# ADVANCES IN MUTLIPHYSICS MODELLING AND SIMULATION OF ELECTROMAGNETIC SYSTEMS

## F. MORO[*], I. NIYONZIMA[†]

[*] Università di Padova, Dipartimento di Ingegneria Industriale
via Gradenigo, 6/A, 35131 Padova, Italy
federico.moro@unipd.it, www.dii.unipd.it

[†] Université Grenoble Alpes, G2ELab
Avenue des Martyrs, 21, 38000 Grenoble, France
innocent.niyonzima@univ-grenoble-alpes.fr, www.univ-grenoble-alpes.fr

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## ABSTRACT

Computational electromagnetics (CEM) plays nowadays a pivotal role in the simulation of more recent technologies, ranging from e-mobility to biomedical applications. Fast prototyping and design of these technologies implies the development of efficient numerical tools capable of handling the intrinsic geometric and physics complexity of CEM discretized models, which typically show multiphysics and multiscale behaviour.

Numerical methods and techniques developed and implemented in CEM are used every day to solve large–scale problems arising in several fields of engineering, such as robotics, sensing, telecommunications, microelectronics, electrical machines and drives, and power systems.

This session will explore recent advances and approaches in CEM, including finite element methods, integral equation methods, domain decomposition techniques, multiphysics and multiscale methods, hybrid approaches, analytical and circuit-based approaches, uncertainty quantification, and parallelization for large-scale problems coupled to electromagnetic analysis.