



Call for Papers

IEEE Journal of Emerging and Selected Topics in Power Electronics

Special Issue on High Frequency Wireless Power Transfer Technology

Wireless Power Transfer (WPT) technology is increasingly pivotal in a multitude of emerging applications, including transportation electrification, grids, consumer electronics, medical, and space. Its non-contact nature renders it advantageous in challenging environmental conditions such as high temperature, underwater, underground, and outer space. The performance of current WPT systems is intricately linked to the switching frequency, a critical determinant of power capacity, power density, and efficiency. With the rapid evolution of wide and ultrawide bandgap devices (WBG and UWBG), the latest semiconductors enable high switching frequencies at elevated power levels, thus energizing WPT systems. In addition, most individual reports on high-frequency WPT did not consider how to make the resonators in mass production, while individual resonators are tuned for tests, which is not suitable for mass production in industry. This special issue actively solicits cutting-edge research contributions focused on high-frequency WPT technology across a broad spectrum of power levels. By showcasing latest advancements, we aim to push the boundaries that currently constrain the frequency and power levels in contemporary WPT systems. We invite researchers to contribute to this endeavor and foster further innovation in this dynamic field.

Topics of interest include, but are not limited to:

- Switching frequency investigation in various WPT technologies, including inductive, capacitive, microwave, sonic/ultrasonic, laser, etc.
- Switching capability of WBG and UWBG based power converters and their application in WPT systems.
- High frequency WPT enabled by innovations in semiconductors, components, circuits, and systems.
- High frequency WPT systems in novel applications.
- Advance leakage magnetic field and EMI reduction technologies in high frequency WPT systems
- Power limitation in WPT systems with the constraints from frequency and other factors.
- Very-high-frequency resonator designs suitable for mass production.
- Health and safety issues of human exposure to high frequency EM field.
- Frequency limitation in WPT systems, from kHz to MHz, and even the GHz range.
- Technical challenges in improving WPT performance, including power level, efficiency, transfer distance, misalignment, power density, EMI, etc.
- Relationship of switching frequency and practical applications in terms of standard and regulations.

All submissions should be made through *Manuscript Central* at <http://mc.manuscriptcentral.com/jestpe-ieee>. The cover page should be clearly marked with “Special Issue on High Frequency Wireless Power Transfer Technology” and the appropriate manuscript type should be selected when uploading the submission. Manuscripts submitted for this special issue will be handled by the guest editorial board outlined below. For more information on special issues and electronic submissions, please go to <http://www.ieee-pels.org/publications/jestpe>.

Deadline for Submission of Manuscript: **July 31, 2024**

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Proposed Timeline

- **Jan. 1, 2024:** CFP to IEEE JESTPE Editorial Office
- **July 31, 2024:** Manuscript submission deadline
- **Dec 1, 2024:** Final acceptance notification
- **Jan. 2025:** Manuscript forwarded to IEEE for publication
- **Mar. 2025:** Special Issue appears in IEEE JESTPE