

Call for Papers Deadline Extended until April 30, 2025

IEEE Transactions on Power Electronics (TPEL)

Special Section on “Very High Frequency Resonant Converters for Efficient and Miniaturized Power Conversion”

Scheduled Publication Time: October 2025

The demand for efficient and compact power converters is rapidly growing across various power electronic applications. Resonant converters with soft-switching capabilities can minimize switching losses and support very high switching frequencies, offering increased efficiency and reduced size. As a result, very high frequency resonant converters are emerging as an attractive solution for high-efficiency, high-power-density power conversion. The use of SiC and GaN devices further pushes operating frequencies into the MHz range, and even tens of MHz, significantly reducing the size of passive components. However, numerous challenges remain in achieving significant performance improvements in resonant converters. Recent advancements in converter topologies, control methods, power devices, magnetic materials, and packaging technologies have opened new avenues for enhancing resonant converter performance. Consequently, the field of very high frequency resonant converters is experiencing active research, driven by innovations in components, circuits, control strategies, and system designs. This special issue is dedicated to presenting cutting-edge research on *Very High Frequency Resonant Converters for Efficient and Miniaturized Power Conversion*. Topics of interest include, but are not limited to:

- Novel resonant network and resonant converter topologies
- Power stage reduction of cascaded multi-stage resonant converters
- Very high frequency approaches for resonant converters
- Modularized architectures for resonant converters
- Resonant switched capacitor converters
- Very high efficiency gate drive techniques for resonant converters
- Application of wide and ultrawide bandgap devices in resonant converters
- Planar/3D magnetic components (transformer/inductor) design for resonant converters
- Medium voltage magnetics design for medium voltage grid-tied resonant converters
- Novel modeling techniques for resonant converters
- Advanced control strategies for resonant converters
- Artificial Intelligence (AI) assisted design, optimization, and control techniques for resonant converters
- Fault detection and diagnosis of resonant converters
- Resonant converters for electric vehicles (e.g., electric vehicle charging stations)
- Resonant converters for distributed energy resources (e.g., solar microinverters)
- Resonant converters for data center power delivery (e.g., XPU supply)
- Resonant converters for emerging applications (e.g., wireless power, plasma generation, linear accelerators)

All manuscripts must be submitted through ScholarOne at <https://mc.manuscriptcentral.com/tpel-ieee>. Submissions must clearly be marked “Special Section on Very High Frequency Resonant Converters for Efficient and Miniaturized Power Conversion” on the cover page. **Hardware based experimental results are desired to support proposed ideas.** When uploading your paper, please select your manuscript type “Special Section”. Refer to <https://ieee-pels.org> for general information about electronic submission through ScholarOne. Manuscripts submitted for the special section will be reviewed separately and will be handled by the guest editorial board noted below.

Deadline for Submission of Manuscript: April 30, 2025

Guest Editors: Khurram Afridi, Cornell University, USA
Yueshi Guan, Harbin Institute of Technology, China

Guest Associate Editors:

- Regan Zane, Utah State University, USA
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- Xu She, Lunar Energy, USA

***Proposed Timeline:**

- April 30, 2025 – Manuscripts Submission Deadline
- May 15, 2025 – Revised Manuscripts Submission Deadline
- June 30, 2025 – Final Acceptance Notification
- July 31, 2025 – Manuscripts Forwarded to IEEE for Publication
- October 2025 – Special Section Appears in IEEE TPEL

*Please note that these dates are subject to change.