



ANNUAL CONFERENCE OF THE IEEE INDUSTRIAL ELECTRONICS SOCIETY

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Special Session on

Advancements in Power Electronics for Hydrogen Systems and Beyond

Organized and co-chaired by:

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Call for Papers

Technical Outline of the Session and Topics:

The global demand for hydrogen reached 8.2 Mt in 2022, highlighting its pivotal role as a versatile energy carrier across multiple sectors such as transportation, industry, and electricity generation. With its abundance and clean-burning properties, hydrogen presents a promising solution for reducing reliance on fossil fuels and mitigating greenhouse gas emissions, particularly in fuel cell (FC) vehicles where it generates only water as a byproduct. Its efficient storage and transport capabilities facilitate its widespread adoption, enabling flexible energy distribution. However, realizing the full potential of hydrogen requires robust power electronics converters for electrolysis-based hydrogen production and fuel cell electricity generation. Addressing the associated challenges is crucial to harnessing the evolving landscape of power electronics systems for hydrogen applications, both now and in the future.

Topics of the Session include, but are not limited to:

- Green hydrogen production
- Next-generation power converters for hydrogen economy applications
- Advanced controllers for converters and energy management in hydrogen systems
- Electrical modeling of electrolyzers
- Digital twin of hydrogen-based energy systems
- Hydrogen-based energy storage systems
- Power quality issues in hydrogen systems
- Grid integration strategies for large-scale deployment of hydrogen systems
- Reliability and Safety Considerations in Power Electronics for Hydrogen-Based Energy Systems
- Advanced energy hub architectures to integrate hydrogen production and utilization through FC
- Power electronics applications in FC hybrid electric vehicles and e-mobility



Author's schedule:

Deadline for submission of special session papers April 15, 2024

Notification of acceptance June 10, 2024

Deadline for submission of final manuscript July 01, 2024

Early submission is highly encouraged for early decision notifications!



All the instructions for paper submission are included in the conference website:

www.iecon-2024.org