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Special Issue Reprint

# Control and Optimization of Power Converters

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Power converters play a crucial role in modern electrical systems and are widely applied in renewable energy-based microgrids, industrial automation, electric vehicles, and aerospace applications. Their efficient control and optimization are critical for improving performance, reliability, and sustainability. The Special Issue “Control and Optimization of Power Converters” has attracted widespread attention from both academia and industry, reflecting the growing importance of advanced control and optimization techniques for modern power converter applications. It aims to showcase recent theoretical advances, novel control methodologies, and practical implementation. This reprint includes 10 academic papers with cutting-edge research on both theoretical advancements and practical implementations of control and optimization techniques in power converters, addressing key challenges in power quality, stability, efficiency, adaptability, and cost across modern energy systems. These articles are mainly classified as follows:

(1) Adaptive and intelligent control to handle diverse load demands.

(2) Model predictive control (MPC) for multilevel and modular converters.

(3) Topology-aware power converter design and optimization systems.

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