

Special Section on:

Advanced High Frequency Medium Voltage Power Electronic Systems and Control for Distributed Energy Resources (DER)

Theme: To meet the aggressive target of reaching net-zero emissions globally by 2050, it is crucial to prioritize the development of clean and affordable renewable power generation. The medium voltage (MV) distributed power network will consist of utility-scale distributed energy resources (DER) that connect to either the MV AC or the emerging DC distribution grid. The design of the AC/DC, DC/DC or DC/ACMV power electronic system, which includes: power topology design, magnetics/transformers design, selection of MV semiconductor devices, control schemes and system protection with precise fault detection, is vital to enable highly effective and reliable MV power conversion for DER. With the technology advancement in wide bandgap (WBG) switching modules and devices, it provides a unique opportunity to develop advanced high frequency MV power electronic converter and inverter systems that serve as light weight and high power density MV power conversion blocks in the emerging DER power networks.

The aim of the special section is to provide a timely opportunity for researchers and engineers to share their latest findings on the development of advanced high frequency MV power electronic systems and control techniques for DER. Prospective authors are invited to submit original contributions and survey papers in these areas. Potential topics include, but are not limited to:

- ✓ High frequency step-up DC/DC MV converter topologies.
- ✓ Advanced grid-forming power inverter systems.
- ✓ Advanced control techniques applied to MV power conversion.
- ✓ Solid-state transformer based topologies
- ✓ Voltage/power balancing control techniques applied to modular MV power circuit topologies.
- ✓ Energy control techniques applied to large-scale renewable energy sources in MV power grid.
- ✓ Soft-switching techniques applied to MV power converters/inverters for DER.
- ✓ Wide-bandgap devices technology applied to MV power interface for DER.
- ✓ Design of high frequency magnetics for MV power interface for DER
- ✓ Bi-directional power conversion technologies for high power capacity energy storage.
- ✓ Advanced multi-level inverters and modular multi-level converter (MMC) technologies for MV DER.

Manuscript Preparation and Submission

Check carefully the style of the journal described in the guidelines “Information for Authors” in the IEEE- IES website: <http://www.ieee-ies.org/pubs/jestie>. Please submit your manuscript in electronic form through: <https://mc.manuscriptcentral.com/jestie-ieee/>.

On the submitting page, in pop-up menu of manuscript type, select: “**SS on Advanced High Frequency Medium Voltage Power Electronic Systems And Control for Distributed Energy Resources (DER)**”, then upload all your manuscript files following the instructions.

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Timetable

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