

Call for Papers for the Special Session on

Enhancing Electrified Transportation: Advanced Motor Control Strategies and Fault Tolerance

Organizers and Co-chairs

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Technical Outline of the Session and Topics

The depletion of fossil fuels has made the shift to electrified transportation systems inevitable. To ensure safety and comfort in electric vehicles, aircraft, and ships, high-performance onboard motor systems are essential. Recent advancements in motor drive systems and control strategies have improved motor system design and control, with a focus on transportation electrification. These developments include innovative nonlinear algorithms, such as model-predictive, sliding mode control, sensor-less control, AI-based control, and neural network control strategies, which enhance performance, precision, and robustness. However, unexpected failures in sensors, actuators, or other components can compromise system performance or stability. Therefore, it's crucial for drive-based applications to be fault-tolerant and robust against issues like demagnetization, load imbalance/misalignment, rotor eccentricity, etc. This special session seeks to gather groundbreaking ideas and methods for advanced motor control strategies and fault detection in electrified transportation.

Topics of this Special Session Include but are not limited to

- Control and Design of Electric Machine Systems
- Control of Electric Drive Systems
- Control of Electric Vehicles
- Control of Electric Aircraft
- Control of Electric Ships
- Fault Diagnosis and Fault Tolerance
- Control of Powertrains
- Control of Energy Conversion Systems
- Power Electronics and its Applications

Timeline for Author

Deadline for submission of special session papers March 15, 2025

Notification of acceptance March 31, 2025

Deadline for submission of final manuscripts April 15, 2025

All the instructions for paper submission are available on the conference website.

