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SPECIAL ISSUE ON:

Power Converters for High Voltage DC Systems

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High voltage direct current (HVDC) transmission systems are superior to AC transmission systems in terms of their economic and technical advantages especially for long distance and high capacity applications. HVDC transmission systems offer an attractive way for integration of remotely located large-scale renewable energy resources and offshore wind farms. Nowadays, line commutated converters (LCCs), voltage source converters (VSCs) and DC/DC converters have found their applications in HVDC systems and grids. However, to accommodate the increasing voltage and capacity requirements, new converter topologies are still under investigation and development both in academics and industry. This special issue is organized to show the latest research results of power converters in HVDC systems, and highlight the problems and solutions for power converters and their system design, modeling and operation.

Topics of interest:

- New topologies of power converters for HVDC systems, e.g., improved LCC topologies, new VSC topologies, fault tolerant modular multilevel converter topologies, optimized DC/DC topologies and hybrid LCC-VSC systems;
- Modelling and analysis methods for power converters in a high voltage environment, e.g., small-signal modeling, large-signal modelling and nonlinear modelling;
- Enhanced control methods of HVDC converters, including modulation techniques, capacitor voltage balancing methods, power loss reduction methods, etc.;
- Transient analysis of HVDC converters during AC side faults, DC side faults and converter internal faults;
- Protection of HVDC converters, e.g., DC fault ride-through methods, coordination with DC circuit breakers, and suppression of internal overvoltage and overcurrent methods.

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