Committee.

✞ In Memoriam

Leo Mori ✞

It was a great loss for the CIE and the Japanese National Committee of the CIE (JCIE) that a distinguished expert on colour rendering, Dr. Leo Mori died by a sudden myocardial infarct on 22nd February 2000. Just a couple of weeks before he died he attended a meeting organized by JCIE and enjoyed the discussions with us as usual in very good condition of health. It is still unbelievable to us that he passed away so suddenly.

Dr. Leo Mori was born in 1925 and graduated from Tokyo University in 1947 where he studied physics. Just after graduation he started to work for Tokyo Shibaura Electric Company (Toshiba Corp. at present). His major field in this company was colorimetry in relation to lighting. He was interested in appearance of objects illuminated by artificial light sources and development of daylight sources for colorimetry in particular, and tried to develop methods to describe them that could be used widely by establishing them into a global standard. Among his wide interests in colorimetry, colour rendering was one of his favorite subjects and for which he did a remarkable contribution to the CIE through the relevant Technical Committees and Divisions. The present CIE colour rendering index, which was adopted also as Japanese Industrial Standard, owed very much to his work in this field.

In his long career in the CIE he had taken memberships of CIE TCs related to colour rendering (TC1-12, TC1-33) and colour appearance (TC1-13, TC1-34) where he had been very active and showed an excellent ability to harmonize the different opinions. In Japan, he also played an important role in guiding the JCIE as a Board member from 1967 to 1974, a vice president from 1975 to 1982 and a president from 1983 to 1987. Furthermore, his contributions were also outstanding in Japanese Industrial Standards and for this reason he received an award from the Ministry of International Trade and Industry of Japan and other splendid awards as well. In 1988 he was given the CIE Award too.

Personally, he had a very kind and gentle heart, and was respected by everybody around him. He was very enthusiastic in education of young scientists and loved in particular talking with young scientists not only in his company but also in academic societies. He was also a sportsman. Jogging was one of his favorite sports. Every morning he enjoyed it even when he was in oversea countries attending for instance the CIE meetings. All those who knew him cannot forget his gentle heart and friendship. Finally it is to be mentioned that he was a grandson of the very famous Japanese novel writer, Ohgai Mori.

(Ken Sagawa, President JCIE)

David A. Palmer ✞

It is with regret that we have to report that Dr. David Palmer, University of Westminster in London, UK passed away on 29 July 2000. He fell ill with what was diagnosed as gliomas three months before he died.

He was an expert on visual science and had long been working for the Institute of Ophthalmology in London and recently for the University of Westminster. He was the first one who developed a mesopic photometric system by combining the photopic and scotopic luminances with weighting factors based on his own formula. His concept and system still have a splendid light in the work of CIE for establishing a mesopic photometric system that is one of the important issues of Division 1. He was a member of Technical Committees of TC1.4 (mesopic subcommittee), TC1-01, TC1-21, and TC1-37 all being related to mesopic photometry and through these TC works he greatly contributed to the CIE. He also did a lot of work on ophthalmology and visual psychophysics, for example, scotopic sensitivity function, large field colorimetry. The world of visual science has lost a distinguished and highly respected visual scientist.

(Ken Sagawa, Director of CIE Division 1)

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Color Research and Application

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For your Diary

Date	Title of Meeting	Organizer	Place of Meeting
2001			
Jan. 19-21	Lighting Efficiency: Higher Performance at Lower Costs	Illumination Society of Bangladesh, ieal@bdmail.net	Dhaka, Bangla Desh
Jan. 22-24	CIE Expert Symposium on Uncertainty Evaluation	CIE Division 2	Vienna, Austria
Feb. 8-9	Strategies in Light 2001: Lighting the Future with LEDs	Strategies Unlimited info@strategies-u.com www.strategies-u.com	Burlingame, California USA
Feb. 9-12	Vision Science and its Applications (VSIA)	wyanis@osa.org	Monterey, California, USA
March 19-20	Color Basics for Industry, ISCC Educational Course	ISCC, iscc@compuserve.com	Cleveland, Ohio, USA
April 22-25	Image Processing, Image Quality, Image Capture, Systems Conference	IS&T, fax: +1 703-642-9094, info@imaging.org	Montréal, Quebec, Canada
May 10-12	CIE Expert Symposium on LED Measurement	CIE Division 2	Gaithersburg, USA
May 13-17	CORM 2001	Danny C. Rich, RichD@sunchem.com	Gaithersburg, USA

Date	Title of Meeting	Organizer	Place of Meeting
May 16-19	CIE Division 2 Meeting	CIE Division 2	Gaithersburg, USA
May 21-23	Showlight 2001	Showlight 2001 Administration, fax: +44 1323 64 6005, ruth@plasa.org.uk	Edinburgh, Great Britain
May 22-23	LTG Fachtagung 2001	LTG, tel./fax: +49 (0) 2236 - 426 51, office@ltg.at	Wels, Austria
May 22-24	7th International Road Fair: Roadware01	Agentura Viaco, fax: +4202 2056 1456 roadware@viaco.cz	Prague, Czech Republic
May 29-June 1	Lightfair International 2001	AMC, reneeg@lightfair.com, www.lightfair.com	Las Vegas, Nevada, USA
June 11-16	Summer Study: European Council for Energy Efficient Economy	ECEEE, www.eceee.org	Côte d'Azur, France
June 13-15	Light 2001 - Lighting Architecture Design	BNCI, fax:+359-2-654883, KLWEL@vmei.acad.bg	Varna, Bulgaria
June 16-17	CIE Division 3 Meeting	CIE Division 3	Iceland
June 18-20	Lux Europa 2001	Ill.Eng.Soc.Iceland, fax: +354 515 9008, luxeuropa@lv.is	Reykjavik, Iceland
June 23	Division 1 Meeting	CIE Division 1	Rochester, USA
June 24 - 29	AIC Color 01 Quadrennial Congress	AIC Color 01 Secretariat fax: +1 703 318 0514 iscc@compuserve.com	Rochester, USA
June 28-30	ILUMINAT 2001	F.Pop, Florin.Pop@insta.utcluj.ro	Cluj-Napoca, Romania
July 29-Aug.3	Lens & Optical System Design	SPIE, POB 10, Bellingham, WA 98227-0010, annualmeeting@spie.org	San Diego, CA, USA
Sept. 6-8	CIE Midterm Meeting	CIE	Istanbul, Turkey
Sep. 10-16	Intern. Lighting Congress: City Lighting and Beautification	ATMK, fax: +90 212 261 05 49 serefhan@yildiz.edu.tr	Istanbul, Turkey
Nov. 6-8	Nat. Measurement Conference NMC 2001 and BEMC 2001	D.Hall, NPL, fax: 020 8943-6821, nmp_sec@npl.co.uk	Harrogate, Great Britain

The staff of the CIE Central Bureau is sending you

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