esars·itec 2024 EUROPE

Naples (Italy)
26th-29th November 2024

7ª edition of the ESARS-ITEC Europe International Conference on
Electrical Systems for Aircraft, Railway, Ship Propulsion and Road Vehicles & International Transportation Electrification Conference

Organized by:
Sponsored by:
Supported by: Laplace, University of Nottingham UK / CHINA / MALAYSIA, utbm
Technical Co-Sponsor: IEEE TRANSPORTATION ELECTRIFICATION COMMUNITY
Industry Sponsor: GRUPPO CENTER, HITACHI Inspire the Next

▶ Call for Tutorial Proposals

The ESARS-ITEC 2024 Organizing Committee invites submissions for Tutorial Proposals on new and emerging topics within the scope of the Conference. Selected Tutorials are expected to be 90 minutes in duration.
Proposals must be submitted no later than April 30th, 2024, using the dedicated form accessible through the link provided **HERE**.

Tutorial proposals should include the following details:

1. **Title of the Proposed Tutorial**
2. **Names, Affiliations, and Contact Information of Tutorial Organizers**
3. **Brief Biographies of Tutorial Organizers**
4. **Brief Description of the Proposed Tutorial Topic**

Proposals will be evaluated based on:

- Topic timeliness and expected impact.
- Qualifications of the organizers.
- List of contributed papers and their authors.

For any questions feel free to contact the Tutorial Chair, Prof. Matthias Preindl at matthias.preindl@columbia.edu.

▶ Main topics of ESARS-ITEC 2024 include but are not limited to:

AIRCRAFT ELECTRICAL SYSTEMS

▸ Advanced concepts and technologies to enable the all- electric aircraft
- Embedded Systems
- Electromechanical actuators
- Electrical auxiliary systems
- New storage system

▸ Power generation and distribution
- New sources of aircraft main propulsive power
- Onboard electrical systems architectures
- Onboard energy management

▸ Electrical Drives and Power Systems
- Design of Motors and their Control
- Fault Diagnostics
- Power Systems Control and Stability
- Reliability

SHIPBOARD ELECTRICAL SYSTEMS

▸ Electrical propulsion
- Converters and Drives
- All electric and hybrid ships

▸ Integrated power systems
- System integration
- Storage systems
- Modeling, simulation and design methodologies

▸ Power Generation
- Power System Control
- Stability and quality
- Electrical generators
- Design methodologies

▸ Ship functional safety
- Reliability and dependability
- Reconfigurability, diagnostics

▸ Electric solutions for improving efficiency
- Actuators
- On-Board energy management

RAILWAY AND ROLLING STOCK ELECTRICAL SYSTEMS

▸ Power Train
- Innovative converter and motor topologies
- Onboard Energy management

▸ Power Supply Systems
- Substations
- Wayside storage system
- Overhead systems and Conductor rail systems
- Energy management

▸ Autonomous and dual mode vehicle
- New energy sources and storage systems
- Electric-Hybrid power trains
- Multi winding transformer and rectifier

▸ Modeling, simulation and design methods
- Complex Systems
- Load flow, optimization method design and control

- Electromagnetic compatibility
- Safety and security systems
- Railway signaling and interoperability systems
- Light railways vehicles for urban mobility
- Metro and underground urban railways systems

ROAD VEHICLES ELECTRICAL SYSTEMS

▸ Onboard energy sources and storage systems: design, control and integration
- Energy management and control strategies
- Device integration, testing and validation
- Thermal management

▸ Powertrain systems
- Electric propulsion systems
- Traction power converters
- Powertrain testing and validation
- Traction electric motor design
- Powertrain control strategies
- Range and weight optimization

▸ Auxiliary systems
- Switching power supplies
- Power steering
- Ancillary services

▸ Vehicle environment
- EMI/EMC in the vehicle environment
- Modelling, simulation, vehicle-level design methods and tools
- Safety and reliability
- Tools and methods for onboard diagnostic

INFRASTRUCTURES FOR E-MOBILITY & H-MOBILITY

▸ E-mobility
- Grid interface technologies
- Microgrids for charging station facilities
- Hyper-charge stations
- Ultrafast charging station (UFCS) and impact on the grid
- Vehicle-to-grid (V2G), vehicle-to-infrastructure (V2I), and vehicle-to-home (V2H) interfaces
- Energy Storage Systems and RES integration

- DC & AC Distributed architectures
- Smart EV charging scheduling
- Electrification of heavy-duty and off-road vehicles

▸ H-mobility
- Novel hydrogen storage technologies
- Fuel cell converters
- RES integration for green hydrogen production
- Sensors, actuators, and monitoring systems for hydrogen plants

ENERGY STORAGE AND FUEL CELL SYSTEMS

▸ Modeling
- Thermal management
- Interface power converters
- Batery Management Systems
- SOC and SOH identification methods
- Hybrid energy storage systems

BATTERY CHARGERS: WIRELESS, FAST, AND ULTRA-FAST

- On-board/off-board smart charging infrastructures
- Isolated and nonisolated charger
- Stationary and dynamic wireless charging in roadways
- Design and control issues
- Partial power processing architectures
- Integrated powertrain converter and batery charger

AI AND SOFTWARE SYSTEMS FOR TRANSPORTATION ELECTRIFICATION