



Call for Papers

IEEE Journal of Emerging and Selected Topics in Power Electronics

Special Issue on Electromagnetic Compatibility in Advanced Power Electronics Systems

With the widespread adoption of wide-bandgap devices, such as GaN and SiC, along with advanced packaging technologies (e.g., 3D integration, co-packaged switch modules), modern power electronics systems have become significantly more compact and power-dense. As a result, electromagnetic compatibility has emerged as a critical factor that directly affects the size, safety, reliability, and performance of these systems. The complex electromagnetic environment caused by fast-switching wide-bandgap devices and highly integrated packaging introduces intricate noise coupling paths and mechanisms, imposing stringent constraints on the design and optimization of power converters. Meanwhile, the widespread deployment of power electronics equipment, including electric vehicles, drones, data center power supply units, and renewable energy systems, has driven the continual evolution of EMC standards toward broader frequency ranges and tighter emission limits. Achieving EMC compliance, therefore, demands a paradigm shift from post-design electromagnetic interference (EMI) mitigation to systematic, application-driven EMC co-design. Traditional research in this field encompasses miniaturization techniques (e.g., electromagnetic integration, advanced control, and active filtering), modeling (e.g., wideband component characterization, high-frequency circuit simulation, and parasitic extraction), and design (e.g., optimal layout, EMI filter design, and soft-switching techniques). In addition, emerging topics have gained increasing attention in power electronics EMC research, including AI-driven source identification, EMI and immunity prediction, active gate driving, and electromagnetic security in power electronic converters.

The objective of this special issue is to engage the academic and industrial communities in EMC in advanced power electronic systems. We invite original research contributions, innovative methodologies, and forward-looking studies that address emerging EMC challenges in this rapidly evolving field.

Topics of interest include, but are not limited to:

- Wideband characterization, modeling, and optimal design of EMI components
- EMI coupling mechanisms and high-frequency circuit modeling within power electronics systems
- AI- and data-driven EMI prediction and control strategy for power converters
- EMI filter design and shielding miniaturization for compact power converter and drive systems
- Electromagnetic safety, security, and immunity of power electronics-based applications
- Parasitic parameters modeling of wide-bandgap devices for EMI evaluation
- Layout, packaging, and interconnect optimization to reduce EMI in converter assemblies
- System-level and multi-physics EMC optimization in discrete and integrated converter systems
- Standards, compliance, and testing methodologies for emerging power electronics applications
- EMC design and considerations in power electronics applications (e.g., transportation electrification, data center, and renewable energy system)

All submissions should be made through *Manuscript Central* at <http://mc.manuscriptcentral.com/jestpe-ieee>. The cover page should be clearly marked with "Special Issue on <Electromagnetic Compatibility in Advanced Power Electronics Systems >" and the appropriate manuscript type should be selected when uploading the submission. Manuscripts submitted for this special issue will be handled by the guest editorial board outlined below. For more information on special issues and electronic submissions, please go to <http://www.ieee-pels.org/publications/jestpe>.

Deadline for Submission of Manuscript: <October 31, 2026>

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(University of Florida, USA)
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Proposed Timeline

- **July 31, 2026:** Call for papers to IEEE JESTPE Editorial Office
- **October 31, 2026:** Manuscript submission deadline
- **February 28, 2027:** Final acceptance notification
- **March 30, 2027:** Manuscript forwarded to IEEE for publication
- **April 31, 2027:** Special Issue appears in IEEE JESTPE