

Guest Editorial

Conference on Precision Electromagnetic Measurements (CPEM 2022)

THE biennial Conference on Precision Electromagnetic Measurements (CPEM) was held in person on December 12–16, 2022, at the Michael Fowler Centre, Wellington, New Zealand. The conference was organized by the Measurements Standards Laboratory (MSL), New Zealand, and the National Measurement Institute, Australia (NMIA).

CPEM was established in 1958 in Boulder, CO, USA, by the National Bureau of Standards, the predecessor organization of the National Institute of Standards and Technology (NIST) [1], [2]. It is recognized as the most important conference dedicated to the science and engineering of electromagnetic metrology.

The CPEM 2022 Conference Program Chairs were Murray Early (MSL) and Ilya Budovsky (NMIA). The Technical Program Committee, co-chaired by Dimitrios Georgakopoulos (NMIA) and Tom Stewart (MSL), had 115 members who reviewed all the short papers submitted to the conference. Of these, 244 short papers were accepted after two reviews each, which resulted in 105 oral presentations and 139 poster presentations. The conference program was arranged by Keith Jones (MSL). Conference organization and logistics were managed by Claire Bark and Brooke Miller of Conference Innovators, New Zealand.

Due to travel restrictions imposed by the authorities of the presenters' countries, some of the oral and poster presentations had to be delivered virtually. The presentations were grouped into 42 sessions in 15 tracks: Realization and Dissemination of the Kilogram; Novel Sensors and Measurements; Quantum Electrical Standards, Quantum Technologies, Photonics and Optical, and Time and Frequency; Voltage; Current; Resistance; Impedance; Power and Energy; High Voltage and High Current; Radio Frequency and Microwaves; Magnetics; and International.

A total of 51 extended papers, based on the short papers, were submitted for publication in this Special Section of IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT. The 12 Guest Editors—Yasutaka Amagai (NMIJ, Japan), Djamel Allal (LNE, France), Branislav Djokic (NRC, Canada), Ari Feldman (NIST, USA), Guglielmo Frigo

(METAS, Switzerland), Yin Hsien Fung (MSL, New Zealand), Dimitrios Georgakopoulos (NMIA, Australia), Stephen Giblin (NPL, U.K.), Christopher Holloway (NIST, USA), Shisong Li (Tsinghua University, China), Helko van den Brom (VSL, The Netherlands), and Wei Yan (NMIA, Australia)—managed the review process and arranged for at least two reviews per paper. Based on the reviews and the recommendations of the guest editors, the regular editors of the TRANSACTIONS accepted 23 papers for this Special Section. Administrators of the TRANSACTIONS Reta Wehmeier and Laura Roach facilitated article submission and peer review.

The conference was supported by CPEM permanent sponsors Bureau International des Poids et Mesures, NCSL International, IEEE Instrumentation and Measurement Society, National Research Council Canada, and National Institute of Standards and Technology, as well as sponsors of CPEM 2022 Measurements International, Dodd-Walls Centre, Fluke, HTS-110, Callaghan Innovation, NCSL International, *Metrology* (open access journal), and the MSL.

Finally, we would like to thank all the CPEM 2022 participants, authors, reviewers, session chairs, and technical program committee members without whom the conference would not be possible.

DIMITRIOS GEORGAKOPOULOS, *Chief Guest Editor*
CPEM 2022
National Measurement Institute
Lindfield, NSW 2070, Australia

REFERENCES

- [1] H. M. Altschuler, "The conference on precision electromagnetic measurements," *Proc. IEEE*, vol. 55, no. 6, p. 782, Jun. 1967, doi: [10.1109/PROC.1967.5690](https://doi.org/10.1109/PROC.1967.5690).
- [2] E. Ambler, "Keynote address: Conference on precision electromagnetic measurements," *IEEE Trans. Instrum. Meas.*, vol. IM-32, no. 1, pp. 1–2, Mar. 1983, doi: [10.1109/TIM.1983.4314997](https://doi.org/10.1109/TIM.1983.4314997).