



Event overview

The first day of this event will feature an **Expert Tutorial on the Measurement of Temporal Light Modulation (TLM)**. Experts from around the world will give lectures on all aspects of measurement of TLM.

The tentative list of topics include:

- fundamentals of TLM and temporal light artefacts (TLA);
- [CIE TN 012:2021](#) “*Guidance on the Measurement of Temporal Light Modulation of Light Sources and Lighting Systems*”
- measurement of TLM;
- calculation of predictors of TLAs;
- estimation of measurement and calculation of uncertainties.

The second day of the event will feature a **Symposium on Advances in Measurement of Temporal Light Modulation**. This one-day scientific symposium will feature contributed papers following submission and review of abstracts. [Abstract submission is open until May 5, 2022](#).

Abstracts submitted should deal with one of the following topics relating to TLM:

- implementation of CIE TN 012:2021;
- advances in instrumentation and measurement procedures;
- calibration methods;
- advanced measurement uncertainty analysis;
- interlaboratory comparisons.

A poster session might be held depending on the number of abstracts received.

After the two-day event the CIE Division 2 Annual Meeting and Technical Committee (TC) meetings will be held.

The stakeholder meeting of the [Euramet MetTLM](#) project is also planned to be held during this event, at the same location.

Event schedule

The schedule is as follows:

Monday, October 10, 2022	Expert Tutorial on the Measurement of Temporal Light Modulation (TLM) Euramet MetTLM stakeholders meeting Welcome reception
Tuesday, October 11, 2022	Symposium on Advances in Measurement of Temporal Light Modulation (TLM) Conference dinner
Wednesday, October 12, 2022	CIE Division 2 annual meeting TC 2-77 meeting (in the evening)
Thursday, October 13, 2022	CIE Division 2 TC meetings
Friday, October 14, 2022	CIE Division 2 TC meetings

Draft programmes for the tutorial and symposium

All times are local for Athens, Greece (EEST), UTC +3

Tutorial programme				
Start time	Duration	End time	What	Presenter
8:30:00	1:00:00	9:30:00	Check-in	
9:30:00	0:10:00	9:40:00	Opening, welcome, housekeeping	Tony Bergen (AU), Costis Bouroussis (GR)
9:40:00	1:00:00	10:40:00	Fundamentals of TLM and its Effects on People	Jennifer Veitch (CA)
10:40:00	0:20:00	11:00:00	Outline of CIE TN 012:2021	Menno Schakel (DE)
11:00:00	0:20:00	11:20:00	Break	
11:20:00	1:00:00	12:20:00	Measurement of TLM	Paul Dekker (NL), Costis Bouroussis (GR)
12:20:00	1:00:00	13:20:00	Lunch	
13:20:00	0:30:00	13:50:00	Calculation of predictors of TLAs	Małgorzata (Gosia) Perz (NL)
13:50:00	0:40:00	14:30:00	Estimation of measurement uncertainties and uncertainties in calculations of predictors of TLAs	Anders Thorseth (DK)
14:30:00	0:20:00	14:50:00	Break	
14:50:00	0:20:00	15:10:00	Conformity assessment.	Peter Blattner (CH)
15:10:00	0:50:00	16:00:00	Open discussion	Tony Bergen, moderator
Close				

Symposium programme				
Start time	Duration	End time	What	Presenter
8:30:00	0:50:00	9:20:00	Check-in	
9:20:00	0:10:00	9:30:00	Opening, welcome, housekeeping	Tony Bergen (AU), Costis Bouroussis (GR)
Session 1: Implementation of CIE TN 012:2021				
9:30:00	0:20:00	9:50:00	Improvement in the temporal light artefact metrics of commercial LED lamps	Erkki Ikonen (FI)
9:50:00	0:20:00	10:10:00	Verification of a temporal light modulation measurement facility at the National Metrology Institute of South Africa	Pieter du Toit (ZA)
10:10:00	0:20:00	10:30:00	Evaluation of data acquisition systems for measurement of temporal light modulations	Yujin Zong (US)
10:30:00	0:15:00	10:45:00	Q&A Session	
10:45:00	0:30:00	11:15:00	Morning tea	
Session 2: Advances in instrumentation and intercomparisons				
11:15:00	0:20:00	11:35:00	Characterization of key performance of TLM measurement instruments	Qian Li (CN)
11:35:00	0:20:00	11:55:00	Implementing lock-in detection in photometry and spectroradiometry using temporal light modulation	Christophe Martinsons (FR)
11:55:00	0:20:00	12:15:00	IEA 4E SSL annex interlaboratory comparison of measurements of temporal light modulation – plan	Yoshi Ohno (US)
12:15:00	0:15:00	12:30:00	Q&A Session	
12:30:00	1:00:00	13:30:00	Lunch	
Session 3: Psychophysical studies and field measurement				
13:30:00	0:20:00	13:50:00	Development of a control system to evaluate the impact of artificial light modulation on insects	Arjen Mentens (BE)
13:50:00	0:20:00	14:10:00	Field measurement of TLM quantities in lighting scenarios	Cong Chen (CN)
14:10:00	0:20:00	14:30:00	Towards modelling the visibility of the phantom array effect	Xiangzhen Kong (NL)
14:30:00	0:15:00	14:45:00	Q&A Session	
14:45:00	0:30:00	15:15:00	Afternoon tea	
Session 4: Methods and algorithms for calculation of TLAs				
15:15:00	0:20:00	15:35:00	Anti-aliasing filter effects on sampling frequency and effects of mathematical implementation	Ralf Zuber (DE)
15:35:00	0:20:00	15:55:00	Minimising the uncertainties in the calculation of stroboscopic effect visibility measure	Carsten Dam-Hansen (DK)
15:55:00	0:20:00	16:15:00	Novel implementations of digital meters for flicker and stroboscopic effect	Ville Mantela (FI)
16:15:00	0:20:00	16:35:00	Impact of sampling rate on flicker metric calculations	Jianchuan Tan (US)
16:35:00	0:20:00	16:55:00	Q&A Session	
16:55:00	0:05:00	17:00:00	Closing comments	Tony Bergen, Costis Bouroussis
Close				