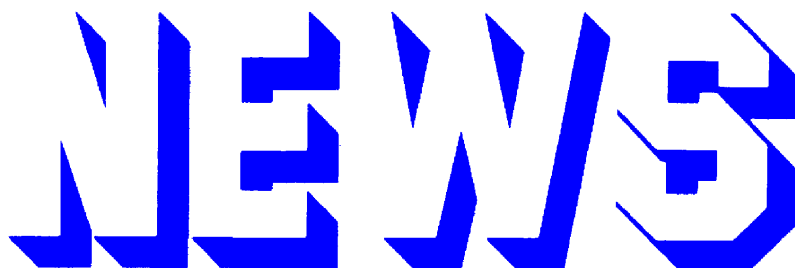




COMMISSION INTERNATIONALE DE L'ECLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION



NUMBER 60

Dec. 2001

Comité Luminotécnico
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The CIE Mailing List on Education

In 1999, after the Warsaw Session, the CIE Board of Administration decided to set up an electronic mailing list to collect information about what the CIE could do to promote light and lighting education. Since the mailing list has been functioning for two years, the Board of Administration reviewed its progress at the Istanbul meeting last September.

The Board of Administration decided that the Education Mailing List should become a forum for people interested in lighting education to exchange information, and should provide technical support for education institutions. The work has been organised into sub-groups dealing with the following questions:

- Teaching light and colour in schools providing general education for the 6-18 year-old age group. Here the main question is how to harmonise the information provided in the drawing and painting classes, classes dealing with arts, and classes of physics, chemistry and biology. Light and colour are really subjects that can provide excellent cross-fertilization between the different areas under discussion in the arts and sciences classes. We look forward to an interesting cooperation not only between CIE nuts, but also with other educational organisations and groups interested in the subject.
- Vocational schools, training for different professions. One experiences great need of sound professional training in the field of electrical technicians, painters, merchants of technical goods, etc.
- High schools and colleges specializing in technical subjects. These institutions provide the labour force to work in laboratories where beside electrical, chemical and mechanical knowledge, the fundamentals of radiometry, photometry and colorimetry are also needed.
- Professional lighting courses at universities and technical colleges. This should be the core area related to CIE activity, but one issue is how much knowledge is needed in the underlying chemistry and biology?
- Other university courses taught in electrical, architectural, computer science, chemical, physical departments. This is the counterpart of the curriculum mentioned in the previous entry. The physicist or biologist working in a laboratory has to know the fundamentals of radiometry, spectroradiometry, photometry and other areas of CIE-related expertise.
- Professional lighting courses designed to produce recognised lighting designers/engineers. Too often the professional recognises the need for light and lighting knowledge only after he/she has already left the formal technical college or university. The CIE should become committed in helping to set up courses for people, who are already working but would like to get more light and lighting education.

IN THIS ISSUE

The CIE mailing list on education - 25th Session of the CIE – CIE Midterm Meeting – News from the Divisions – New Publications – Future Meetings – From the Lighting Journals – For your Diary

Work is now starting in the sub-groups to collect information on existing courses and textbooks, or other background material. Too often has the Chair of this Mailing List had the experience that in books from well-known publishers, the light and lighting chapters provide only minor supplementary information to the main subject of the book, or that the light and lighting information provided is imprecise. It will be the task of the Mailing List participants to screen the literature and provide advice on the best books in the field.

Anybody interested in the work of the CIE Mailing

List on Education can join the list. It is a moderated list. Please contact the chair to be put onto the mailing list.

At the Midterm Meeting of the General Assembly in Istanbul, some colleagues proposed that the education question should be one of the subjects discussed in a Workshop during the CIE Session 2003 in San Diego. This is a real challenge for the experts participating in the Education Mailing List.

Dr. János Schanda
Chair of CIE Mailing List on Education
kntsj@almos.vein.hu



25th SESSION OF THE CIE

25 June - 2 July 2003

San Diego, California, USA

CALL FOR PAPERS

The 25th Session of the CIE will be held in San Diego, USA, from 25 June to 2 July 2003.

According to the proposed time table (see below) the Session will be divided into two parts:

- 1 The *conference* part from 26 to 28 June 2003 with invited papers, presented papers, presented posters, posters at the stand and workshops.
- 2 The *technical meetings* of the Divisions from 30 June to 2 July 2003.

The Session will begin on 25 June in the evening and will end on 2 July after the Divisional meetings with a Closing Farewell.

The *conference* part has provision for three *invited papers*, 18 *presented papers*, 45 *presented posters* as well as a number of *posters* presented at the stand and up to six *workshops*. The presented papers, presented posters and the workshops will be given in three parallel sessions. For the posters presented at the stand ample room will be available.

	Conference				Divisional meetings		
	Wed 25 June	Thu 26 June	Fri 27 June	Sat 28 June	Mon 30 June	Tue 1 July	Wed 2 July
a.m.	GA	3 Invited Papers in Plenary Session 3x2 Presented Papers and 3x5 Presented Posters in 3 parallel sessions			Divisional meetings, up to 3 parallel sessions, and Technical Committee meetings Technical tours		
p.m.	GA	2 Poster viewing sessions 3x2 Workshops					
evening	Reception	free	Banquet	Harbour Cruise			Closing Farewell

Prospective contributors are invited to submit papers dealing with new results in the field of light and lighting. The subjects of the papers should be relevant to the work and the terms of reference of the seven CIE Divisions

and their Technical Committees. (For detailed information on domains of interest, Section 2 of the CIE Roster or the CIE website should be consulted.) Contributions published before will not be accepted. Papers dealing with questions of direct concern to the work of the Divisions will get priority.

PROCEDURE FOR SUBMISSION OF PAPERS

Contributions can be submitted electronically or in paper form.

Electronic submission (will be activated soon): for details on the electronic submission, please visit the CIE website (<http://www.cie.co.at/> and click on "Conferences") where also the "Offer of Paper" form can be downloaded.

Submissions on paper: prospective contributors should submit the Offer of Paper and an extended abstract of their contribution printed in triplicate (plus on disk) to the Central Bureau of the CIE: Kegelgasse 27, A-1030 Vienna, Austria, by mail (no fax contributions will be accepted).

The extended abstract should be submitted in English with a minimum of 500 and a maximum of 1000 words. It should be sufficiently specific and informative and should make clear the novelty the author wishes to describe, referring to results and practical applications. Based on this information the Board of Administration will make decision on the acceptance of the paper and on whether it will be given orally in a paper or presented poster session, or as a poster presented at the stand.

The submissions must arrive at the Central Bureau by:

1st April 2002

Authors will be informed on the decision of the Board of Administration by 1st August 2002.

After the acceptance of their papers authors will be provided with information indicating format and deadlines of the written contributions for inclusion in the Proceedings.

CIE Midterm Meeting

Istanbul, Turkey, September 2001

From 6 to 11 September 2001, the CIE Board of Administration, its different subcommittees, the General Assembly, as well as CIE Divisions 4, 5 and 6 and TCs met in Istanbul, Turkey.

The General Assembly elected the Officers for the next quadrennium (2003-2007):

President:	W. v. Bommel
Past-President	H.A. Löfberg
Vice-President Technical:	W. Julian
Vice-President Publications:	F. Hengstberger
Vice-President:	J. Bastie
Vice-President:	H.S. Mamak
Vice-President:	K. Sagawa
Vice-President:	D. Sliney
Secretary:	J. Schanda
Treasurer:	M. Seidl

The Finance Committee reviewed the financial situation of the Commission, and the General Assembly approved the 2002 - 2003 budgets and the new dues calculation system.

The following 28 persons received a CIE Award:

Belgium	ir. Jean-Marie Dijon
Belgium	ir. Frans Sarteel
Bulgaria	Dr. Eng. Deian Deianov
Bulgaria	Dr. Eng. Christo Vassilev
Bulgaria	Prof.Dr.Eng. Nicolay Vassilev
China	Prof. Yuanri Cui
China	Prof. Guangan Li
China	Prof. Tianxing Shen
China	Prof. Jinsui Wang
China	Prof. Ming Yang
China	Prof. Zhengming Yang
China	Prof. Shaolong Zhu
Finland	Esko Kasurinen
Finland	Pertti Pylvänäinen
Great Britain	Dr. V. H. C. Crisp
Great Britain	Dr. Alastair Mc Kinlay
Great Britain	Anthony I. Slater
Japan	Yoshio Hirose
Japan	Morotake Nishi
Norway	Prof. Dr.Ing. Odd Arnesen
Russia	Artem Atayev
Russia	Georgy Boos
Russia	Andrey Kokinov
Russia	Leonid Prikupets

Thailand	Pakorn Borismasorn
Thailand	Dr. Jamnarn Hokierti
Thailand	Dr. Pramohit Unhavaithaya
USA	Jack J. Hsia

Heartiest congratulations to the recipients of the awards. The Central Bureau would like to thank them for their contribution to the CIE and would like to wish them good health and much success in their future activities. May we rely also in the future on their expertise !



News from the Divisions

Division 1 - Vision and Colour

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

The following new TCs have been established:

TC 1-60: Contrast Sensitivity Function for Detection and Discrimination (Chairman: E. Martinez-Uriegas, USA)

Terms of Reference:

- 1) To specify a baseline achromatic CSF with its reference conditions and reference observer.
- 2) To specify CSF extensions based on discrimination thresholds, as well as chromatic CSFs for both detection and discrimination.

TC 1-61: Categorical Colour Identification (Chairman: T. Ishida, Japan)

Terms of Reference: To prepare a report describing a colour categorization map for the photopic and mesopic illuminance levels.

The Division has established the following new reporterships

- *Visibility of a Flash of Light* (Reporter: D. Couzin, USA)
Terms of Reference: To investigate visibility of a flash of light.
- *Colour Rendering of LED Light Sources* (Reporter: P. Bodrogi, Hungary)
Terms of Reference: To document any problems associated with the use of the CIE Colour Rendering Index in assessing the lighting quality of near-white LED sources.

The draft report of TC 1-50 "CIE equations for disability glare" has been sent out for ballot among Division and Board members (deadline: 2002-01-15).

Division 2 – Physical Measurement of Light and Radiation

<http://cie2.nist.gov>

The draft report of TC 2-04 "The use of tungsten filament lamps as secondary standard sources" and the draft report of TC 2-22 "Intercomparison of measurements of the luminous flux of high-pressure sodium lamps" were balloted among Division and Board members, comments received are with the Division for consideration.

Division 3 – Interior Environment and Lighting Design

<http://www.ciediv3.entpe.fr>

The following new TC has been established:

New TC 3-38: Tubular Daylight Guidance System (Chairman: D. Carter, UK)

Terms of Reference: To gather together from literature, current research and practice information on system components, performance characteristics, design methods and standards for both active and passive tubular light guidance systems, so as to enable informed choices to be made in their procurement, design, commissioning and use.

Division 6 - Photobiology and Photochemistry

<http://physics.nist.gov/cie6/>

The Draft Standard CIE DS009.2 "Photobiological safety of lamps and lamp systems" (elaborated by TC 6-47) was circulated to CIE National Committees for vote (deadline: 2002-02-10).



New CIE Publications

Errata to Publication CIE 54.2-2001

Retroreflection: Definition and Measurement

Page III:

TC members: The correct name is Motoi Nanjo

Page 25:

Third line from bottom should read:
E ($x_e - x_c, y_e - y_c, z_e - z_c$) observation

The following publications are readily available at the CIE National Committees or the CIE Central Bureau in Vienna.

Road Surface and Road Marking Reflection Characteristics

CIE 144:2001

ISBN 3 901 906 12 6

The purpose of this technical report is to provide the technical basis for the application of reflection characteristics of road surfaces and road markings in road lighting, daylight and vehicle headlamp illumination.

The technical report describes relevant conventions and the influence of measurement angles. For road lighting and daylight the technical report further details reflection tables, a description system, and the classification and luminance of road surfaces and road markings.

Recommendations are given for in situ measurement of characteristics relating to the lightness and the retroreflection of surfaces, some thoughts are provided for characteristics relating to the specularity of road surfaces and road markings.

The technical report is written in English, with a short summary in French and German. It consists of 35 pages with 16 figures and 16 tables.

Proceedings of the CIE Expert Symposium 2000 "Extended Range Colour Spaces"

CIE x021:2001

ISBN 3 901 906 10 X

The increasing use of computers and networks is causing images to travel down novel paths. Images created by video cameras are going to print; medical x-rays are sent to video displays, etc. All this creates a need to rethink the issues of efficiency and effectiveness. How do we design an appropriate format for transmitting the data if we are not sure where the images are going? An answer that immediately comes to mind is to transmit the images using a standard colour space.

The selection of an appropriate colour space is no easy matter. In 1999, the International Electrotechnical Commission (IEC) made a first attempt at answering this question with their sRGB colour encoding. This produced an encoding that represented the colour gamut of a typical cathode ray tube (CRT) using red, green and blue device control values. While this space has proved useful in a

number of areas, it is not adequate for all purposes. Many people perceive a need for a standard colour space that covers a gamut of colours larger than that of a CRT.

Accordingly, on 11 November 2000, the CIE held an Expert Symposium on Extended Range Colour Encodings. Experts, as invited speakers, from standards bodies, academia and industry discussed extended range colour encodings for digital photography, multimedia, graphic arts, colour and Internet facsimile, television and digital cinema. Speakers described the problems to be solved, the criteria for solutions and what spaces have been proposed and developed. After the presentations, there was an open discussion session.

These Proceedings include the papers provided by the speakers and a transcript of the open discussion. The publication contains 93 pages.

Proceedings of the 2nd CIE Expert Symposium on LED Measurement "Standard Methods for Specifying and Measuring LED and LED Cluster Characteristics"

CIE x022:2001

ISBN 3 901 906 11 8

The Proceedings of the Symposium contains on approximately 100 pages the text (partly only abstracts) of 23 papers read at the symposium. Questions dealt with encompassed items as fundamentals of LED technology, dealing also with problems of OLEDs, spectral and spatial characteristics of LEDs, their use in traffic lights and other applications.

Several papers addressed the problem of colorimetric measurement: not every spectroradiometer is capable of accurately determining the spectral and colorimetric properties of LEDs. Methods of spectral correction, deconvolution of measured spectra have been discussed.

With the continuous increase of LED luminance and radiance the question of eye hazard becomes again acute. Papers discussed the question both from the point of view of coherent and incoherent radiation sources.

Among the LED applications the most important one is for the time being the use in traffic lights. This question was thoroughly discussed and both the American and Australian situation delivered. LEDs

become applicable also in indoor lighting, and there the colour rendering is an important parameter. A visual experiment has shown that the results of the CIE colour rendering test method do not correlate well with visual observations.

In many applications more than one LED has to be used, the testing of such LED clusters is a still unsolved problem, which was also addressed at the symposium.

These Proceedings include the papers provided by the speakers and a transcript of the open discussion. The publication contains 112 pages.



New Publications in the Field of Light and Lighting

Handbook of Optical Engineering

Eds. Daniel Malacara and Brian J. Thompson

Marcel Dekker, Inc. 2001
ISBN 0 – 8247 – 9960 – 7

This comprehensive book was written by co-workers of leading US universities dealing with optics, among others the University of Arizona (Tucson), the University of Central Florida (Orlando), the University of Rochester and by the co-workers of the Research Institute Centro de Investigaciones en Optica (León, Mexico). The authors' aim was not to rewrite the classical work of Born and Wolf but to provide engineering and technical information for optical engineers to meet present and upcoming challenges in their day-to-day responsibilities.

The reviewer cannot undertake the task to review all the chapters in such a broad area, consequently it is worth enumerating at least the titles of each of the 26 chapters to provide an overview of the covered topics: Basic ray optics, Basic wave optics, Basic photon optics, Prisms and refractive optical elements, Reflective optical components, Diffractive optical components, Some lens optical devices, Telescopes, Spectrometers, Wavefront shape measurement in optical testing, Basic interferometers, Modern fringe pattern analysis in interferometry, Optical methods in metrology: Point methods, Optical metrology of diffuse objects: Full-field methods, Holography, Fourier optics and image processing, Electro-optical and acousto-optical devices, Radiometry, Incoherent light sources, Lasers, Spatial and

spectral filters, Optical fibers and accessories, Isotropic amorphous optical materials, Anisotropic materials, Light sensitive materials: Silver halide emulsions; Photoresist and photopolymers, Optical fabrication.

In all chapters the descriptions are restricted to explaining principles, processes, methods and procedures in a concise and practical way to apply the information easily. Useful formulas are provided wherever possible, along with step-by-step worked out examples to illustrate application and clarify calculation method. In such a huge handbook of about 1000 pages, not all the chapters are of equal quality, for example the one written by W. Wolfe on Spectrometers was judged to be the weakest among the chapters read by the reviewer. But luckily, reading the rest was a great mental satisfaction, the topics were handled by modern ways, the authors tried to avoid the usage of text book deductions, just to show one example Gaussian optics were discussed à la Maxwell.

The authors collected the most modern topics and technologies in their fields: they discuss diffractive optical elements including binary optics, as well as sol gel technology; telescopes containing adaptive optics are described; in quantum optics mode locking and pulse compression are detailed; temporal and spatial heterodyning methods for fringe analysis in interferometry are shown; electronic speckle pattern shearing interferometry, laser speckle photography and particle image velocimetry in optical metrology are depicted; information storage and processing in holography are briefly described; coherent processing, neural networks and wavelet transforms in Fourier optics and image processing are shown: erbium doped fiber amplifiers, chirped fiber Bragg gratings, fluoride and calcogenide fibers for IR use in fiber optics are explained; production of aspheric surfaces in optical manufacturing is shown. The modernity is well demonstrated by the abundant references dated upto 1999, that allow the optical engineer further research in a given topic.

Special chapters are dedicated to electro-optic and acousto-optic devices, radiometry, incoherent sources and lasers that are the most important topics for CIE members. These chapters are well written, logically organized. Because of the limited space they can give only a short introduction, but all the authors of these chapters succeeded in providing thorough information supported by the necessary mathematical deductions for basic understanding. The chapter of incoherent sources even provides internet sites for getting broader view of this topic, among others the CIE site (unfortunately the not perfectly functioning mirror site in Japan).

Smart imaging systems

Bahram Javidi (editor)

SPIE Press 2001

ISBN 0 8194 3735 2

Imaging systems become important equipment for the illuminating engineer. This book contains eleven monographs by outstanding experts of their field, dealing with different questions related to imaging. Not all of the papers are of prime interest to CIE experts, some of them deal with image identification and similar problems - mainly from the military point of view. These are also interesting in their subject area, and can provide a better understanding what modern optical image acquisition and processing can provide. But two of the monographs are of direct relevance to CIE activities.

A description and application of a CMOS digital vision chip by M. Ishikawa presents an introduction to an interesting and cost effective imaging system compared to high tech CCD cameras.

The monograph on "Image processing for intelligent transportation systems: Application to road sign recognition" deals with a problem that will certainly interest members of CIE Division 4: it discusses how a road sign can be recognised automatically. The system described here enables scale and illumination invariant recognition of prescribed targets. The paper gives us an insight of what modern informatics can do to make the use of our highways safer. The example shown was the recognition of a stop sign. The paper states: "the road sign varying in scale was always detected even when it was distorted by raindrops".

Let us hope that these - presently still experimental - systems become sooner or later standard parts of our road vehicles

CIE Symposium

Call for papers

CIE EXPERT SYMPOSIUM on

Temporal and Spatial Aspects of Light and Colour Perception and Measurement

22-23 August 2002

Veszprém, Hungary

Both in the field of photometry and colorimetry, as well as in the underlying physiological and

psychological perceptions new results have been achieved during the past years, finding now their way into applications. Not every aspect of the spatial and temporal characteristics of light and colour perception is understood well enough to be able to translate the knowledge into photometric and colorimetric prescriptions. Task of the symposium is to pool the knowledge of physiologists, psychologists and measurement science experts to get well-founded photometric and colorimetric descriptions and guides for measuring the temporal and spatial properties of light and colour.

The Symposium will feature invited papers as well as contributed papers. Papers should deal with one of the following subjects:

- Temporal aspects of light and colour perception (perception of flashing lights, brightness dynamics, etc.).
- Temporal aspects of light and colour measurement (photometry of flashing lights, radiometric, photometric and colorimetric measurement of stimuli changing in time, etc.).
- Spatial aspects of light and colour perception (contrast sensitivity function, visual acuity, chromatic induction, etc.).
- Radiometric, photometric and colorimetric measurement of spatially non-homogeneous stimuli.

Authors are invited to submit two page extended abstracts of their proposed contributions in English no later than 31 March 2002 to the CIE Central Bureau.

The Symposium Registration Form will be placed onto the CIE website

(<http://www.cie.co.at/cie/symp/symposia.html>) within short.

Future Meetings

Energy Efficient Lighting Systems

20-22 February, 2002

Tucson, Arizona, USA

This conference will feature more than 20 expert speakers who will discuss the opportunities and obstacles in existing and new markets for highly efficient energy systems in illumination applications. It will bring together executives and industry leaders from the lighting community, component and equipment manufacturers, lighting distributors, major end-users, and electricity utility and government energy efficient program planners to discuss the recent rush to increase energy efficiency in lighting systems.

The following conference sessions are planned:

- global market outlook and assessment
- technical hurdles and regulatory issues
- new developments in design and materials
- market segment analysis

For further information, please contact:

Patricia Kinzer
Intertech
19 Northbrook Drive
Portland, Maine 04105 USA
tel.: +1 207 781 9604
fax: +1 207 781 2150
e-mail: pkinzer@intertechusa.com

Symposium on the Visual Environment, its Descriptors and Consequences for Human Endeavour

**24-25 April, 2002
London, UK**

The challenges posed by this symposium include the exploration of past and present methods of evaluating, designing and providing Visual Environments that enhance the well-being of humans and to encourage new research efforts to re-balance this crucially important area of Architectural Science and so to advance the field.

With the aim of facilitating participant interaction the Symposium attendance shall be restricted to 160 people.

Sessions will be held on:

- Historical legacy: Lighting Research progress during the 20th Century
- Visual climate: Photometric, Radiometric and Colorimetric
- Built environment descriptors - visual significance, lighting implications, design decisions, methodologies and visualisation devices, design aides and technology interactions.
- Physiological and ergonomic implications of vision: Environmental lighting; development of safe, energy efficient light sources; glazing controls; influences of visible and near visible electromagnetic radiation on human health and well-being

- Perception and psychophysics of vision: Visual comfort, adequate light for visual tasks, glare, influence on 'Technology-Life' of cognition's 'time and circumstance' influenced evolution.
- Panel and audience debate opportunities and challenges

For further information please contact:

paulahumphries@eurobell.co.uk

AIC Color 2002 "Color & Textiles"

**29 - 31 August, 2002
Maribor, Slovenia**

will be organized by the Slovenian Colorist Association and Textile Department, FS UNI MB, on behalf of the International Color Association.

Colour is a phenomenon that greatly influences textile aestheticity, therefore the theme of AIC 2002 will be "Color & Textiles". The aim of the meeting is to present the most up-to-date theoretical and research achievements in colour science and its implementation in textile practice.

The topics will include:

- colour science (colour physics, colour vision, colour psychology)
- colour education
- colour and humans (colour design, colour in living environment)
- colour evaluation (colour measurement, colour appearance, colour management, colour order systems, colour standardization)
- colorimetry in textile applications

An exhibition will be held in parallel with the conference.

Deadline for abstracts: 2002-02-28.

Official language: English

Registration fee: USD 300 (advance registration)

For further information, please contact:

Dr. Vanja Kokol - AIC Secretariat
UNI MB, FS - Oddelek za tekstilstvo
Smetanova 17
SI-2000 Maribor
Slovenia
vanja.kokol@uni-mb.si

Lux Pacifica 2002

9-11 September 2002
New Delhi, India

The Indian Society of Lighting Engineers (ISLE) takes great pride in hosting the 4th Lux Pacifica Conference. This conference is co-organized by the Illuminating Engineering Societies of Australia and New Zealand, China, Hong Kong, Japan, North America, Russia and Thailand.

ISLE is also showcasing the lighting capabilities of the participating countries in the *Light India International 2002* Exhibition (6-9 September, New Delhi).

The conference will cover the following topics:

- Vision and colour
- Psychological aspects of lighting
- Lighting and medicine
- Physical measurement of light and radiation
- Requirements of testing and measurement laboratories for lighting industry and educational institutions
- New lighting sources
- Latest trends in luminaires and lighting electronics
- Lighting design and application
- Latest calculation methods including computer programmes
- Use of daylight - do's and don'ts
- Lighting for aesthetics, architecture and interior design
- Residential lighting
- Energy conservation in lighting
- Lighting using non-conventional energy sources
- Remote/rural area lighting
- Lighting education

In addition there will be workshops on:

- Scientific approach for project management and alternate raw-materials
- Lighting for architects
- Test and measurement of lighting products
- Manufacturing and testing of automotive lamps

Authors from the Lux Pacifica countries should submit their abstracts to their respective national illuminating society for acceptance (others will forward their abstracts to ISLE) by 2002-01-31.

For further information, please contact:

Indian Society of Lighting Engineers
c/o Thorn Lighting, A 274, 1st Floor
Defence Colony, New Delhi 110 024
tel.: 4694970, 4694979, 4694986
fax: 4656739
e-mail: islel@vsnl.com

From the Lighting Journals

Journal of Light & Visual Environment

Volume 25, Number 1, May 2001

Mercury-free HPS lamps with high CRI operated on inductive ballast and its one application for plant growth
N. Saito, S. Kosaka, A. Okada, K. Nishioka, M. Toho, K. Murakami, K. Horaguchi

Variable color discharge lamps with internal and external electrodes
T. Fujino, M. Ryoko, M. Aono

Development of Mn^{2+} activated Ba-Sr-Mg-aluminate green phosphors for PDPs
T. Hisamune, M. Nabu, A. Ohto, Y. Oguri, T. Endo

Assessment of physiological effect of lighting by spectral analysis of heart rate variability
S. Sugimoto, I. Ikeda, Y. Noguchi

Reasonable lighting factors for work environment with VDT tasks
M. Kawakami, S. Matsumoto, O. Myodo

Visual environment and sight-line displacements of navigation officers for good lookout
M. Furusho

Linear uniform colour space composed of simple transformations of tristimulus values X, Y and Z
K. Ikeda, K. Obara

Effects of house exterior lighting on the evaluation of lighting environment on nighttime residential streets
R. Muramatsu, Y. Nakamura, S. Nakajima, S. Kobayashi

Sensation of brightness for a living room with downlights
W. Iwai, Y. Saito, S. Sumi, T. Sakaguti

Light & Engineering (Svetotekhnika)

Volume 9, Number 1, 2001

Light sources: State of the art - 2000
A. Wacker, S. Müller

Degradation mechanism for sulfur lamps
O.M. Vokhnik, A.N. Kozlov, E.G. Leksina,
G.A. Lyakhov, E.A. Mukhina, Y.V. Pavlov,
R.M. Umarchodjaev

Light engineering market in Germany: Strategy and
tactics of Artemide Company
W. Klamann

Light in museums
H. Hofmann

Hollow light guides at Potsdamer Platz in Berlin
R. Signer

A look into the history of lighting design
Y. V. Nazarov

Architectural illumination of the highway flyover
across Prospekt Mira in Moscow
E.I. Myasoedova, V.M. Piatigorsky,
N.N. Timofeeva

Technique of monitoring radiant flux from bactericidal
lamps in the process of their operation
M.P. Belavsky, A.L. Wasserman,
P.V. Rubinstein

On the measuring method and latest equipment for
reliable measurements of the photobiologically-
chemically effective retinal hazards
Khanh Tran Quoc, M. Brose

Procedure for continued urban lighting management
evaluation
E.R. Manzano, R. San Martín

Evaluation of effectiveness of flash lamp pumping of
lasers
Y.G. Basov, V.A. Chumakov

Julian Aizenberg turns 70

Lighting Design + Application

September 2001: Dining & Lighting

October 2001: Bridges

Lighting Research & Technology

Volume 33, Number 3, 2001

Inner contrast and perceptual quality in tasks with
video display units
B.M. O'Donnell, E.M. Colombo

Lamp colour properties and apparent brightness: a
review
S.A. Fotios

Shafts for daylighting underground spaces: sizing
guidelines
F. Gugliermetti, S. Grignaffini

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For your Diary

Date	Title of Meeting	Organizer	Place of Meeting
2002			
Feb 20	Lighting and landscapes	ILE, tel. +44 01788 576942, fax: +44 01788 540145 info@ile.co.uk	Kew, London, Great Britain
Feb. 20-22	Energy Efficient Lighting Systems	Intertech, fax: +1 207 781 2150 pkinzer@intertechusa.com	Tucson, Arizona, USA
Feb. 24-26	ISCC Conference on Industrial Color Solutions	john.s.locke@usa.dupont.com	Philadelphia area, USA
March 5-7	International Conference on Light Pollution	Cerro Tololo Inter-American Observatory fax: +56 51 205212 light@ctio.noao.edu	La Serena, Chile
April 7-10	Image Processing, Image Quality, Image Capture, Systems Conference	IS&T, info@imaging.org http://www.imaging.org	Portland, Oregon, USA
April 14-18	light+building	Messe Frankfurt, fax: +49 75 75 6006 info@messefrankfurt.com	Frankfurt, Germany
April 24-25	Visual Environment, its Descriptors and Consequences for Human Endeavour	paulahumphries@eurobell.co.uk	London, Great Britain

May 6-8	Lighting for Places of Worship and Historical Sites	Assoc. of Eng. & Arch. of Israel fax: +972 3 523 5993 aeai@netvision.net.il	Jerusalem and Tel Aviv, Israel
May 7-8	Fachtagung 2002 der LTG	LTG, Postfach 148, A-2340 Mödling tel/fax: +43 (0)2236 42651 office@ltg.at	Innsbruck, Austria
May 29-31	European Conference on Energy Efficient Lighting RIGHT LIGHT 5	ADEME, fax: +33 493 653 196	Nice, France
August 22-23	CIE Expert Symposium on Temporal and spatial aspects of light and colour perception and measurement	CIE Central Bureau Kegelgasse 27, A-1030 Vienna ciecb@ping.at	Veszprém, Hungary
August 26-28	CIE Division 1 Meeting	CIE Division 1	Veszprém, Hungary
August 26-28	CIE Division 2 Meeting	CIE Division 2	Veszprém, Hungary
August 29-31	AIC Color 2002	AIC Secretariat Smetanova 17, SI-2000 Maribor vanja.kokol@uni-mb.si	Maribor, Slovenia
Sept. 6-9	Light India International 2002	ISLE, fax: +91 11 46 56 739 isledel@vsnl.com	New Delhi, India
Sept. 9-11	LuxPacifica 2002	ISLE, fax +91 11 46 56 739 isledel@vsnl.com	New Delhi, India
Sept. 22-25	Licht 2002	NSVV arommers@kema.nl, www.nsvv.nl	Maastricht, The Netherlands
Oct. 23-26	Energy Efficiency & Healthy Buildings in Sustainable Cities	CNRS URA 1652, fax: +33 (0)4 7204 7041 epic2002aivc@entpe.fr	Lyon, France
Nov. 3-5	Light and Human Health	EPRI/LRO www.lightingresearchoffice.com	Orlando, Florida, USA

2003

June 23- July 2 CIE Division 4 meeting CIE Division 4 USA

The staff of the CIE Central Bureau is sending you

**SEASON'S GREETINGS
MEILLEURS VOEUX**

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