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Internationale Beleuchtungskommission

PRESS RELEASE

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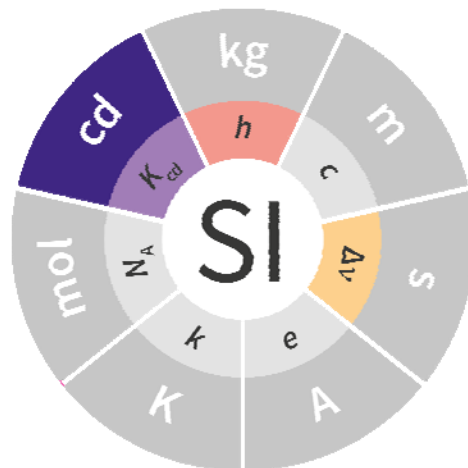
The Basis of Physical Photometry, 3rd Edition

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On 20 May 2019 the International System of Units (SI) underwent a fundamental change. By decision, made at the 26th meeting of the General Conference on Weights and Measures (CGPM) in Versailles, France, all SI units are now defined in terms of seven constants that describe the natural world. This assures the future stability of the SI and opens the opportunity for the use of new technologies, including quantum technologies, to implement the definitions. In the revised SI the photometric quantities are linked to the radiometric quantities by defining a constant for photometry – the luminous efficacy of monochromatic radiation of frequency 540×10^{12} Hz, $K_{cd} = 683$ lm/W.



This publication, a major revision of CIE 18.2-1983, was jointly developed by CIE and the Consultative Committee for Photometry and Radiometry (CCPR) of the International Committee for Weights and Measures (CIPM) with the main purpose of updating it for the new SI and providing the link between the definition of the candela and the updated set of internationally agreed spectral luminous efficiency functions. This revision presents the basic conventions and principles of physical photometry, with the definitions of the photometric units as reformulated in the revised SI and the photometric quantities and spectral luminous efficiency functions, including those for mesopic vision based on CIE 191:2010 and the 10° photopic vision based on CIE 165:2005 as well as for photopic and

scotopic vision. The relationships between the photometric quantities and the radiometric quantities based on the constant K_{cd} are described, as well as the relationships between photochemical and photobiological quantities and photometric quantities. The conventions of colorimetry are presented, with the definitions of the colour-matching functions for the 2° and 10° field of view, tristimulus values, and chromaticity coordinates.

The publication is written in English, with a short summary in French and German. It consists of 47 pages with one figure and six tables and is readily available from the [CIE Webshop](#) or from the National Committees of the CIE.

The price of this publication is EUR 96,- (Members of a National Committee of the CIE receive a 66,7 % discount on this price – please approach your NC for information on accessing this discount).