Special Issue

A Study of Permanent Magnet Synchronous Machine-Driven Electricity System

Message from the Guest Editors

Due to their high efficiency and high power–density, permanent magnet synchronous machines (PMSMs) are increasingly being employed in numerous areas of the electricity system. As the power capacity of PMSM-driven electricity systems develops, they have posed more and more challenging requirements of efficiency, power/torque density, and reliability for PMSM drive systems. To improve the performances of PMSM-driven electricity systems, advanced techniques and methods on both the component- and system-level requirements are arising. For the machine side, high torque-density PMSMs based on magnetic modulation theory, high-speed PMSMs with high power density, as well as associated multi-physics modeling and optimization, cooling, and manufacturing techniques. High-performance control methods are also being continuously developed. As for the power electronic converter, wide-bandgap (WBG), e.g., silicon carbide (SiC) and gallium nitride (GaN), converters are increasingly researched and regarded as the future trend. This Special Issue aims to promote research and invites original works in the area of permanent magnet synchronous machine-driven electricity system.

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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