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Special Session on

Advanced Power Electronics and Control Solutions for Efficient Microgrid Integration of Renewables

Organized and co-chaired by:

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Call for Papers

Technical Outline of the Session and Topics:

Power converters are essential building blocks in microgrid technology- driving advancements in renewable energy integration, transportation electrification, energy storage, and computational applications. This Special Issue focuses on the complexities of power converters, exploring their types and control, advantages, drawbacks, and applications—from smartphones to industrial systems. Emphasizing microgrid, the issue also delves into diverse converter topologies and controls, incorporating new wide-bandgap semiconductors and intelligent algorithms. Of particular emphasis within this Special Issue are the diverse topologies of converters employed in microgrids, encompassing DC/DC converters, single-phase DC/AC converters, three-phase three-wire, and four-wire DC/AC converters. An integral aspect of this exploration involves the sophisticated control mechanisms governing these converters, incorporating advanced techniques such as genetic algorithms, artificial neural networks (ANN), and other computer intelligent algorithms. Through a meticulous analysis, the correlated trade-offs between converter efficiency, power density, and cost are dissected to ascertain optimal design solutions for microgrid applications. Recognizing the pivotal role of converters in microgrids, this Special Issue invites original research on power converters, controllers, and their applications for efficient Microgrid Integration of Renewables.

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

- Advanced Power Electronics for Integration of Renewable.
- Hybrid Multilevel-, Switched capacitor-, Z Source- based Converters, etc.
- Bi-Directional Converter Power Flow in Microgrids.
- Design, Control, and Integration with Renewable Energy Sources in Microgrid.
- Advanced Control Strategies for Inverter-Based Microgrids.
- Advanced Energy Storage through power converter for Microgrids.
- Resilient Design of Power Converters for Harsh Environmental Conditions.
- Efficiency and Reliability of Power Converter.
- Fault Tolerant and protection of Power Converter.
- Power Electronics system for u-inverter, E Vehicle Charging, V2G and G2V.
- High-Frequency Converters- topology, control, and application.
- Microgrids space applications, including satellites and spacecraft.
- Small-scale renewable energies and storage for microgrids, other relevant topics.

Author's schedule:

Deadline for submission of special session papers	April 15, 2024
Notification of acceptance	June 10, 2024
Deadline for submission of final manuscript	July 01, 2024

Early submission is highly encouraged for early decision notifications!

All the instructions for paper submission are included in the conference website: www.iecon-2024.org