

Special Session on

**“Reliability-oriented Design and Control of Converters for Medium and Low
Voltage Industrial and Utility Applications”**

Organized by

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Call for Papers

Reliability is the main concern in applications such as more electric aircraft, renewable energy generation, automotive applications, uninterruptible power supply, high voltage dc transmission, grid integration and space applications etc. The healthy monitor, lifetime management and post-fault operation are the key progress in three levels to improve the reliability of power converters. Different fault tolerant converter topologies, modulation techniques with high power density are being researched and developed. Therefore, the fault tolerant capability with reduction of power losses and optimized control strategies are attracting attention of researchers. Due to the complex control scheme and need to control more redundant switches, demand is to develop new converters with reduced device count providing single switch and multi-switch fault tolerant capability which can provide good power quality as well. This special session aims to cover health monitor, lifetime management and active thermal control and fault tolerant converter topologies for various medium voltage and low voltage applications.

Topics of interest include, but are not limited to:

The prime objective of this special session is to identify and address the research activities on design of fault tolerant converter in the academic and industrial sectors. Topics of interest for this SS are (but are not limited to):

- Topologies/Configurations of fault tolerant converters for various low voltage and medium voltage applications,
- Fault detection/diagnosis techniques,
- Reliability and stability analysis of fault tolerant converters,
- Fault tolerant control techniques,
- Impact of fault tolerant operation on the power density of the converter system,
- System identification algorithms for power electronic converters,
- Fault probability assessment for power and control circuits,
- Thermal control and power routing in fault tolerant power electronic converter system,
- Practical design and experimental validation of fault-tolerant converters with all types of faults.

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