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Special Session on

Design, Control and Fault Detection of Power Converters for Energy Storage and EV Charging Systems

Organized and co-chaired by:

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Call for Papers

Technical Outline of the Session and Topics:

Electric storage devices, like batteries, supercapacitors, and electric vehicles, are usually connected to the grid for cogeneration or energy conservation for future use. This connection is made through power electronics interfaces that should guarantee high stability, voltage regulation, power flow control, and low electromagnetic emission, along with high power density, low cost, and high reliability. To increase the power density, passive devices that are considered the bulkiest components in these systems should be reduced or avoided. This can be achieved by considering multilevel topologies that would comply with power quality requirements without the need for passive filters.

This session is dedicated to the various solutions adopted for high quality energy management at the storage or EV charging levels. More specifically, it will present advanced power electronics topologies used for power quality enhancement in such applications. Model-based or intelligent control algorithms ensuring a compliance with grid requirements, especially regarding power quality and V2G connectivity, and EV-related standards are also considered as major topics in this session. In addition, fault detection techniques dedicated to the diagnosis of power converters for electric vehicles and energy storage devices are also covered.

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

- Multilevel converters in grid-connected storage devices
- Fuel cells for EV drives
- Battery charging systems
- PV-assisted charging systems
- Power quality in V2G systems
- Model-based control design
- Artificial-intelligence-based control
- Energy management in V2G systems
- Open-winding motor drives
- Current and voltage signature-based fault diagnosis methods for chargers
- AI-based fault detection techniques for EV and battery charging systems

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