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Special Session on

"Advances on Marine Renewable Energy Converters Design, Monitoring, and Control"

Organized by

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Call for Papers

The world wide potential of electric power generation from marine renewable energies (i.e. tidal streams, waves, and offshore winds) is enormous. High load factors resulting from the fluid properties and the predictable resource characteristics (particularly in the case of tidal and wave energies) make these energy resources attractive and advantageous compared to other renewable energies. While just a few small projects currently exist, the technology is advancing rapidly and has huge potential for generating bulk power. Several demonstrative projects have been scheduled to capture tidal stream and wave and floating offshore wind energies. A number of these projects have now reached a relatively mature stage and are close to completion. While research emphasis is more towards hydrodynamics and turbine design, very limited activities are witnessed in power conversion interface, control and power quality aspects, which are of vital importance for their successful integration to a continental grid or to a standalone microgrid. In this context and after a successful session in IECON 2019, this special session is aimed to promote fruitful experience interchanges and discussions on how to improve tidal stream and wave energy converters behaviour and performances.

Topics of the Session:

Topics of interest include, but are not limited to:

- Multiphysics modeling of marine renewable energy converters (i.e. tidal turbines, floating offshore wind turbines, and wave energy converters);
- Design of specific electric generators and drives for floating offshore wind turbines, tidal stream and wave energy converters;

- Power electronics for floating offshore wind turbines, tidal stream and wave energy converters;
- Energy storage systems for marine renewable energy converters (i.e. tidal turbines, floating offshore wind turbines, and wave energy converters);
- Control strategies for marine renewable energy converters (i.e. tidal turbines, floating offshore wind turbines, and wave energy converters);
- Failure monitoring and resilient-control.
- Floating offshore wind turbine, tidal, and wave energy farms: Architecture optimization, reliability, and grid connection.