IEEE AWPL Special Cluster 2024 on "Measurement-Computation Fusion for Advanced Electromagnetic Modeling, Simulation, and Evaluation"

Measurement and computation are fundamental tools for electromagnetic modelling, simulation, and evaluation. Due to increasing frequencies, complexity and sizes, measurements in relevant state-of-the-art situations become challenging due to limited resources. On the other hand, computation requires large computing and storing resources for multi-scale problems with electrically large sizes, complicated geometries, and complex materials. Furthermore, direct computation in system-level simulations may be prohibited because detailed models of components are often unavailable (e.g., because of their proprietary nature). Measurement-computation fusion (MCF, as we termed it henceforth) can overcome the limitations mentioned above, paving a new way to perform challenging modelling, simulation, or evaluation tasks. MCF merges the strengths of measurement and computation based on a model devised by utilizing electromagnetic theory, artificial intelligence, or a suitable blend of the two. MCF can significantly save measurement and simulation resources and carry out challenging tasks that measurement or computation alone cannot perform.

This special cluster aims to provide a rapid venue for collectively publishing recent research results on MCF. The topics are expected to cover theoretical models for MCF, high-performance MCF techniques, and advanced applications based on MCF. The topics of this special cluster include but are not limited to:

- Electromagnetic-model-driven MCF
- Computation-enabled fast measurement techniques
- Artificial-intelligence-based MCF
- Fast computation and measurement technique
- Denoising of measurement data
- Calibration of computation model based on measurement
- Near-field-based evaluation of radar cross-section
- Simulation of antennas on electrically large platforms
- 5G and-beyond wireless communication channel model
- Simulation of complex electromagnetic environments
- Advanced high-performance radars

The Guest Editors of this special cluster are:

- Prof. Huapeng Zhao, University of Electronic Sci & Technol of China, China, huapengzhao@uestc.edu.cn
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Prospective authors are encouraged to contact the Guest Editors for any questions or determinations of the suitability of their contributions to this special cluster. Papers should be prepared following the exact submission instructions as for regular IEEE AWPL manuscripts (four-page technical content maximum and one reference page, double-column, IEEE format), available via the Information for Authors website (http://awpl.ee.cuhk.edu.hk/resources.html). The authors should indicate in the cover letter to the Editor-in-Chief that the manuscript is being submitted in response to the Call for Papers for this special cluster. Prospective authors should refer to the timelines below for the key dates.

Key dates:

- Submission deadline: **March 31, 2024**
- First decision: May 15, 2024
- Revised manuscripts deadline: June 15, 2024
- Final decision: July 30, 2024
- Final manuscripts: September 1, 2024
- Online publication: Shortly after final manuscript submission
- Cluster publication: November (or December) 2024 issue of AWPL