

**CIE Tutorial on S 026**

**- Use and Application of the New Metrology for ipRGC-Influenced Responses to Light -**

*"Methods and principles to define light for responses beyond vision"*

March 14 - 15, 2019, High Tech Campus 48, Eindhoven, The Netherlands

<b>Thursday March 14th 2019</b>		<i>Chairs: LS/JOH</i>
<i>time</i>	<i>topic</i>	<i>presenter</i>
08:45-10:00	Tour of Signify Lighting Application Center (registration needed, tour starts 09:00)	Annette Steinbusch
10:00-11:00	<i>Registration &amp; Coffee</i>	Geertje Hazenberg
11:00-11:30	Welcome - Background to CIE S026: Light and Lighting Aspects	Luc Schlangen
11:30-12:15	Phototransduction and Neurophysiology of Light Effects - Photoreceptor signalling, spatial distribution and melanopsin bistability - Temporal and spatial light contrasts - Dose-response curves	Rob Lucas
12:15-13:00	Fundamentals in Human Photoreception - Basic concepts: scotopic, mesopic and photopic vision, colour vision - Rod & cone fundamentals, operating ranges, univariance, colour matching - Sensitivity-affecting factors including pre-retinal filtering in humans	Manuel Spitschan
13:00-14:00	<i>Lunch break (lunch is provided) - light quality demos by Signify -</i>	
14:00-14:45	Effects of Light on Humans (session 1) - Circadian timing system - Implications for physiology & metabolism - Implications for health	Ken Wright
14:45-15:30	Effects of Light on Humans (session 2) - Human sleep and performance/alertness/mood - Effects of daytime/nighttime light exposure - Winterdepression (SAD), chronotherapy and mood disorders	Marijke Gordijn
15:30-16:00	<i>Coffee break - group picture</i>	
16:00-16.30	International Standardization of Light and Lighting - What is a standard? - Different organizations, CIE, ISO, IEC, CEN, IES... - Legal requirements	John O Hagan
16:30-17:30	Introduction of CIE S026 (session 1) - $\alpha$ -opic action spectra and $\alpha$ -opic (ir)radiance - $\alpha$ -opic equivalent daylight (il)luminance - Field of vision aspects	Luc Schlangen
17:45	<i>Departure bus shuttle to city centre/dinner location</i>	
19:00-21:30	<i>Joint dinner (city centre, registration needed)</i>	

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<b>Friday March 15th 2019</b>		<i>Chairs: LS/PB</i>
<i>time</i>	<i>topic</i>	<i>presenter</i>
09:00-09:30	Introduction of CIE S026 (session 2) - Demonstration of an $\alpha$ -opic quantity calculation toolkit - Age-corrected $\alpha$ -opic quantities	Luke Price
09:30-10:00	Applications and Implications of CIE S026 - What is CIE recommended practice? - New/old $\alpha$ -opic quantities, illuminant examples, CCT	Luc Schlangen / Luke Price LS LP
10:00-10:30	From Photoreceptor Inputs to Responses and Models - $\alpha$ -opic silent substitution and the human pupillary response - Photoreceptor combinations, principles and evaluation of circadian response models	Manuel Spitschan
10:30-11:00	<i>Coffee break</i>	
11:00-11:20	Evaluating the $\alpha$ -opic Radiant Flux of Light Therapy Devices	Mariëlle Aarts
11:20-12:00	Measurement Methods, Set-ups and Devices - Measuring (ir)radiance/(il)luminance, field of view averaging - CIE S026 implications for (il)luminance meters - CIE S026 implications for wearable light sensors	Peter Blattner / Luke Price PB PB LP
12:00-12:30	Light and optical safety - Photobiological safety: blue light hazard and temporal light modulation aspects - Harm versus benefit	John O Hagan
12:30-13:30	<i>Lunch break (lunch is provided) - light quality demos by Signify -</i>	
13:30-13:50	Impact of Light on Species and Ecosystems	Kamiel Spoelstra
13:50-14:10	Lighting for Healthcare, Elderly-care and Outdoor Settings - Considerations, best practices, CIE S026 implications	Ken Wright
14:10-14:30	Lighting for Workplaces, Homes and Light Therapy - Considerations, best practices, CIE S026 implications	Marijke Gordijn
14:30-14:50	Light: a Driver for Indoor Wellbeing - Strategic Roadmap of the Lighting Industry	Jan Denneman
14:50-15:15	<i>Coffee break</i>	
15:15-15:30	CIE Activities/Outlook	Peter Blattner
15:30-16:00	General Discussion, Wrap-up and Closure	Luc Schlangen