Special Session on

Digital Twins for Electrical Machines

Organized and co-chaired by:

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Abstract

This special session will explore the transformative role of digital twins in the design, optimisation, and operational management and control of electrical machines for traction systems. As transportation electrification accelerates, digital twin technologies offer unprecedented capabilities for real-time monitoring, predictive maintenance, and performance enhancement across the lifecycle of traction machines.

The session will bring together experts from academia, industry, and research institutions to present cutting-edge methodologies, simulation frameworks, and case studies demonstrating how digital twins are reshaping the development and deployment of high-efficiency, reliable, and sustainable traction drives. Topics will include multiphysics modelling, data-driven control strategies, and validation techniques for digital twin environments.

Topics of interest include, but are not limited to:

- Application of digital twins in motor design, control and monitoring.
- Implementation and test of digital twins.
- Methodologies for developing the digital twins.

Important dates

- Full Paper Submission: February 1, 2026
- Full Paper Notification: May 1, 2026
- Final Paper Upload: June 1, 2026

Submission of papers

Paper submission follows the rules of regular papers. All the instructions for paper submission are included in the conference website:
https://icem2026.ubi.pt/submission.html