CIE NEWS

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DIVISION 4 NOW AND TOMORROW

In Warsaw the Board of Administration of the CIE appointed Mr. Pentti Hautala as the new Director of Division 4 for the next quadrennium. As Associate Directors were appointed Werner Riemenschneider (Switzerland) and Ad de Visser (The Netherlands). Division 4 Secretary is Tapani Nurmi (Finland).

Division 4 had its last meeting in Toronto in September 2000, our next meeting will be in Istanbul together with CIE Midterm meeting 2001.

At the Toronto meeting the Secretary suggested that in the future communication will be done as much as possible by e-mail and pdf-files. Understandably those members who still would like to have normal letters can have those. The division members agreed to this policy by general consent.

Also at the Toronto meeting it was decided that in the future all the reports will be asked in advance both from the national delegates as well as from the TC chairmen. So division members should have some "input" before every meeting, and they could get acquainted with the cases in advance.

Technical Committees

Division 4 has altogether 21 Technical Committees. Their names, chairpersons and terms of reference are listed on the Division 4 web pages: http://www.ee.tut.fi/tel/cie4/

The activity plan of the Division is very simple – the proper progress of all Technical Committees. Here are some examples of the most active committees:

TC 4-14: *Colours of light signals* (Chair: Barry Cole, Australia)

has finished its work and completed the CIE standard on signal colours, which has been approved by National Committees.

This CIE standard was published in April 2001 as CIE S004-2001: "Colours of light signals".

This standard specifies the allowable colours for steady signal lights and flashing signal lights where the duration of the period is at least one second. It is applicable to the colours of signal lights used in sea, road, air and rail transport systems including signal lights on ships, aircraft, motor vehicles and trains, where the recognition of the colours involved is essential. Background information to this Standard can be found in the Technical Report CIE 107- 1994 "A review of the Official Recommendations of the CIE for the Colours of Signal Lights".

TC 4-19: *Road visibility in fog* (Chair: Michèle Colomb, France)

Terms of reference: To investigate the visual performance and the propagation of light in thick fog. To study the implications for the design of road lighting and signalling in relation to the measurement of visibility.

IN THIS ISSUE

A new chairperson has been appointed to this TC (Michèle Colomb) and there are positive wishes the work of this TC is going to advance well.

TC 4-21: *Interference by light of astronomical observations* (Chair: Duco Schreuder, Netherlands)

The aim of this TC is to produce an international framework to enable national or local regulations, or recommendations to be produced to restrict interference by light with astronomical observations. This committee was set up jointly with the International Astronomical Union (IAU).

This is a very active TC, with a lot of discussion also between meetings.

The need for updating CIE 126-1997 "Guidelines for minimizing sky glow" was discussed in line with above and the work of TC 5-12 on "Obtrusive Light", and it was agreed that a 1st draft would be available by the next meeting in either March or September 2001.

The last meeting was in Athens in May. There it was noticed that as it was not possible to reach a consensus on the basis of the knowledge that is available at present, further studies are needed. These studies are under way but they will take still a considerable time to complete.

TC 4-26: *Systems for measurement of photometric quantities of road lighting installations* (Chair: Giuseppe Rossi, Italy)

Terms of reference: To produce a guide for automatic measurement systems for the metrological characteristics of road and tunnel lighting.

During the meeting in Toronto in September 2000 the draft was reviewed by the attendees: Some modifications were discussed and some guidelines given. The discussion covered some general aspects of the guide. It was suggested and agreed that the guide should describe the scientific aspects, the standardisation aspects will be covered by another document.

TC 4-35: *Tunnel lighting* (Chair: Werner Riemenschneider, Switzerland)

Terms of reference: Revision of Publication CIE 88.

Draft 6.3 has been reviewed and has become draft 7 for the full committee. L_{seq} method shall be incorporated in the body of the document by including the atmosphere and the windscreen effect. L20 method will be maintained as an appendix.

TC 4-36: *Visibility design for roadway lighting* (Chair: Richard Stark, USA)

Terms of reference: To develop a technical report on design procedures for roadway lighting based on the visibility level concept.

Committee members are continuing their research into visibility and measurement. Also presentations on comparison between accidents and lighting with headlights have been included.

The goal is to produce a document containing available visibility research, the methods practised in various countries and a document outlining the basis for a design methodology. The aim is to complete this work by the end of the current quadrennial period.

TC 4-37: *Road lighting for developing countries* (Chair: J. Stuart Yerrel, UK)

Terms of reference: To set up a framework for standards for road transport lighting – auto-motive lighting, road and environmental lighting – in developing countries, based on CIE standards.

The emphasis of the work has changed slightly and its scope expanded. Its aim is to provide practical guidance to developing countries on the most effective ways to improve night-time road safety through better visibility and visual guidance. Its output will be a manual for planners, city and district engineers, consultants, policy-makers and project officers in national and international aid agencies.

The committee has agreed on the detailed contents of the four main chapters of the manual, covering general issues and night-time safety/accident statistics; markings, signs and reflectorisation for rightway infrastructure; road user marking and lighting; fixed roadway lighting. Members of the committee have agreed to collect the material necessary for producing a first draft of the manual for discussion at its next meeting in Istanbul. There will be increasing liaison with PIARC's Road Safety committee to seek funding/ sponsorship of the manual.

TC 4-38: *Daytime visibility requirements for roadway signs* (Chair: Thomas Schnell, USA)

Terms of reference: Revision of Publication CIE 74.

This TC has made a big step towards electronic discussion; it will have a password-protected home page to allow the sharing of electronic information as required for the development of the Technical Report. This committee has also formed additional working groups to facilitate the development of the Technical Report. Its members participate also in TC 4-40 working groups. Work results that are common will be used in both TC's.

The report will deal with: fluorescence, use and comprehension of symbols, daytime scene background characterisation, conspicuity (external and internal to sign), message content for comprehension, compliance, environment, dawn/dusk, effectiveness of signing.

TC 4-40: *Requirements for retroflective traffic signs* (Chair: Justin Rennilson, USA)

Terms of reference: To recommend visual performance for retroflective traffic signs including the basis of the study of driving scenarios, vehicle geometry and headlamp distributions.

This is a quite new TC, its first meeting was held end 1998. This TC has formed five working groups, these are: 1. Roadway, 2. Signs and Sign Factors, 3. Human Factors, 4. Vehicle and Headlights, 5. Scenario Calculations. Three meetings are planned for 2001.

TC 4-41: *Crime and lighting* (Chair: Kate Painter, UK)

Terms of reference: To prepare a Technical Report on the role of lighting in prevention of crime and provide advice, using existing CIE reports as appropriate, on the kinds of lighting that can be used to reduce the incidence of crime.

Ongoing research has been reported, the results of which will be presented at the Istanbul meeting.

It is also noticed that more work is required on quality criteria. The title and terms of reference of the committee will be reviewed in Istanbul. The question of car parks and shopping malls (outdoor) will be considered. Also a guide on "How to do a lighting and crime study" will be prepared.

Future Activities

Control of road lighting

Road lighting will be maintained with individual control of luminaires. There are already studies in progress.

To develop an optimal control model of road lighting based on predicted short-term socio-economic impacts: This will, in response to changing operating conditions, take into account the balance between the various costs associated with road traffic: accident costs, environmental costs, vehicle costs (fuel), time costs and road lighting costs. This system will provide the much needed flexibility in road lighting.

The system operates as follows: The lighting level is dependent on traffic volume, but extra lighting has to be provided e.g. when and where school children cross the road in wintertime during dark hours. Then there is the ability to automatically correct the road lighting to allow for darker road surfaces immediately resurfacing. Also, being able to automatically increase the light output in order to correct for dirt accumulation on luminaires and for lamp-lumen depreciation, will bring big savings on energy costs because higher initial levels are simply no longer needed.

To complete the above mentioned system, more accurate data is needed concerning the relationship between luminance and the traffic volume. CIE could provide studies of this kind.

Maintenance of road lighting

Individual control will improve the use of the lighting providing the remote monitoring of the state of an installation for maintenance purposes. Maintenance costs will decrease considerably, simply because expensive scouting of installations is no longer needed. Quality requirements for maintenance of road lighting are needed. Again CIE could produce this document.

Overall responsibility of road lighting

Looking to the total costs connected with road traffic, the individual control will bring considerable savings. Ultimately, it will allow authorities to put the complete responsibility for good and efficient road lighting firmly in the hands of a single body. Such a complete service will then include planning, installation and the complete maintenance of the road lighting project, as well as the supply of electricity.

Research and development are needed. Among others Division 4 should investigate how accurate the real results on the road surface correspond to the performance calculations.

Furthermore contractors are dependent on manufacturer's correct and accurate software. Division 4 should take care of attestation of conformity.

Pentti Hautala
Division 4 Director

✉ News from the Divisions

Division 1 - Vision and Colour

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

Division 1 will have its meeting on 22/23 June 2001, in Rochester, USA.

Division 2 - Physical Measurement of Light and Radiation

http://cie2.nist.gov

The website of Div.2 is now located at:
http://cie2.nist.gov

Division 2 had its meeting on 18/19 May 2001.

The following new TCs are being established (Board ballot still in progress):

TC 2-53: Multi-geometry colour measurements of effect materials (Chair: Mr. Rössler, Germany)

Terms of Reference: To write recommendations for the colour measurement of effect materials.

TC 2-54: Review of IEC documents for colour measurement and management in multimedia systems (Chair: J. Schanda, Hungary)

Terms of Reference: To review the draft documents prepared by IEC TC 100/TA 2 on behalf of CIE Division 2.

The following new reporterships have been established:

Eye safety of light emitting diodes (Reporter: T. Goodman, UK)

Field measurements for traffic signals (Reporter: C. Andersen, USA)

Evaluation of colorimeter spectral responsivity (Reporter: B. Kránicz, Hungary)

CIE Draft Standard DS 010.2/E-2001 "Photometry - The CIE System of Physical Photometry" (elaborated by TC 2-35) has been sent to National Committees for comments (deadline: 2001-12-10).

Division 2 held a very successful symposium on LED Measurement on 10-12 May 2001 in Gaithersburg, Maryland, USA. Proceedings will soon be available.

Division 3 - Interior Environment and Lighting Design

http://ciediv3.entpe.fr

Division 3 will have its meeting on 17 June 2001 in Reykjavik, Iceland.

Division 4 - Lighting and Signalling for Transport

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

Division 4 will have its next meeting on 10-11 September 2001 in Istanbul/Turkey.

Division 5 - Exterior and Other Lighting Applications

http://www.cie.co.at/cie/div5/index.html

Division 5 will have its next meeting on 10-11 September 2001 in Istanbul/Turkey.

Division 6 - Photobiology and Photochemistry

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

Division 6 will have its next meeting on 10-11 September 2001 in Istanbul/Turkey.

The following new TC is being established (Board ballot still in progress):

TC 6-54: Standardized action spectrum for vitamin D synthesis in human skin (Chair: Michael F. Holick, USA)

Terms of Reference: To evaluate the current state of knowledge in the photobiological action spectrum for the production of Vitamin D in human skin, and to propose a standardized action spectrum for general use in estimating effective exposures in humans of differing skin types. The Technical Committee will examine the impact of natural skin pigmentation, skin optics, and skin exposure area and describe the effective dose per unit of skin area that produces a given quantity of serum Vitamin D. The output will be a technical report and standard.

🕮 CIE Publications

CIE Standard CIE S008/E-2001 Lighting of Indoor Work Places

CIE published its "Guide on interior lighting" 2nd edition in 1986. Since then lighting practice has changed considerably, and it became necessary to prepare a new guide, this time as a CIE Standard.

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.

There are also visual ergonomic parameters such as perceptual ability and the characteristics and attributes of the task, which determine the quality of

the operator's visual skills, and hence performance levels. In some cases enhancement of these influencing factors can improve performance without the need to raise illuminance. For example by improving the contrast of the task attributes, enlarging the task by the use of up to date visual aids (glasses) and by the provision of special lighting systems with local directional lighting capability.

The Standard provides guidance for illuminance, glare limitation and colour quality for general building areas, agriculture buildings, the cement, concrete and brick industry, ceramic and glass industry, chemical, plastics and rubber industry, electrical industry, food industry, foundries and metal casting plants, hairdresser, jewelry manufacturing, laundries and dry cleaning, leather industry, metal working and processing, paper industry, power stations, printers, iron and steel works, textile industry, vehicle construction, wood working and furniture industry, offices, retailing, restaurants and hotels, places of entertainment, libraries, indoor public car parks, educational buildings, health care premises, airports, and churches.

This Standard has been approved by the National Committees of the CIE and replaces CIE 29.2.-1986.

A French and a German translation (CIE S008/F and CIE S008/G) will soon be available.

🕮 New Publications in the Field of Light and Lighting

Computer-Mediated Communications (CMC), Multimedia Application

Rob Walters

Artech House, Inc. Boston, London, 1995
ISBN 0-89006-757-0

The book provides in an entertaining fashion insight into the area of computer mediated communication. It deals within nine basic chapter with questions like the fundamentals of electronic communication (computer- telephone and common networks), media processing and control.

The first major chapter deals with the problems of group working. Here the question of e-mail is discussed, and one can see that the past six years, since the book was written, have brought this technique from its infancy to one of the major communication channels.

In the chapter on computer telephone integration the book describes partly items now already in use, but also many applications that still have to be implemented.

Media processing (text, graphics, image, voice) is still interesting reading, and can provide much new input.

The chapters on multimedia networks and platforms can certainly provide better understanding of a number of problems. The next chapters (CMC implementations and applications) show many examples of how and where this technique could and should be used.

The book finishes with an outlook into the future. This is to a large extent also still valid today.

A good compendium of acronyms, abbreviations and a glossary help the non-expert not only in finding his way in the book, but he will also find explanations for terms found in other reading.

The book is not a fundamental text book for learning, but a more or less entertaining introduction into a subject we are daily confronted with. In this respect it can be recommended also to the readers of CIE NEWS, who would like to get a first overview of this new technology they will have to use in their everyday life.

Fractal and Wavelet Image Compression Techniques Tutorial Text in Optical Engineering Vol. TT40

Stephen Welstead

SPIE Optical Engineering Press 1999
ISBN 0-8194-3503-1

Image compression is a hot topic because of the growth of the internet and other multimedia applications. While standard image compression techniques are widely used, the increasing demand for higher transmission speed spurs further research for improved methods. Fractals and wavelets provide two paths for such research. This book does not give an overview of image compression, it focuses only on the mathematical aspects of fractal and image compression.

After the introductory section the mathematics of iterated function systems (IFS), including the contraction mapping theorem, Barnsley's collage theorem and the affin transformations are covered. Computer examples show how to use IFS techniques to synthesise fractal images resembling natural objects. In the next section partitioned iterated function systems (PIFS) extend the ideas of IFS to more general real world images that enable fractal encoding and compression of those images. Practical implementation

issues such as how to set up a system of domain and range of subimages are given including the transformation processes. A separate section is dedicated to the speeding up of the encoding that makes PC implementation viable.

The book then discusses wavelets as an alternative approach to image compression. First the simple wavelet coefficient quantization schemes are given, then the more complex wavelet zerotree encoding. The idea of the multiresolution analysis is introduced on the mathematical bases that wavelet functions form basis sets in certain vector spaces. Averaging and detail extractions are represented as matrix operations, that lead to a simple formulation of the wavelet transformation. The next section discusses the Daubechies wavelets that provide high compression of common image components. Code samples illustrate the implementation steps and computer examples show how the technique works. The book also discusses recent research in hybrid techniques, which apply the idea of fractal encoding to data in the wavelet transform domain.

In addition to the theory a software accompanies the book, that enable the readers to explore these techniques on their own. This is an introductory level book, the mathematics used is restricted to vector spaces, converging series and multiple integrals. It is thus easy to read the book: It is recommended for those who want to get an overview of the above topics.

Fundamentals of Wavelets Theory, Algorithms, and Applications

Jaideva C. Goswami and Andrew K. Chan

John Wiley & Sons 1999
ISBN 0-471-19748-3

Wavelet analysis is used among others in signal and image processing, in image compression, in pattern recognition and clustering, in solving boundary value problems, 2D and 3D imaging, medical diagnostics, etc. While wavelets have gained popularity in these areas, new applications are continuously being investigated. The reason for the popularity of wavelet is its effectiveness in the representation of transient signals.

Wavelets may be considered as basis functions, generated by dilutions and translations of a single function, in this it is analogous to Fourier analysis where sine and cosine functions form the basis. One of the great differences is that Fourier analysis is global in the sense that each frequency component of the function is influenced by all of the time components of the function and vice versa. Contrary to this, wavelet analysis is a local one, i.e. the frequency component of the function is influenced only by the time component of a given window. As a result wavelet representation is much more compact and easier to implement. Furthermore, using the multiresolution wavelet analysis one can represent a signal by a finite sum of components at different resolutions, so that each component can be processed adaptively based, on the objectives of the application.

Wavelet techniques enable us to divide a complicated function into several simpler ones and study them separately. This property, along with fast wavelet algorithms which are comparable in efficiency to fast Fourier transform algorithms makes these techniques very attractive in analysis and synthesis problems. Different types of wavelets have been used in the different areas of applications.

The book is divided into four main parts. After the introductory chapter that gives an overview of the book, chapters 2 and 3 review some basic concepts of linear algebra, Fourier analysis, linear functional spaces, matrix algebra and discrete signal analysis. The drawbacks and advantages of Fourier analysis in terms of signal representation are presented. The next three chapters are devoted to discussing theoretical aspects of time-frequency and time-scale analysis, multiresolution analysis, and construction of various types of wavelets. The similarities and differences of the Fourier transform (time-frequency) and the continuous wavelet transform (time-scale) are discussed. In addition, window width as measure of localisation is introduced. The major properties of the wavelet transform such as uniqueness and reconstruction are given. Methods and requirements for wavelet construction are discussed in detail. Chapters 7 and 8 give several algorithms to compute wavelet transforms. The basic building blocks for these algorithms are given at the beginning of this part, then the implementation of decomposition and reconstruction is detailed. For semiorthogonal spline wavelets the fast integral wavelet transform is developed. Chapters 8, 9 and 10 give many applications of wavelets to signal and image processing, etc.

This book is well written, the material is arranged in a logical order, but for the thorough understanding a more rigorous mathematical handling would be desired. In CIE circles it is suggested to be read by image processing experts doing image analysis and image compressions and having good mathematical background.

☞ Future Meetings

CIE MIDTERM MEETING

and International Lighting Congress

6-16 September 2001
Istanbul, Turkey

May we repeat the time schedule of the meetings:

8 Sep.:	General Assembly
10 Sep.:	Meetings of Div. 4, 5 and 6, TC meetings
11 Sep.:	Meetings of Div. 4, 5 and 6, TC meetings
12-14 Sep.:	Congress

The Congress will consist of the following sections:

12 Sep.:	City beautification
13 Sep.:	City beautification
	Daylight measurements and calculation
	Colour and city
	Colour and light measurement
14 Sep.:	Interior lighting
	Visual comfort
	Daylight design
	Photobiology and UV radiation
	Road lighting

A welcome cocktail, city tour and farewell dinner will be offered to the participants.

In parallel, an exhibition will be held from 12 to 16 September.

The official language of the congress is English. English-Turkish simultaneous translation will be provided.

Venue of the Congress and of the exhibition: Istanbul Technical University (ITU), Taşkişla.

Venue of General Assembly, Division and TC meetings: Feriye Cultural Center, Ortaköy.

For further information please contact the

Congress Secretariat
c/o Turkish Nat. Committee on Illumination (ATMK)
Yıldız Teknik Üniversitesi
Mimarlık Fakültesi, Yapı Fiziği Bilim Dalı
80750 Beşiktaş, Istanbul - Turkey
tel.: (+90 212) 259 7070 ext. 2255
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e-mail: serefhan@yildiz.edu.tr
website: www.atmk.org.tr

IESNA 2001 Annual Conference

5-8 August 2001
Ottawa/Canada

This 3-day conference serves as the most comprehensive educational forum for the lighting industry. Author-presented paper sessions will focus on the latest research in design theory, measurements and controls, photometry, daylighting, energy and fiber optics. Educational seminars will cover a wide range of topics including environmental issues, the LC update, energy, government and legislative issues, the specification process, outdoor lighting, design and architectural trends and lamp technologies. Workshops will be held on “IESNA RP 6 - Sports Lighting” and on “Theatrical Lighting for Architectural Spaces”.

For further information please contact:

Illuminating Engineering Society of North America
120 Wall Street, 17th Floor
New York, NY 10005-4001
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fax: +1 212 248 5017/18
www.iesna.org

Slovak Light-Technological Society, Czech Association for Lighting, Branch of Producers and Vendors of Lighting Equipment at Slovak Chamber of Commerce, Slovak National Committee of the CIE, House of Technology ASSTS Bratislava will organize the

12th International Conference

Light 2001

10-12 October 2001
High Tatras - Štrbské Pleso, Slovak Republic

in cooperation with the Ministry of the Economy of the Slovak Republic and the Slovak University of Technology in Bratislava.

The goal of the conference is to highlight most recent trends in development and production of lighting equipment in the Slovak Republic as well as worldwide. Based on an objective assessment of state-of-the-art in design and utilization of lighting technology in all areas of social life, the conference aims to show new options for utilization of perspective and energy-saving lamps, luminaires and lighting systems with strong accent to electricity consumption decrease, to creation, protection and sustainable development of the environment, to aesthetic and many other aspects of lighting applications.

Scope of the conference:

- Trends in development of light sources, luminaires and lighting systems for the 3rd millenium
- Physiological and hygienic aspects of lighting systems evaluation
- Energy, economic and environmental aspects of daylighting and artificial lighting
- Realization of new lighting systems in the spheres of economy, public lighting, buildings, households and in special application
- New materials for lighting technology
- Lighting installations, control systems and accessories for lighting systems
- Applications of electronics into lighting purposes
- Lighting for intelligent buildings
- Exploitation of computers for calculation of lighting system parameters
- Scenic aspect of illumination (illumination of chosen objects, light effects, lighting advertisement)
- Technical legislation and standardisation in the field of lighting technology

The conference is intended for users, investors, designers, architects, maintainers, producers and suppliers of lighting devices as well as for the broad community of experts.

Languages: Slovak, Czech, English (with interpretation)

Conference Secretariat:
Dom techniky ZSVTS Bratislava s.r.o.
(House of Technology ASSTS Bratislava Ltd.)
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832 27 Bratislava 3
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tel.: +421 (7) 555 62 213, 554 22 346
fax: +421 (7) 554 24 983
e-mail: dtb@ba.telecom.sk
www.dtb.sk

International Conference on Light Pollution

5-7 March 2002
La Serena, Chile

The Working Group of the IAU Commission 50 on Controlling Light Pollution Worldwide will hold its next meeting in Chile. This conference is sponsored by the International Astronomical Union (IAU), the International Dark-Sky Association (IDA) and other organisations.

Various topics will be addressed: lighting engineering, including modeling and controlling light pollution worldwide, environmental aspects of light pollution, city ordinances, educational and outreach programs, photometrics, fixtures, public lighting projects, manufacturers' exhibits, and radio frequency interference.

The organizers expect to attract manufacturers of lighting fixtures etc. to the conference to show their products. Visits to local astronomical observatories, the photometric laboratory in Valparaiso and to the Third Millenium Cross of Coquimbo are part of the activities.

The number of participants is limited to 75.

For further information please contact:

Cerro Tololo Inter-American Observatory
Casilla 603, La Serena
Región de Coquimbo, Chile
fax: +56 51 205212 (indicating: "Attn: Light")
light@ctio.noao.edu

✞ In Memoriam

Heinz Terstiege ✞ (1934-2001)

Heinz Terstiege, a long time representative of Germany's colour science community and internationally reknown, died suddenly on Easter, April 15, 2001. He was born June 18, 1934 in Münster Northrhine-Westfalia/Germany, where he grew up and left high-school in 1954. He studied electrical engineering at the Technical University of Berlin and became aquainted with Prof. Manfred Richter, head of the Division of Colorimetry at the Federal Institute of Materials Testing (BAM). In 1967 he took over the chair of the laboratory on colour measurement within the Division of Colorimetry. When Manfred Richter retired, Heinz Terstiege succeeded him as chair of the Division.

This was the start of a broad career in international contacts. Heinz Terstiege was adviser for UNO and Carl Duisberg Society in Buenos Aires, Teheran and Shanghai in the field of colorimetry. He was a member of a variety of Technical Committees in CIE and ISO dealing with all parts of colorimetry and photometry. He engaged himself in CIE Technical Committees on Signaling Colours, on Colours in Road Traffic, in ISO-Committees of Warning and Safety Colours where he could add his experience with ordinary colorimetry, and with retroreflecting and fluorescent colours for traffic,

identification and safety. His list of publications extended to more than 100. He was the co-editor of the scientific German journal "Die Farbe" since 1975 and became editor in 1990 when Manfred Richter passed away.

His main activities concentrated on the representation in different organizations in part as member, in part as the chair. In 1974 he founded the German Scientific Society on Colour together with Manfred Richter and others, and was elected Vice-President 1974 to 1982 and President since 1982. He was Treasurer of the German National Committee of CIE 1975 to 1991 and Chairman since 1991. For CIE he was Secretary 1979 to 1991.

Through his international contacts he made him friends world-wide. He became an honorary member of the Grupo Argentino del Color in 1980, and in 1998 of the Colour Association of Slovenia. Particulary notable was the receipt of the Deane B. Judd-AIC Award during the AIC midterm conference in Berlin 1995. He was honoured because of his contributions to a variety of colorimetric aspects brought up while formulating technical standards or reports in Germany as well as in international organizations such as CIE and ISO.

After Heinz Terstiege retired in June 1999 he remained active with all his international contacts, touring around from conferences to meetings etc. His unique ability to make social contacts with other people, and to find friends for relaxing meetings often brought consensus. There was a great international family, who looked forward to seeing him again, when he attended meetings or conferences. One personal trait may be mentioned - he could fell asleep in any situation where he was not personally engaged. All of us knew about it, and smiled at that. Now he fell into his last sleep. The colour family will miss him.

Klaus Witt

From the Lighting Journals

International Journal of Lighting Research & Technology

Volume 32, Number 3, 2000

Daylighting design and research
P. Littlefair

Luminous energy field: a finite-element model
P.R. Tregenza

Simulation of annual daylighting profiles for internal illuminance
J. Mardaljevic

Occupant reactions to daylight in offices
L. Roche, E. Dewey, P. Littlefair

Daylighting, energy and glazed balconies: a study of a refurbishment project in Engelsby, near Flensberg, Germany
M.P. Wilson, O.B. Jorgensen, G. Johannesen

Daylighting using light pipes and its integration with solar heating and natural ventilation
L. Shao, S. Riffat

Mathematical model for the performance of light pipes
X. Zhang, T. Muneer

DayMedia: a multimedia teaching package on daylighting
A. Jacobs, M. Wilson

New graphical user interface for lighting analysis software
M. Pentney, R. Peters

Daylight transmission of atrium roofs under overcast and partly cloudy skies
S. Sharples, A.D. Shea

Parallax in artificial sky domes
J.A. Lynes, A. Gilding

Daylighting museum galleries: a review of performance criteria
S. Cannon-Brookes

Case studies of recent daylit galleries: Foundation Beyeler; The New Art Gallery, Walsall; Tate Modern
A. Sedgwick, J. Shaw

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Daylight availability in top-lit atria: prediction of skylight transmittance and daylight factor
A. Laouadi, M.R. Atif

Determination of sky types from global illuminance
R. Kittler, S. Darula

Simulated driving performance and peripheral detection at mesopic and low photopic light levels
J.D. Bullough, M.S. Rea

Preferred luminous conditions in open-plan offices: research and practice recommendations
J.A. Veitch, G.R. Newsham

A step in quantifying the appearance of a lit scene
D. Loe, K. Mansfield, E. Rowlands

Effect of thermal conditions and light source type on visual comfort appraisal
C. Laurentin, V. Berrutto, M. Fontoynont

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The financial benefits of improved street lighting, based on crime reduction
K.A. Painter, D.P. Farrington

The natural lighting of the mosaics in the Rotunda at Thessaloniki
I.G. Iliadis

Predicting vertical luminous efficacy using horizontal solar data
D.H.W. Li, J.C. Lam

Photoelectric control: the effectiveness of techniques to reduce switching frequency
P.J. Littlefair

Lighting controls in areas with innovative daylighting systems: a study of sensor type
P.J. Littlefair, A. Motin

Light & Engineering (Svetotekhnika)

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Concept of lighting engineering development forecast
J.B. Aizenberg, G.R. Shakhparuniants

Material research and progress in lighting engineering science and technology
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For your Diary

Date	Title of Meeting	Organizer	Place of Meeting
2001			
August 5-8	IESNA Annual Conference	IESNA, fax: +1 212 248 5017/18 www.iesna.org	Ottawa, Canada
Sep. 3-5	XXVIIIth Colouristic Symposium	Hungarian Chemical Society fax: +36 1 201 8056	Tata, Hungary

Date	Title of Meeting	Organizer	Place of Meeting
Sep. 3-8	9th Congress of European Society for Photobiology	PO Box 55, NO-1332 Osteras fax: +47 22 461304, http://esp.nrpa.no	Lillehammer, Norway
Sep. 6-8	CIE Midterm Meeting	CIE	Istanbul, Turkey
Sep. 10-11	CIE Division 4 Meeting	CIE Division 4	Istanbul, Turkey
Sep. 10-11	CIE Division 5 Meeting	CIE Division 5	Istanbul, Turkey
Sep. 10-11	CIE Division 6 Meeting	CIE Division 6	Istanbul, Turkey
Sep. 12-16	International Lighting Congress & Exhibition	Yıldız Teknik Üniversitesi serefhan@yildiz.edu.tr	Istanbul, Turkey
Sep. 23-25	Balkancolor 2001	Dr. Todor Kehlibarov, tk_color@mail.bg	Varna, Bulgaria
Sep. 24-27	Colour in Nature, Science and Technology	A. Bartecki, fax: +48 71 328 43 30 BARWA@ichn.ch.pwr.wroc.pl	Szklarska Poręba, Poland
Sep. 25-26	PAL: Progress in Automobile Lighting	Univ. of Techn. fax: +49 6151 165468 pal@lichttechnik.tu-darmstadt.de	Darmstadt, Germany
Oct. 1-2	48th Annual General Meeting and Congress of SANCI: Lighting 2001 / Verligting 2001	SANCI, fax: +27 012 460 4264 dcronje@mweb.co.za	Alberton, South Africa
Oct. 10-12	Light 2001	Slovak Light-Technological Soc. fax: +421 7 554 24983 dtb@ba.telecom.sk	Štrbské Pleso, Slovakia
Nov. 5-7	IV Jornada Electrótecnica del CEC	CEC, fax: +53 337 454 ott@ip.etecsa.cu	La Habana, Cuba
Nov. 6-8	Nat. Measurement Conf. NMC 2001 and BEMC 2001	D. Hall, fax: +44 020 8943 6821 nmp_sec@npl.co.uk	Harrogate, Great Britain
Nov. 6-9	9th Color Imaging Conference: Color Science & Engineering	IS&T, fax: +1 703 642 9094 info@imaging.org	Scottsdale, AZ, USA
Nov 8	Nationaal Lichtcongres 2001	NSVV, Postbus 9035, NL-6800 ET Arnhem fax: +31 (026) 42 91 23 e-mail: a.rommers@kema.nl	Arnhem, The Netherlands
Dec. 4-5	Construction Products – Time ripe for CE marking	CEN, rue de Stassart 36 B-1050 Bruxelles	Bruxelles, Belgium
2002			
March 5-7	International Conference on Light Pollution	Cerro Tololo Inter-American Observatory fax: +56 51 205212 light@ctio.noao.edu	La Serena, Chile
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
Sept. 22-25	Licht 2002	NSVV arommers@kema.nl, www.nsvv.nl	Maastricht, Netherlands

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