



2025 IEEE 4th International Conference

on

Smart Technologies for Power, Energy and Control (STPEC 2025)

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Department of Electrical and Electronics Engineering,
National Institute of Technology Goa, Goa, India



Special Session 19 (SS19)

Synergistic Advances in Hydrogen-Powered Mobility: Next-Gen Fuel Cell Vehicle Design, Control, Deployment Strategies, and Economy

Organized and co-chaired by:

- Dr. Praveen K Bonthagorla, Manipal Inst. of Tech. Manipal, India
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Call for Papers

• Technical Outline of the Session:

Hydrogen-powered fuel cell electric vehicles (FCEVs) are gaining attention as a key solution for clean and sustainable mobility, offering benefits such as high energy density, long driving range, and fast refueling. Despite this promise, large-scale adoption remains limited due to technical, infrastructural, and economic challenges. This special session invites researchers, engineers, industry professionals, and policymakers to share advancements in FCEV technologies and strategies that support their widespread deployment. The session will focus on innovations in fuel cell vehicle design, intelligent energy and thermal control systems, and hybrid integration with batteries. It will also highlight deployment strategies for hydrogen refueling infrastructure in both urban and long-distance transport networks. Additionally, discussions will cover policy frameworks, techno-economic assessments, and life-cycle evaluations essential for building a viable hydrogen mobility ecosystem. By fostering interdisciplinary exchange, this session aims to accelerate progress in hydrogen-powered mobility and identify practical pathways for integrating FCEVs into mainstream transport systems.

• Topic of the Session includes, but are not limited to:

- Electric and Hydrogen Fuel Cell Vehicle Technologies
- Hydrogen Storage, Thermal Management, and System Integration
- Hybridization of Fuel Cell and Battery Systems
- Deployment Strategies and Infrastructure Modelling
- Advanced control Strategies for Hydrogen-Electric Powertrains
- Interoperability of EV, PV, and Hydrogen Systems
- Economic Analysis and Cost-Benefit Modelling for Hydrogen-Based Mobility.
- Policy Frameworks and Regulatory support for Hydrogen Mobility

• Important Dates:

- Special Session Paper Submission Due : June 15, 2025
- Notification of Paper Acceptance : July 31, 2025
- Camera Ready Paper Submission Due : August 31, 2025
- Regular Registration Due : October 30, 2025

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