



## Call for Papers

# IEEE Journal of Emerging and Selected Topics in Power Electronics

## Special Issue on Topology, Modeling, Control and Reliability of Bidirectional DC/DC Power Converters in DC Microgrids

Scheduled Publication Time: September 2020

DC microgrids have higher efficiency, better current carrying capacity and faster response compared to the conventional AC systems. They also provide more natural interface with many types of renewable energy resources (RERs) and energy storage system (ESSs), as well as better compliance with consumer electronics. These facts lead to increased applications of DC microgrid-type power architectures in remote households, data/telecom centers, renewable energy systems, electric vehicle charging stations, ships, aircrafts, etc. Bidirectional DC/DC power converters constitute the fundamental building blocks of DC microgrids. They can be isolated or non-isolated and operated independently or in parallel to manage the power flow between sources and the DC microgrid. They can also be stacked together to operate in the so-called solid-state transformer architecture, which manages the power flow between DC microgrid and the upstream distribution network. The reliability, stability, efficiency and power density of the bidirectional DC/DC power converters become very crucial for the DC microgrids. There are thus increasing research efforts made on their topology, modeling, control, and reliability.

This special issue targets the topology, modeling, control and reliability of bidirectional DC/DC power converters in DC microgrids, specifically for low voltage (LV) and medium voltage (MV) applications. Prospective authors are invited to submit original contributions, or survey papers or tutorials, for review and publication in this special issue on bidirectional DC/DC power converters. Topics of interest include, but are not limited to:

- New high efficiency bidirectional DC/DC converter topologies with wide voltage gains
- Modeling of bidirectional DC/DC converters
- Advanced control of bidirectional DC/DC converters
- Coordinated control of paralleled DC/DC converters
- Modulation methods of bidirectional DC/DC converters
- Advanced hardware design of bidirectional DC/DC converters
- Real-time hardware in the loop (HIL) simulation of bidirectional DC/DC converters
- Design and analysis of medium frequency transformer for high power bidirectional DC/DC converters
- Modeling and control for DC/DC solid state transformers
- Stabilization of constant power loads
- Reliability enhanced bidirectional DC/DC converters (life-time enhancement, fault tolerant, etc.)
- Enhanced performance of bidirectional DC/DC converters (fast dynamic response and robustness)

All manuscripts must be submitted through Manuscript Central at <http://mc.manuscriptcentral.com/jestpe-ieee>. Submissions must be clearly marked "Special Issue on Topology, Modeling, Control and Reliability of Bidirectional DC/DC Power Converters in DC Microgrids, 2019" on the cover page. 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: **October 1, 2019**

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#### Proposed Timeline:

- May 15, 2019
- October 1, 2019
- June 15, 2020
- July 15, 2020
- September 2020
- Call for Papers to IEEE JESTPE Editorial Office
- Manuscripts Submission Deadline
- Final Acceptance Notification
- Manuscripts Forwarded to IEEE for Publication
- Special Issue Appears in IEEE JESTPE