

## **Call for Digests: Special Session on**

### **Advancements in Power Conversion - Techniques and Applications**

**Organized and co-chaired by**

**Dr. Mahajan Sagar Bhaskar**, Prince Sultan University, Saudi Arabia, [sagar25.mahajan@gmail.com](mailto:sagar25.mahajan@gmail.com)

**Prof. P. Sanjeevikumar**, University of South-Eastern Norway, Norway, [sanjeev.padma@usn.no](mailto:sanjeev.padma@usn.no)

### **Technical Outline of the Special Session**

The progression in power electronics, highlighted by the enhancement of converters employing state-of-the-art boosting techniques, marks a significant leap forward in the field of renewable energy systems. These advanced converters are critical for efficiently connecting renewable sources with the electrical grid or storage units. Their development is in sync with Sustainable Development Goals (SDG) 7 and 12, which aim to secure access to affordable, reliable, sustainable energy for all and encourage sustainable consumption. The integration of multiple converter units with diverse energy sources, storage mechanisms, and recent power electronics converters address the shortcomings of older technologies. Their growing use across renewable energy initiatives, microgrid applications, and storage systems enhances global efforts towards sustainability. Research is now focused on elevating the performance of these converters, concentrating on compatibility, high-voltage operation, and reducing component counts to achieve higher efficiency, reliability, and cost-effectiveness.

This special session aims to spotlight the developments in power electronics converters. It will feature discussions led by experts and researchers on the latest advancements in boosting circuits, innovative control, cost-saving, and integration with artificial intelligence (AI). This initiative focuses on the critical importance of power electronics converters in the continuous advancement of power conversion techniques and their pivotal applications in sustainable energy systems.

### **Topics of the Special Session**

- Advanced Boosting Techniques in Power Electronics Converters
- High-Gain Power Electronics Converters and Hybrid Solutions
- Smart Control Strategies for Power Converters in Microgrid Applications
- Low-Cost Power Conversion Solutions Using Hybrid Energy Systems
- Efficiency Enhancements, Modelling and Optimization of High Voltage Power Converters
- Integration of Artificial Intelligence in Power Converter Control
- Cost-Effective Design Strategies for Power Converters in Renewable Energy Systems
- Power Electronics Converters in Achieving Sustainable Development Goals (SDG) 7 and 12
- Integrating Renewable Energy Sources with Advanced Power Electronics Converters

### **Important Dates**

- Digest Submission Deadline – 30th of June.
- Notification of Acceptance – 18th of August.
- Final Paper Submission – 29th of September.

### **Digest Template and Submission Information**

<https://spec-ieee.org/spec2024/digest-submission/>

### **Digest Submission Link**

<https://easychair.org/conferences/?conf=ieeespec2024>