Journal of Electrical and Computer Engineering

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Special Issue on

Advanced Control Circuit, Driving Circuit, and Circuit System in Power Management

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The efficient control, storage, and distribution of energy are worldwide challenges and are increasingly important areas in applications for personal mobile terminal, medicine, automation, and industries. In recent years, there is much interest in wireless power transmission circuit system for battery charging applications, ranging from mobile handsets to medical implants: increased performance in wireless power transmission is enabling more efficient power delivery over longer distances. There is also an explosion of energy harvesting circuit system that allows energy to be collected from the environment via photovoltaic, piezoelectric, or thermoelectric transducers, with a trend toward the use of multiple sources at the same time.

The significant focus here is mainly on two aspects: (1) the supporting theory and design of power management circuit system, which includes topologies, modulation strategy, and controlling method, and (2) the technique implementing and driving electrical power management devices, including research on process and material of power devices, modeling and simulation for power devices, and design on the driving circuit for power devices.

Potential topics include but are not limited to the following:

- AC/DC, DC/DC, and modular power converter circuit topologies
- Circuit implementation of advanced modulation and control method
- Lumped parameter modeling of advanced power electronics devices
- High efficient, high speed driving circuits for all kinds of power devices
- Power efficiency optimization of controlling circuit
- Wireless power transmitters and receivers for battery charging applications
- Energy harvesting circuit system

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