Call for Papers

IEEE Journal of Emerging and Selected Topics in Power Electronics

Special Issue on Power Electronics for Distributed Generation Systems

Power electronics technology is essential for distributed generation systems and the transition to a decarbonized electric energy infrastructure. However, the integration of renewable energy, storage systems, and new loads like electric vehicles and AI data centers brings challenges in power conversion, grid stability, and energy management. These challenges require power electronic technology to be more efficient, reliable, intelligent, and cost-effective. Furthermore, the shift to distributed generation calls for innovative power electronic solutions to interface renewable energy, support bidirectional power flow, and maintain stability. Thus, this special issue seeks research on advanced power electronics that enable efficient, reliable, and sustainable distributed generation, aiming to accelerate next-generation electric energy systems.

Topics of interest include, but are not limited to:

Power electronics for renewable power generation

- Power converters and control for distributed renewable power generation
- High-efficiency WBG based power converter topology, modulation and design.
- Design, control, protection and test standards of grid-forming power converters.
- Hardware-in-the-loop (HiL) and power hardware-in-the-loop (PHiL) test of renewable power systems.

Power electronics for flexible and resilient grids

- High-efficiency high-reliability power converters for DC transmission and distribution.
- Topology, control, protection and grid integration of solid-state transformers.
- Design, control, protection and energy management of AC, DC and hybrid AC/DC microgrids.
- Power electronics for power quality improvement and stability enhancement.

Power electronics for energy storage systems and emerging DC loads

- Power electronics for battery and super capacitors based energy storage systems.
- Power electronics for hydrogen-based energy storage systems.
- Novel power conversion architecture and grid interactive control of EV fast charging systems.
- Architecture and topology of power electronics for high-efficiency AI data centers.

Post-conference versions of papers that have been presented at the IEEE 16th International Symposium on Power Electronics for Distributed Generation Systems (PEDG 2025) as well as new submissions are accepted. For post-conference papers, the original conference paper must be listed in the reference section. Also, the original conference paper must be in a footnote that is placed after the title on the first page of the manuscript. Post conference papers are subject to a similarity check, and if a substantial overlap of 70% or more is identified, it will lead to an automatic rejection. In cases where the similarity check shows a range between 50% and 70%, the DEiC will make the determination regarding whether the paper should be forwarded for peer review. Hardware based experimental results are desired to support proposed ideas. In exceptional cases, hardware in the loop (HIL) results can replace the experimental verification, e.g. if construction of a test bench is not possible, or the HIL itself has an intrinsic novelty.

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 Power Electronics for Distributed Generation 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: November 15, 2025

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- **Samir Kouro** (Universidad Técnica Federico Santa María, Chile)
- **Pedro Rodriguez** (Luxembourg Institute of Science and Technology, Luxembourg)
- **Xinbo Ruan** (Nanjing University of Aeronautics and Astronautics, China)

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- **Ayan Mallik** (Arizona State University, USA)
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Proposed Timeline

- **Aug 05, 2025:** Call for papers to IEEE JESTPE Editorial office
- **Nov 15, 2025:** Manuscript submission deadline
- **Mar 15, 2026:** Final acceptance notification
- **May 01, 2026:** Manuscript forwarded to IEEE for publication
- **June 2026:** Special Issue appears in IEEE JESTPE