

Special Session on

“Advances in Topology and Control for Multiphase Machines”

Organized by

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Call for Papers

Recently, multiphase (more than 3 phases) machines have re-emerged as a serious contender to their three-phase counterparts, particularly in applications requiring high power and reliability, including high-speed traction motors, more-electric aircraft/ship or off-shore wind energy generation, to name a few. One of the most important advantages of multiphase machines is undoubtedly their high reliability, where fault tolerance can be achieved with only software (control) manipulation. Furthermore, the additional degrees of freedom offered by multiphase machines have led to innovative control methods and converter topologies that provide new functions which were not possible in three-phase drives. In line with this, there has been a surge in research efforts devoted towards multiphase machines, both as motors and generators, in the past two decades. This special session is proposed to attract the latest developments on multiphase machines, particularly on new control (in healthy and faulty situation) methods, converter topologies and novel solutions for enhanced reliability. Advances in new multiphase machine designs and converter topologies are strongly welcomed.

Topics of interest are categorized as follows in detail:

- Multiphase variable-speed drives for electric traction/propulsion, more-electric aircraft, renewable energy or industrial applications, as well multiphase generation systems.
- New converter topologies for multiphase machines.
- New control strategies for multiphase machines under the normal and post-fault operation modes.
- Fault detection methods for multiphase machines and converters.
- New modulation algorithms for multiphase converters.



The 46th Annual Conference of the IEEE Industrial Electronics Society

**October 18-21, 2020, Marina Bay Sands Expo and Convention Centre
Singapore**



- Modelling, identification and simulation of multiphase machines.
- Design of multiphase machines