

Call for Papers for the Special Session on

Advanced Power Electronic Interfaces for the Development of a Hydrogen Economy

Organizers and Co-chairs

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Technical Outline of the Session and Topics

Inefficient energy conversion and inevitable GHG emissions in fossil fuel-based power generation call for a shift towards clean fuels and efficient energy systems. Hydrogen, with its high energy per mass content and zero GHG emissions when used for power generation, stands out as a promising clean fuel. The development of efficient hydrogen production, storage, and utilization technologies is essential to achieving decarbonization targets. In this context, power electronic interfaces play a significant role in regulating and managing power and ensuring high conversion efficiency in hydrogen systems. Advancements in power converters are a hot research topic, driving the development of the hydrogen economy.

Topics of this Special Session Include but are not limited to

- DC Developments in water electrolysis, hydrogen storage, and fuel cell technologies
- Next-generation power converters for hydrogen economy development
- Advanced controllers for power conditioning and energy management in hydrogen systems
- Digital twin prognostics in electrolyzers and fuel cells
- Design and assessment of integrated energy systems with hydrogen storage
- Power quality enhancement of hydrogen technologies
- Grid integration of intermittent renewable energy systems using hydrogen storage
- Durability of power electronics for hydrogen production and utilization
- Advanced energy hub architectures incorporating hydrogen storage
- Power electronic interfaces in fuel cell hybrid electric vehicles and e-mobility
- Hydrogen for vehicle-to-grid (V2G) and grid-to-vehicle (G2V) technologies

Timeline for Author

Deadline for submission of special session papers March 15, 2025

Notification of acceptance March 31, 2025

Deadline for submission of final manuscripts April 15, 2025

All the instructions for paper submission are available on the conference website.

