



Call for Papers

IEEE Journal of Emerging and Selected Topics in Power Electronics

Special Issue on Emerging Converter Topology, Operation, and Design Technologies

Scheduled Publication Time: May 2022

Power electronics play a key role in transition to carbon neutrality. To enhance the performances of power electronics systems, new theories and methods are entering the field of power converter research, leading to increasing diversity of the knowledge database regarding converter design and operation methods. In addition to the conventional case-by-case design methodology, new automated and generalized converter design philosophies integrating topology derivation and synthesis methods, optimal pulse-width modulation (PWM), and advanced control strategies are gaining attentions in both academia and industry. By implementing these methods, converter design process can be greatly improved while the potentials of various power converters can be fully explored, leading to elevated converter performances.

With the increasing research volume in power electronics, it is important to establish a comprehensive knowledge database in order to expand the frontiers of power electronics research. This special section serves this purpose with the objective to collect the latest innovations in **converter topology, operation, and design methodologies**. Prospective authors are invited to submit original contributions or survey papers for review for publication in this special issue. Topics of interest include but are not limited to:

- Systematic converter topology synthesis and derivation for DC-DC, DC-AC, and AC-DC power conversions
- Topology study for modular and non-modular multilevel topologies
- New theories (e.g. graph theory) for power converter topology analysis and evaluation, as well as converter operation
- New multilevel converter topologies for applications from low voltage to high voltage
- Converter design integrating automated topology derivation and selection
- Resilient control and fault tolerant operation of multilevel converters
- Multi-physics converter analysis, modeling, and design
- Optimized PWM strategies for various converter topologies and applications
- Application of wide band-gap devices with multilevel converters
- Optimal design and system level integration of power converters in utility grid, distributed energy resources, electric vehicles, etc.

All manuscripts must be submitted through Manuscript Central at <http://mc.manuscriptcentral.com/jestpe-ieee>. Submissions must be clearly marked “Special Issue on Emerging Converter Topology, Operation, and Design Technologies” on the cover page. **Hardware based experimental results are desired to support proposed ideas.** When uploading your paper, please select your manuscript type “Special Issue.” Refer to <http://www.pels.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

Deadline for Submission of Manuscript: June 30, 2021

Guest Editors: Yunwei (Ryan) Li, University of Alberta, Canada (yunwei.li@ualberta.ca),
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Proposed timeline

- March 15, 2021 - Call for Papers to IEEE JESTPE Editorial Office
- June 30, 2021 - Manuscripts Submission Deadline
- February 1, 2022 - Final Acceptance Notification
- March 15, 2022 - Manuscripts Forwarded to IEEE for Publication
- May 1, 2022 - Special Issue Appears in IEEE JESTPE