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Call for Papers for the Special Session on

Advanced Control of Electric Machines and Drive Systems for Grid-Supportive Renewable Energy Applications

Organized and co-chaired by

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Technical Outline of the Session and Topics

The rapid electrification of transportation, industrial processes, and energy systems, together with the large-scale integration of renewable energy sources, has placed electric machines and drive systems at the core of modern power systems. Wind turbines, electric vehicles, industrial motor drives, and grid-connected converters increasingly require advanced control strategies that ensure high efficiency, dynamic performance, reliability, and compliance with grid-support requirements. The conventional control approaches are often insufficient to handle the growing complexity of electric machine-based systems operating under variable-speed conditions, parameter uncertainties, fault scenarios, and grid disturbances. This has motivated the development of next-generation control strategies that are robust, predictive, adaptive, and intelligence-assisted. Such approaches are essential for enabling grid-supportive operation, fault tolerance, and stable interaction between electric drives, power electronics, and renewable energy-dominated power systems. This Special Session focuses on advanced control techniques for electric machines and drive systems, with particular emphasis on their role in renewable energy conversion and power system support. The session aims to highlight recent theoretical advances and practical implementations that improve performance, efficiency, and resilience of electric machines operating in grid-connected and renewable energy environments. Contributions should clearly demonstrate relevance to electric machines, motor drives, and power-system-level integration. The objective is to bring together researchers and practitioners working on control solutions that bridge electric machine theory, power electronics, and power systems, and to showcase technologies that support the reliable and efficient operation of future electrified and renewable-based grids.

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

- **Advanced Control of Electric Machines and Drives**
- **Predictive and Optimal Control for Machine-Based Systems**
- **Intelligent and Data-Driven Control in Electric Drives**
- **Fault-Tolerant and Reliable Electric Drive Systems**
- **Electric Machines in Renewable Energy and Power Systems**

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.