



ANNUAL CONFERENCE OF THE IEEE INDUSTRIAL ELECTRONICS SOCIETY

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Special Session on Multiphase Electric Drives for Transportation Electrification

Organized and co-chaired by:

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Call for Papers

Technical Outline of the Session and Topics:

All-electric ships, all-electric aircraft, and ground vehicles need efficient electric drives with higher power/torque capacity. Moreover, the fault-tolerant operation of electric drives is critical to improving the safety and reliability of high-power electric vehicles. Due to these aspects, multiphase electric drives have gained importance in transportation electrification. Advanced control methods such as model predictive control, adaptive control, and Fuzzy logic control methods were studied for the fault-tolerant operation of multiphase electric drives. These methods' performance greatly depends on the motor parameters and accuracy of the models. Hence, there is a growing demand for new parameter estimation and modelling methods to incorporate the motor magnetic saturation, coupling between the phases, and phase unbalance to handle normal (motoring and regeneration modes) as well as fault-tolerant operation. Additionally, sophisticated fault prediction and fault diagnostic methods are highly needed to improve the safety and reliability of multiphase electric drives in transportation electrification. This special session focused on the design, modelling, control, and reliability aspects of multiphase electric drives in transportation electrification.

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

- New materials and developments in multiphase electric machine design.
- Advances in modelling, parameter estimation, and sensorless operation.
- Advances in control algorithms for multiphase machines and open-end winding machine configurations.
- Advances in PWM techniques for normal as well as fault-tolerant operation of multiphase drives.
- Advances in fault prediction and fault diagnostic methods for multiphase drives.
- Safety and reliability aspects of multiphase drives for transportation applications
- Efficiency enhancement methods for multiphase drives in transportation applications.
- Specialized applications of multiphase drives such as ship propulsion, aircraft propulsion, and heavy-duty electric vehicles.

Author's schedule:

Deadline for submission of special session papers	April 15, 2024
Notification of acceptance	June 10, 2024
Deadline for submission of final manuscript	July 01, 2024

Early submission is highly encouraged for early decision notifications!



All the instructions for paper submission are included in the conference website:

www.iecon-2024.org