

Call for Papers for the Special Session on

**ADVANCED MODELING AND CONTROL OF GRID-CONNECTED CONVERTERS
FOR DISTRIBUTED GENERATION AND POWER QUALITY**

Organized and co-chaired by

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Technical Outline of the Session and Topics

Renewable sources, such as photovoltaic panels, wind generators and fuel cells, are usually connected directly to the grid for cogeneration. This connection is made through power electronics interfaces that should ensure high stability, voltage regulation, power flow control, and low electromagnetic emission, along with high power density, low cost and high reliability. In some applications where high power level is required, the switching frequency of the power semiconductors is limited and the use of multilevel or interleaved converters becomes mandatory in order to get an acceptable power quality. This session addresses the issues of advanced modeling techniques applied to such converters for real-time simulations and control design in order to improve their performance, efficiency, reliability and cost-effectiveness.

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

- Advanced control of multilevel inverters
- Real-time control and simulations of high-power converters
- Grid-connectivity control requirements
- Control of parallel or interleaved topologies
- Modeling and model-based control of switch-mode power converters
- Optimal control in hybrid cogeneration systems
- Predictive control of power converters
- Intelligent control of power converters
- Power quality control in renewable energy systems
- Digital twin modelling of power electronics devices

Timeline for Authors

All the instructions for paper submission are available on the conference website. Please visit www.iecon2026.org or scan the QR code for the timeline.

