## Special Session on

## Emerging Technologies for Sustainable and Resilient DC Electrification and Smart Integration of Systems

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## Call for Papers

Intensive research on energy efficiency, energy-saving technologies, energy storage techniques, and both sustainable and resilient utilization of renewable energy is essential to enable emerging power-electronics-based systems, including zero-energy buildings, data centers, and electric vehicles. In this context, DC microgrids offer higher power delivery capabilities and effectively address last-mile electrification challenges, while supporting energy transition objectives. This special session focuses on sustainable and resilient DC electrification of buildings and facilities, integrating but not limited to renewables, energy storage, IT loads, and electric vehicles. Researchers are invited to present advances, discuss technical challenges, exchange ideas, and explore emerging technologies enabling efficient energy generation and use.

## Submissions Procedure:

All the instructions for paper submission are given at the conference website**:**
**https://taltech.ee/en/PEMC2026/paper-submission**

## Topics of interest include, but are not limited to

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| 1 | DC and hybrid AC/DC microgrid architectures for buildings, facilities, and energy communities |
| 2 | Renewable energy generation and energy storage technologies |
| 3 | Emerging power-electronic-based technologies for data centers and IT loads |
| 4 | Electric vehicle charging and traction systems, including V2G, V2H, and V2L technologies |
| 5 | Advanced high-frequency power converter topologies for sustainable DC electrification (e.g., partial power converters, differential power processing converters, etc.) |
| 6 | Control strategies for lifespan and resilience in power electronic converter design |
| 7 | Smart integration of DC systems for optimized performance, reliability, and energy efficiency of buildings, facilities, public utilities, and energy communities |