

[Call for Digests: Special Session on](#)

[Advance Design and Management of Renewable Energy
and Smart Battery Storage Systems](#)

Organized and co-chaired by

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Technical Outline of the Special Session

The aim of this Special Session is to propose, explore, introduce, discuss, and clarify research innovation and theoretical and practical industrial concepts within complex system engineering, which includes the close relation of grid-infrastructure systems from renewable energy generation from Wind, PV, or other alternative ways to a more efficient way of energy management and converting into other industrial applications. Important topics of interest for this special session will include different topics and technologies related to battery applications, from stationary storage systems to EV system charging and discharging or V2X applications such as V2L, V2H, V2B, and V2G. It also focuses on topics such as new battery pack design, smart battery management, advanced thermal-electrical and mechanical management, energy management for EVs, stationary batteries for industrial applications, advanced fast charging system, and re-usability of the EV battery pack for 2nd, 3rd, or nth life applications, peak shaving energy and optimization, new micro inverters applications for efficient conversion, MPPT algorithm, complex balancing system between renewable and grid integration.

Topics of the Special Session

- Next-gen micro inverter optimization for bi-directional energy generation and management in isolated systems
- Efficient, cost-effective peak shaving energy demand for grid stabilization
- Optimized energy curve during fast charging storage system included fast charging EV
- New concepts in energy management optimization and energy storage system design within electrified vehicles with greater levels of autonomy and connectivity
- New fast-charging technology enabling extremely fast times, with the ability to handle immense power density without compromising the lifecycle of the battery pack
- Innovative machine learning or model-based investigation and optimization for battery design, as well as fast and accurate state of health (SoH) and state of charge (SoC) estimation
- Design, verification, and implementation of enhanced algorithms for battery control

Important Dates

- Digest Submission Deadline – 30th of June
- Notification of Acceptance – 18th of August
- Final Paper Submission – 29th of September

Digest Template and Submission Information

<https://spec-ieee.org/spec2024/digest-submission/>

Digest Submission Link

<https://easychair.org/conferences/?conf=ieeespec2024>