



Dr Peter Blattner has a PhD in the field of applied optics from the University of Neuchâtel, Switzerland. He joined the Swiss Federal Institute of Metrology (METAS) in 2000, where he is currently the head of the optics laboratory. Since 2011 he has been the Director of CIE Division 2 (Physical Measurement of Light and Radiation). In this role he represents CIE at the Consultative Committees for Units (CCU) and for Photometry and Radiometry (CCPR). Furthermore, he is active in several standardization committees (ISO/TC169, IEC/TC 34, IEC/TC 76, CEN/TC 169) and chairs the Swiss Standardization Committee on light and lighting. In 2015 he received the CIE Wyszecki Gold Pin award for outstanding contribution in fundamental research. In October 2017 he was elected CIE President for the period 2019 to 2023.



Tony Bergen is a physicist who has been working in the field of photometry and radiometry for over 20 years. He is the Secretary of CIE Division 2, (Physical Measurement of Light and Radiation), and also President of CIE Australia. Tony was a member of the CIE technical committee TC 2-71, which wrote the international standard CIE S 025/E:2015 Test Method for LED Lamps, LED Luminaires and LED Modules, the subject matter of this expert tutorial.

In his day job, Tony is Technical Director of Photometric Solutions International, an Australian company which designs and manufactures photometric, radiometric and colorimetric testing and measurement equipment. His company operates an ISO^o17025 accredited calibration and testing laboratory, as such he has considerable experience, both in laboratory installations and in working in a photometric laboratory.



Dr. Peter Sperfeld is a metrology scientist from the Physikalisch-Technische Bundesanstalt (PTB) in Braunschweig, Germany. He studied Physics at the Technical University of Braunschweig and started his work as a student at the PTB back in 1992. In 1999 he received his PhD for the development of a detector-based spectral irradiance scale. Over the past 25 years, Peter has been working in the field of spectroradiometry at PTB. He is an active member in several technical committees of CIE Division 2 and of the DIN standards committee for radiology.



Dr. Armin Sperling first studied Electrical Engineering and then Semiconductor Physics and Optics. Between 1987 and 1995 he worked on research projects in the field of solar cell characterization at the Physikalisch-Technische Bundesanstalt, PTB. He received his PhD from the Technical University of Braunschweig in 1994. In 2001, after six years in research and development in industry, he returned to PTB, where he currently heads the Department for Photometry and Spectroradiometry. He is an Associate Director of the CIE Division 2, Chairman of the German National Committee of the CIE and member of the DIN advisory board of the standardization committee for light.



Dr Anders Thorseth is a physicist working as scientific project manager at the Danish Technical University, Department of Photonics Engineering. He completed his PhD in 2011, the subject matter of which was the characterization of solid-state lighting. He is currently working in the areas of goniophotometry and spectroradiometry of lighting for various applications. He is the CIE National

Committee of Denmark official member to CIE Division 2, in addition to being an active member of several CIE Technical Committees, he is also the reporter for CIE DR°2-80, “Metrology of laser based light sources”.



Ralf Zuber is a physicist who focused on optical technologies during his studies. For more than five years he has been working at Gigahertz-Optik GmbH, first as a product manager and for the past three years as a development manager. In his work he develops a variety of optical measurement devices, along with carrying out active research in spectroradiometers. He is an active member of several Technical Committees of CIE Division 2 and as well active in the DIN standardization committee for light.



Dr Benjamin Ruggaber is the head of the lighting laboratory at TechnoTeam Bildverarbeitung GmbH in Ilmenau, Germany. His work focuses on calibration and uncertainty analysis in the fields of photometry, radiometry and colorimetry. Since 2017 he has been a member of the technical-scientific committee of the Deutsche Lichttechnische Gesellschaft e.V. (LiTG). His interests include hyperspectral imaging (PhD in 2014), accreditation and quality assurance. Currently, he is involved in preparing a CIE Technical Notes: “Guide for Practical Uncertainty Evaluation for Testing of LED Lamps and LED Luminaires”.



Nathalie Leise studied Physics at the Technical University of Braunschweig. During her studies she had her first experience in light measurement technology working as a student at the Physikalisch-Technische Bundesanstalt (PTB), in the department for Photometry and Spectroradiometry. Since 2016, she has been a member of the light measurement laboratory of OSRAM GmbH, in Augsburg, Germany, which is an accredited calibration and testing laboratory according to DIN EN ISO/IEC 17025:2005 by DAkkS. Her work focuses on photometric and radiometric measurements and calibrations, including LED systems, uncertainty budgets and the development and improvement of measurement procedures in accordance with both current and up-coming standards. She is also involved in several technical committees of CIE Division 2, being also a member of the steering committee of the German National Committee of the CIE and active in the DIN standardization committee for light.



Yoshi Ohno started his career as a researcher at Lighting Research Laboratory of Panasonic (at that time Matsushita Electric), Osaka, Japan. He received his PhD in engineering from Kyoto University, Japan. In 1992, he moved to NIST as Project leader for Photometry. His research area covers photometry, spectroradiometry, colorimetry and colour quality of lighting. He served as a Group Leader at NIST Optical Technology Division from 2003 to 2012, and has been a NIST Fellow since 2010. He is very active in national and international standardization work, especially for solid state lighting.

Dr Ohno currently the President of the CIE having been active in many aspects of the organization. In particular, he led the development of international standard CIE S 025/E: 2015 and has chaired several other CIE Technical Committees (TCs). In addition to his contribution to CIE TCs he served as CIE Division 2 Director from 2007 to 2011 and as CIE Vice President Technical From 2011 to 2015.

In addition to his CIE work, Dr Ohno is also a Fellow of the Illumination Engineering Society of North America (IES) and has led developments of IES LM-79 (SSL test method), LM-85 (high power LED), and ANSI C78.377 (SSL chromaticity specifications). He also represents NIST in Consultative Committee for Photometry and Radiometry (CCPR) and chaired Working Group on Key Comparisons in CCPR over ten years. In recognition of his work he received several awards including, for example, those from the CIE, the US Department of Commerce and the Department of Energy.