

Call for Papers for the Special Session on
Single-Stage Buck/Boost Inverters—Topologies, Control Strategies, and Applications

Organized and co-chaired by

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Technical Outline of the Session and Topics

The single-stage buck/boost inverter topology not only overcomes the boost ratio limitation of traditional single-stage inverters, but also avoids the complex control and additional power losses of two-stage counterparts. It features high efficiency, compact size, light weight, and low cost, which has fuelled a surge of research interest in single-stage topology development. Driven by this trend, a variety of single-stage topologies have been proposed with significant improvements in efficiency, compactness, and voltage gain. Current research efforts mainly focus on topologies, modulation techniques, control strategies, and applications such as fuel cells, grid integration, and motor drives. This special session aims to gather all relevant contributions on single-stage buck/boost inverters, fostering a collaborative environment for sharing cutting-edge research, technological progress, and practical application experiences.

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

- Single-stage buck/boost inverter topology design
- Modulation and control strategies
- Multilevel/multiphase single-stage inverters
- Wide band gap device integration for single-stage topologies
- Circuit parameter optimization techniques
- Applications in renewable energy and electric vehicle/motor drive systems
- Novel application scenarios

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.

