

Aalto Lighting Unit

The research areas of Aalto Lighting Unit include indoor lighting and energy-efficient lighting systems, outdoor lighting and human factors in lighting, LEDs and plant lighting, electrical building services, and lighting measurements and testing. The lighting research is carried out in several national and international research projects.

Location

The seminar will be held at Aalto University, in the lecture hall S2 of School of Electrical Engineering (Otakaari 5A, Espoo) on 29 September and in auditorium of Physics building (Otakaari 3, Espoo) on 30 September. Buses 102 and 102T from Helsinki bus station at Kamppi.

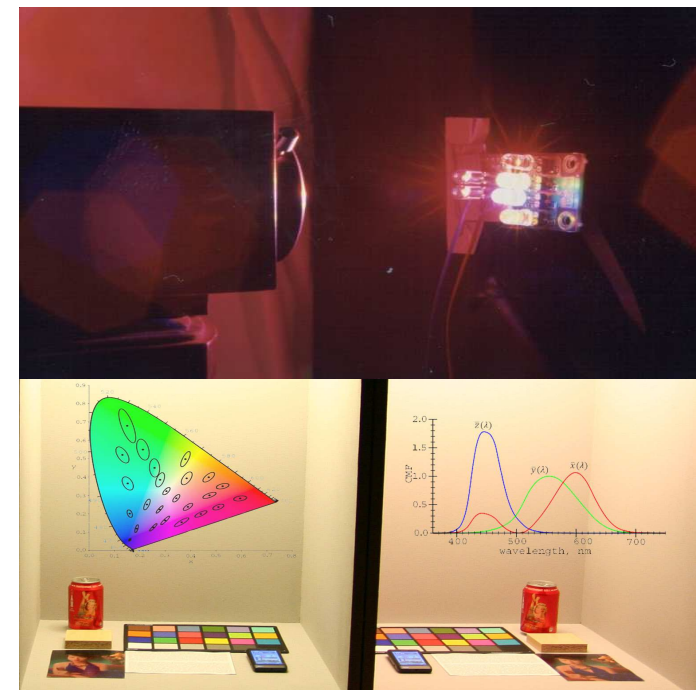
Registration

For registration, please contact the project planning officer **Leena Väisänen** by **September 20, 2011**. Email: leena.vaisanen@tkk.fi. Please give your name, organisation name, invoicing address, VAT-number, email address and telephone number.

The seminar is free of charge for degree and postgraduate students. For the other participants, the fee is **290 € + VAT**. The fee includes the seminar material, coffee and lunches.

10 ECTS credits will be granted to students who participate in the seminar, do the seminar work and pass the exam. The course can be included in basic and post-graduate studies.

www.lightinglab.fi



Lighting with LEDs - Photometry, Colorimetry and Colour Rendering

**S-118.4250 Post-graduate seminar on
Illumination Engineering**

**Aalto University, Lighting Unit
29. - 30.9.2011**

Thursday September 29

- 9:15** Opening of the seminar
Prof Liisa Halonen, Aalto Lighting Unit
- 9:20** Fundamental differences between LEDs, LED modules and LED lamps as well as traditional light sources (LED structure, thermal differences, ageing and life-time)
Prof Schanda, University of Pannonia
- 10:20** The most basic terms used with LEDs and LED modules
Prof Schanda
- 10:40 Break
- 10:55** SSL4EU - Solid-State Lighting for EU
Introduction and objectives of the project
Dr Marjukka Puolakka, Aalto Lighting Unit
- 11:15** LED light engines
Dipl.-Phys. Elmar Baur, Osram GmbH
- 12:00 Lunch
- 12:45** Photometry of LED devices – gonio-photometry, integrating sphere photometry, spectroradiometry
Prof Schanda
- 14:30 Break
- 14:45** The future of LED lighting
Alexander Wilm, Osram GmbH
- 15:15** AthLEDics - Energy-efficient LED lighting to satisfy user needs
Dr Eino Tetri, Aalto Lighting Unit
- 15:45** User acceptance studies for LED lighting
Dr Pramod Bhusal, Aalto Lighting Unit
- 16:15 Closure of the day

Friday September 30

- 9:15** Opening the second day
Prof Liisa Halonen
- 9:15** Colour vision and colour perception
Prof Schanda
- 10:30 Break
- 10:40** Colorimetry of LEDs and LED modules
- Tristimulus colorimetry
- Problems with the CIE 1931 colorimetric system
- CIE TC 1-36 based colorimetry and practical experience
Prof Schanda
- 12:00** Effects of light on alertness in indoor environments
M.Sc Emilia Rautkylä, Philips Oy
- 12:30 Lunch
- 13:15** Well-being at offices in Finland – user studies and preferences
Prof Kari Reijula, Finnish Institute of Occupational Health
- 13:45** Colour rendering
- Colour rendering index
- Does CIE CRI fail for LEDs?
- Current status of the development of new metrics
Prof Schanda
- 14:30 Break
- 14:45** Colour rendering (continues)
Prof Schanda
- 15:30** Dimming and control of LED luminaires
Director Max Björgren, Helvar
- 16:00 Closure of the seminar

Lecturers

Dr János Schanda is Professor Emeritus and head of Virtual Environments and Imaging Technologies Laboratory at University of Pannonia, Hungary. Prof Schanda has been working for decades in the domain of radiometry, photometry, and colorimetry. He has been the chairman of several technical committees of CIE. He has also worked in the CIE Board of Administration. He is in the Editorial Committee or Advisory Board member of several international journals dealing with light and colour. He received the Newton Medal of the British Colour Group in 2010 and the CIE De Boer Award in 2011. He is the author of over 500 technical papers and conference lectures.



Dipl.-Phys. Elmar Baur is development engineer at OSRAM AG in the field of solid state lighting. He is project leader for feasibility projects.

Dr Pramod Bhusal works as a research scientist at Aalto Lighting Unit. His research areas are energy efficient lighting systems and lighting in developing countries.

Director Max Björgren works at Helvar Oy as R&D director.

Dr Marjukka Puolakka is working as a research scientist at Aalto Lighting Unit where she is the leader of the group Outdoor Lighting and Human Factors in lighting. Her research areas cover mesopic lighting, visual performance and outdoor lighting.

M.Sc Emilia Rautkylä works at Philips Oy as lighting designer.

Prof Kari Reijula, MD, PhD, is the theme director in 'User-centric work environments' - theme at the Finnish Institute of Occupational Health, Helsinki. His research is mainly focused on health and well-being associated with work-related substances and working environment in general.

Dr Eino Tetri works as a research scientist at Aalto Lighting Unit where he is the leader of the Indoor Lighting and Energy - Efficient Lighting Systems Group. His main research areas are light sources and lighting and energy.

Alexander Wilm is working in the application engineering department at OSRAM Opto Semiconductors. He is responsible for light concepts, light quality and standardization for solid state lighting.