

Call for Papers for the Special Session on

Advancements in Static and Dynamic Wireless Charging Technologies for Electrified Transportation and Emerging Applications

Organized and co-chaired by

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Technical Outline of the Session and Topics

The emphasis on electric vehicles centres on the charging infrastructure and necessitates a secure, accessible, and automated charging system. Inductive power transfer (IPT) charging offers flexibility in addressing the aforementioned issues. Furthermore, automotive manufacturers are demanding advanced power converter topologies, reconfigurable compensation techniques, and couplers to facilitate interoperability with various power levels, voltage classes, and compensation requirements for such applications. Nonetheless, challenges remain in implementing these systems and their associated controls to ensure safety during critical operations. Additionally, innovative coupler designs and control techniques are being developed to mitigate misalignment variations, thereby enhancing power transfer capability and system efficiency. Consequently, there exists an opportunity to design and develop new power electronic converters, modulation schemes, control strategies, and implementation procedures that meet these rigorous requirements. This special session focused on power electronics topologies, coupler configurations, compensation topologies, their design challenges, control strategies, and applications within electric transportation systems.

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

- High-power-density power converters and wide-bandgap semiconductors for IPT Systems
- Multi-physical modelling, analysis and optimisation for system-level design of IPT Systems
- High-frequency magnetics design and IPT converter topologies for implantable medical devices
- Coil structures, power converters, and their control for dynamic wireless charging technology
- Advanced modulation, sensorless/fault-tolerant control and artificial intelligence for power, medicine, and scientific instrumentations
- Advanced configurations and power converters for multi-voltage and multi-power level systems
- Emerging wireless charging technologies regarding vehicle-to-X interactions
- Circuit concepts for wide-bandwidth and variable-frequency wireless power
- Simultaneous wireless power and data transfer
- Specialised applications such as heavy-duty EVs, marine and their system-level implementation

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.

