

## ADVANCES IN MULTIPHYSICS MODELING AND SIMULATION OF ELECTROMAGNETIC SYSTEMS

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**Key words:** Computational electromagnetics, Multiphysics, Multiscale, Numerical Methods.

### ABSTRACT

Computational electromagnetics (CEM) plays a pivotal role in the simulation of most recent technologies, ranging from renewable energies to bioelectromagnetics. Rapid prototyping and virtual modeling, now used in most industrial processes, require the development of robust, accurate, and efficient software capable of handling the inherent complexity of large, discretized CEM models, which typically exhibit multiphysics and multiscale behavior.

This session will explore recent advances and approaches in CEM, including (but not limited to) finite element methods, boundary element methods, integral equation methods, hybrid approaches, domain decomposition techniques, multiphysics and multiscale methods, analytical and circuit-based approaches, quantum simulation, AI-based simulation techniques, model order reduction, stochastic modeling, large-scale modeling and parallel computing, optimization and sensitivity analysis.