

**Consultative Committee for Photometry and Radiometry (CCPR)**  
25th Meeting (on-line 10-11 May 2022)

**CCPR member report on activities in radiometry and photometry since the last  
CCPR meeting (2019)**

**Reply from: NMC, A\*STAR, Singapore**

**Delegate: Yuanjie LIU**

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1. Summarize the recent progress in your laboratory with respect to measurement standards, research projects, and metrology services to fulfill the demands of customers in:
    - (a) broad-band radiometric quantities:
    - (b) spectral radiometric quantities:  
Set up UVC spectral irradiance calibration and measurement facility for the accurate measurement of various germicidal UVC light sources (Hg, LED, excimer lamps) to support UV disinfection studies.
    - (c) photometric quantities:  
Added three new working standard photometers ( $f1' \leq 1.5\%$ , highest resolution  $10^{-5}$  lx) to better support luminous intensity and illuminance calibration and measurements.
    - (d) other area(s) relevant to CCPR:
  2. What work in PR has been/will be terminated in your laboratory, if any, in the past /future few years? Please explain the reasons and provide the name of the institution if it has been/will be substituted by a DI or accredited laboratory.

Reply

NIL.

3. Summarize the Capacity Building and Knowledge Transfer activities undertaken by your institute in photometry and radiometry (courses, training, ...):

Reply

- Conducted Measurement Assurance Program Online Webinar - Accurate Measurement of Light on 29 Oct 2020. Forty-seven participants from industry and academia attended the Webinar.
- Conducted Measurement Assurance Program Online Webinar - UV Light and Meter Measurement on 23 Mar 2021. Thirty-eight participants from industry and academia attended the Webinar.

- Conducted a Proficiency Testing on Calibration of Spectrophotometer Using Cuvette CRM in July 2020 for two calibration laboratories.

4. Summarize the research projects currently performed within a collaboration with one or more NMIs or Dis (name of the project, participants):

Reply

NIL

5. Are there any other research projects where you might be looking for collaborators from other NMIs or are there studies that might be suitable for collaboration or coordination between NMIs?

Reply

- Single photon detector calibration
- Development of single photon standard detectors
- Development of single photon standard sources

6. Have you got any other information to place before the CCPR in advance of its next meeting?

Reply

NIL

7. Bibliography of radiometry and photometry papers of your laboratory since the last CCPR (September 2019):

Reply

- Po-Yen Lai, Huizhe Liu, Ray Jia Hong Ng, Bianca Wint Hnin Thet, Hong-Son Chu, Jin Wah Ronnie Teo, Qunxiang Ong, Yuanjie Liu & Ching Eng Png, "Investigation of SARS-CoV-2 inactivation using UV-C LEDs in public environments via ray-tracing simulation". Scientific Reports | (2021) 11:22612 | <https://doi.org/10.1038/s41598-021-02156-8>
- Jing Zhang, Shiyang Zhu, Sun Fei, "A Dual-Epitaxy Si/Ge Broadband Photodetector for Application in Cryogenic Radiometer", Opt. Express 29(23), 37489-37502 (2021). (Impact Factor 3.894)
- Jing Zhang, Chengwu An, Baoxi Xu, "Spectral Responsivity Calibration of Camera for Temperature Monitoring Application", CIM 2021.
- Jing ZHANG, Yuanjie LIU, Julie ROBIC, Alex NKENGNE, Hong YAN, Xing ZHANG, Xiang Yun SOO, "Optical Phantom Development for Skin Measurement", published on CIM 2019.