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Special Session on

DC-DC Power Conversion: Innovations in Topologies, Control Strategies, and Diverse Applications

Organized and co-chaired by:

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Call for Papers

Technical Outline of the Session and Topics:

In today's tech world, the spotlight is on the mix of renewable energy and high-tech power converters, which play a pivotal role in the precise regulation of voltage and current for dynamic power distribution across diverse sectors, notably distribution generators, hybrid vehicles, satellites, aerospace, and microgrid applications. By embracing innovative control and modeling approaches, a mosaic of renewable resource systems and the integration of DC-DC converter circuitry have been designed and are gaining attraction due to both future prospects and current needs. The DC-DC converter and intelligent control technologies are not merely a response to current needs but an investment in future possibilities. Considerations of compatibility, cost-effectiveness, power density, stability in voltage or current conversion, and the management of reactive and semiconductor units, etc. become the bedrock for a reliable, efficient, and techno-economic process. A noteworthy leap forward involves advanced control techniques, including sliding mode control, Lyapunovbased control, passivity-based control, model predictive control, and strategic integration of artificial intelligence (AI). This special session seeks to integrate insights from experts and researchers, establishing a standardized platform to consolidate current developments in power converters and control of DC-DC technologies. Its main focus is on power circuits, synthesis, mathematical modeling, design intricacies, cost optimizations, control dynamics, artificial intelligence innovations, techno-economic insights, and more. The objectives align with the United Nations' pursuit of Sustainable Development Goal 7, aiming for a reliable and affordable energy system. Additionally, the session places emphasis on pioneering DC-DC converter technologies, controls, and applications, with a commitment to delivering sustainable and energy-efficient solutions, aligning with Sustainable Development Goal 12.

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

- High Power Density and Voltage DC-DC Converters
- DC-DC Topologies based on- Switched inductor, Switched Capacitor, Voltage multiplier etc.
- Isolated and non-isolated converter
- Adaptive Intelligence and new Control Algorithms for DC-DC Converters
- Advancements in Control and Modeling Strategies and Cost-Effective Power Density Optimization
- Ensuring Stability in Voltage and Current Conversion
- Optimal Management of Reactive and Semiconductor Units
- AI Integration for Enhanced Control Techniques
- Economic Perspectives in DC-DC Converter Technologies
- Power Loss Calculations and Thermal Analysis of DC-DC Converters
- Application and Techno-Economic Integration of Renewable Energy through DC-DC Converters
- Anticipating Future Trends in DC-DC Converters

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