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Call for Papers for the Special Session on

DC-DC Power Converters for EVs: Innovative Topologies, Intelligent Control, and Practical Applications

Organized and co-chaired by

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Technical Outline of the Session and Topics

The rapid electrification of transportation is driving the need for high-efficiency, high-power-density, and reliable DC-DC converters in electric vehicles. Emerging 400 V/800 V architectures, fast charging, and bidirectional V2X operation create new design and control challenges. This special session brings together academia and industry to present advances in converter topologies, intelligent control, wide-bandgap devices, and practical EV applications, bridging theory and automotive deployment.

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

- Advanced isolated and non-isolated DC-DC converter topologies for EV applications
- Wide-input/output-range converters for 400 V / 800 V battery systems
- Bidirectional DC-DC converters for onboard chargers, fast chargers, and V2X applications
- Resonant, soft-switching, and high-frequency converter designs
- Multiphase, interleaved, modular, and reconfigurable DC-DC architectures
- Intelligent, digital, and AI-assisted control strategies
- Model-based, predictive, and nonlinear control techniques
- SiC and GaN device-based DC-DC converters and advanced packaging solutions
- Thermal management, EMI/EMC mitigation, and reliability-oriented design
- Fault diagnosis, protection, and functional safety considerations
- Hardware-in-the-loop (HIL) validation and real-time implementation

Timeline for Authors

Paper Submission: 15 April 2026,
Early/Regular Acceptance: 15 May 2026
Final Submission / and Registration: 15 July 2025

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.