



# SDEMPED 2021

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Power Electronics and Drives

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Special Session on

## ***Self-Healing and Fault-Tolerance Technologies for Smart Converters***

Special Session Organizers:

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### **Technical Outline of the Session and Topics:**

Solid-state converters have become enabling technology to realize a wide range of critical technologies such as mechatronics, robotics, grid-tied wind and solar systems, all-electric and hybrid vehicles, etc. Potentially harsh and variable conditions make these technologies vulnerable to failures. Thus, prolonging operating times (or availability) of power converters is a desired feature. The fault-tolerance and corrective action features for these systems, e.g., aircraft and drones, can allow the system to operate longer after detecting incipient faults. For example, smart converters and actuators that can diagnose both incipient internal and external abnormalities, as well as electrical and mechanical fatigue using real-time condition monitoring algorithms, will increase the reliability of these technologies and mitigate stresses to prevent catastrophic failures, and extend the life of the system. We encourage all researchers working in this area to submit papers to this Special Session. Topics of interest include, but are not limited to:

- ✓ Fault-tolerant smart converters for hybrid vehicles and aircraft
- ✓ Fault-tolerant converters for less redundancy and compact systems
- ✓ Fault-tolerant inverters for motor-drive applications
- ✓ Fault-tolerant grid forming inverters in microgrids
- ✓ Remedial actions for multilevel converters