



ANNUAL CONFERENCE OF THE IEEE INDUSTRIAL ELECTRONICS SOCIETY

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Special Session on

Wireless Power Transfer, Dynamic Charging, and Magnetic Field Design for Power, Mobility, Medicine, and Scientific Instrumentation

Organized and co-chaired by:

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Call for Papers

Technical Outline of the Session and Topics:

As wireless charging for toothbrushes and mobile phones gains popularity, a manufacturer-independent industry standard has now finally been agreed on for high-power as needed in electric vehicles and is expected to pave the way for a fast pervasion of the market. To compensate for lacking energy density of batteries and improve electronic devices' flexibility, continuous breakthroughs are needed in wireless power transfer (WPT), such as multifrequency WPT and load-independent WPT. These developments address challenges on the dynamic charging for modern EVs and implantable medical devices. The targets of smart WPT are higher efficiency, higher reliability and higher flexibility. In this context, this special session focuses on the latest advancements in magnetic field generation and receiving for power, medical, and scientific instrumentations, including system-level design, magnetic field designation, control strategy and energy safety. The very same electronic and magnetic technologies used in WPT have often secondary applications in other fields, including medicine beyond implants and scientific instrumentation, which is explicitly invited too to enable mutual stimulation for the first time.

Topics of the Session include, but are not limited to:

- Advanced modulation, sensorless/fault-tolerant control and artificial intelligence for power, medicine, and scientific instrumentations
- High-power-density power converters and wide-bandgap semiconductors for wireless power transfer
- Multi-physical modeling, analysis and optimization for system-level design of wireless power transfer
- High-power high-frequency magnetic field generation and wireless power transfer for implantable medical devices
- Wireless power transfer for implantable medical devices
- Emerging charging technologies regarding vehicle-to-X interactions
- Circuit concepts for wide-bandwidth and variable-frequency wireless power
- Optimization of wireless charging coils
- Techniques for field shaping and optimization
- Wireless power encryption
- Dynamic charging technology

Author's schedule:

Deadline for submission of special session papers April 15, 2024

Notification of acceptance June 10, 2024

Deadline for submission of final manuscript July 01, 2024

Early submission is highly encouraged for early decision notifications!

All the instructions for paper submission are included in the conference website:

www.iecon-2024.org

