

IEEE PEMC 2026

22nd International Power Electronics
and Motion Control Conference
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Power Electronics
and Motion Control
Conference



Special Session on

“DC-DC Power Converters: Novel Topologies, Advanced Control and Applications in E-Mobility Charging Systems”

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Call for Papers

The growing adoption of electric mobility demands efficient, compact, and reliable DC-DC converters for diverse charging architectures. This special session focuses on recent advancements in converter technologies for e-mobility, including on-board chargers, off-board fast chargers, and bidirectional V2G interfaces. It highlights innovations in high-gain topologies, advanced control, soft-switching, and reconfigurable designs to achieve high efficiency, power density, and adaptability under varying grid and vehicle conditions. Bridging academic and industrial perspectives, the session aims to foster sustainable, intelligent, and high-performance DC-DC converter solutions for next-generation electric vehicle charging infrastructure.

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 | Novel DC-DC converter topologies for EV charging systems |
| 2 | Bidirectional and multiport converters for V2G and energy sharing |
| 3 | High-gain and resonant converter designs for fast and ultra-fast chargers |
| 4 | Advanced control and modulation techniques for high-efficiency operation |
| 5 | Reconfigurable and modular architectures for scalable charging stations |
| 6 | Integration of renewable energy sources with EV charging infrastructure |
| 7 | Thermal management, EMI mitigation, and reliability enhancement in DC-DC converters |