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Call for Papers for the Special Session on

"Advanced Modeling, Control and Emerging Applications of Multiphase Electric Drives"

Organized and co-chaired by

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Technical Outline of the Session and Topics

Multiphase electric drives have received significant attention in recent years due to their inherent advantages, including fault tolerance, high power density, reduced torque ripple, and suitability for high-performance and safety-critical applications. These systems are increasingly considered for use in transportation electrification, renewable energy systems, aerospace applications, and high-reliability industrial processes.

This special session aims to bring together researchers focused on advanced modeling techniques, predictive and model-free control strategies, modulation methods, fault-tolerant operation, and emerging applications of multiphase drives. The session will serve as a dedicated forum for discussing recent breakthroughs and future research directions in this rapidly evolving field.

Topics of the session include, but are not limited to:

- Mathematical modeling of multiphase machines (5-phase, 6-phase, dual three-phase, etc.)
- Advanced control strategies: FCS-MPC, CCS-MPC, Model-free predictive control, Fault-tolerant control, AI-based control, Sliding mode based controllers.
- PWM and modulation techniques for multiphase converters.
- Harmonic subspace control ($x - y$ planes).
- Open-phase and post-fault operation.
- Sensorless control.
- Applications: Electric vehicles, Ship propulsion, Aerospace, Wind energy systems, High-reliability industrial processes.

Timeline for Authors

All the instructions for paper submission are available on the conference website. Please visit www.iecon2026.org or scan the QR code for the timeline.