



9th International Conference on Clean Electrical Power

Special Session on

Emerging Trends in Power Electronics and Drives for Low- and Zero-Emission Transport.

As the world transitions toward cleaner energy solutions, the introduction of low-carbon transport systems presents both opportunities and significant challenges. Achieving reliable, efficient, and scalable propulsion systems with reduced emissions requires advancements in power sources, power conversion technologies, and energy storage systems.

Recent advancements in converter topologies, including multilevel and modular designs, alongside new control strategies, are enhancing the performance and reliability of electric propulsion systems. Furthermore, innovations in motor drives and energy conversion technologies are key to minimising emissions. Finally, the introduction of innovative charging systems will be instrumental to ensure that 100% of the charging energy is generated by renewable power sources.

This Special Session seeks contributions that explore these developments, addressing emerging technologies in power conversion, energy storage, and motor drives for low-emission transport, including automotive, railway, aviation, and maritime. The aim is to advance understanding of these critical technologies and their role in accelerating the adoption of clean transport mode solutions.

The proposed topics include, but are not limited to:

- Power electronics for transport electrification and sustainable transport systems.
- Multilevel inverter topologies for medium- and high-voltage transport applications.
- Medium voltage power systems for multi-megawatt transport systems.
- Multiport power converters for hybrid energy systems.
- Supercapacitor-based energy storage systems.
- Innovative batteries for transport.
- Hydrogen-based propulsion systems
- Low-carbon fuels for propulsion systems
- Vehicle-integrated photovoltaic systems
- Emerging technologies for medium-voltage and high-power charging systems.
- Charging systems from renewable power sources and/or with energy storage

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