IEEE POWER ELECTRONICS SOCIETY

Products Newsletter

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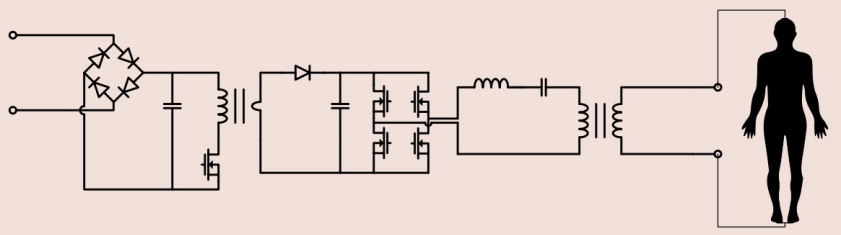
IEEE Advancing Technology for Humanity

The New AI-Powered PELS Article Search

PELS recently launched a new function to its website, an AI-powered search. This search, utilizing vector-based or semantic search, represents a major advancement over traditional keyword-based methods. Unlike keyword search, vector search comprehends the meaning behind words, delivering more relevant results by analyzing the context and relationships between terms. This PELS pilot project currently includes two years of full-text articles from *IEEE Transactions on Power Electronics* (TPEL). For guidelines on using the search, please visit **online**. For direct access to the search, click **here**.

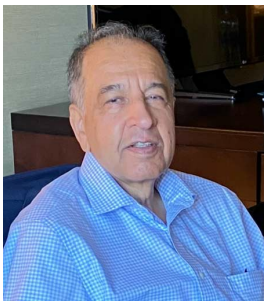
IEEE Power Electronics Magazine



Surgical energy system is a specialized niche in power electronics that directly connects power converters to patients to deliver electrical energy for medical therapies, such as radio frequency ablation, electroporation, and pulsed field ablation. These systems are extensively used in hospitals and clinics for treating a wide range of health conditions, yet are relatively unknown to the broader technical community. In the September 2024 issue of *IEEE Power Electronics Magazine*, the article "**Surgical Energy: A Unique Power Electronics Application in Healthcare**" by Daniel Friedrichs introduces the field of surgical energy and describes the power electronics design challenges unique to these applications. In addition, the author highlights surgical energy's positive impact on human health.

Free for All

For more editorial from the September 2024 issue of *IEEE Power Electronics Magazine*, visit the redesigned magazine **website**. You will discover a variety of Open Access columns, along with Society News stories. Stay tuned for the December 2024 issue, which focuses on "Cybersecurity in Power Electronic Systems."



PELS would like to thank **Ashok Bindra** for his years of service as EIC of *IEEE Power Electronics Magazine*. Bindra will be stepping down at the end of 2024. He has been EIC since the magazine's founding in 2014.

PELS would like to welcome **Alix Paultre** as the incoming EIC of *IEEE Power Electronics Magazine*. Paultre is a noted technology journalist with much enthusiasm about power electronics. His appointment will begin on January 1, 2025.

IEEE Transactions on Power Electronics (TPEL)

PELS would like to thank **Yaow-Ming Chen**, National Taiwan University, Taiwan, for his numerous hours of service as EIC of *IEEE Transactions on Power Electronics*, from the years 2019-2024. Prof. Chen will become the TPEL Editor-at-Large on January 1, 2025.

PELS would like to thank **Xiongfei Wang**, KTH Royal Institute of Technology, Sweden, for his numerous hours of service as Executive Editor (2023-2024) as well as Co-EIC (2021-2023) of *IEEE Power Electronics Letters*. Prof. Wang will become the TPEL EIC on January 1, 2025.

PELS would like to thank **Maryam Saeedifard**, Georgia Institute of Technology, USA, for her numerous hours of service as Co-EIC (2021-2024) of *IEEE Transactions on Power Electronics*. Prof. Saeedifard will become the Executive Editor of Letters on January 1, 2025.

Forty Years of TPEL

The first issue of TPEL was published in 1986, and we will celebrate its 40th anniversary next year in 2025. The TPEL editorial team is organizing a series of events and activities to honor this milestone and envision the future of TPEL. If you would like to participate in the planning and brainstorming sessions for these celebratory activities, please **email** the TPEL Publications Administrator.

The editorial team of TPEL is pleased to announce three new Special Sections for publication in 2025.

1. Special Section on Advanced Wide Bandgap Single-Stage Grid-Connected Power Interface
2. Special Section on Drives and Controls of Electric Machines in Electric and Hybrid Aircraft Applications
3. Special Section on Very High Frequency Resonant Converters for Efficient and

Miniaturized Power Conversion

The submission deadline for these is March 31, 2025. For more info, please click **here**.

TPEL editors have selected a few papers to highlight from the **December 2024** issue.

"**Thyristor-Embedded Hybrid Modular Multilevel Converter: A New Voltage-Source Converter for MV and HV Applications**" by Jayesh Kumar Motwani, Jian Liu, Aditya Rao, Rolando Burgos, Dushan Boroyevich, Zhi Zhou, Anthony Popovski, Richard Beddingfield, Thibaut Harzig, and Dong Dong. This article presents the architecture and operational strategy of the thyristor-embedded hybrid MMC (SCR-HMMC) converter. SCR-HMMC distinguishes itself by utilizing fewer switches, reducing arm energy storage requirements, and achieving lower losses compared with other state-of-the-art solutions.

"**Transient Stability Analysis for Paralleled System of Virtual Synchronous Generators Based on Damping Energy Visualization and Approximation**" by Qiannan Qu, Xin Xiang, Jintao Lei, Wuhua Li, and Xiangning He. In this article, the damping effect in the paralleled VSG system is explored with the recognition of the uniform and the nonuniform damping effects, and it is found that the large damping in VSGs may also destabilize the system under some nonuniform damping configurations.

IEEE Power Electronics Letters

The editors of TPEL Letters present three new Special Sections for publication in 2025.

1. Special Section on Highly Robust Power Electronics in the Era DC Grid (Submissions now open.)
2. Special Section on Fabrication and Design of High-Power-Density and High-Frequency Passive Components (Submissions open November 1, 2024.)
3. Special Section on AI-Enhanced Power Electronic Systems: Design, Control, and Maintenance (Submissions open December 1, 2024.)

For specific deadlines on these sections, please click **here**.

The **December 2024** issue includes 15 Letters covering a diverse array of advancements in power electronics technologies and their applications, such as modulation methods for power converters and electrical drives, impedance measurement and control of converters, wireless charging, soft-switching and EMI, gate drivers for medium-voltage SiC MOSFET, and hybrid transformers. Among these, two intriguing Letters are highlighted below.

"**Conditional Sixth-Harmonic Injection to Improve the Linear Modulation Range of Three-Phase Voltage-Source Converters**" by Anubrata Das, Fred Wang, and Yaosuo Xue. This work presents a sixth-harmonic injection method to widen the linear modulation range for three-phase voltage-source converters. A holistic discussion on the effect of this method on system performance is provided. The performance of the method is experimentally validated.

"**Modeling of a Three-Phase ZVS Mixed Conduction Mode DC-AC Inverter Into Equivalent Single-Phase DC-AC Inverters**" by Sungjae Ohn, Nidhi Haryani, Rolando Burgos, and Dushan Boroyevich. This work reports a modeling approach that converts three-phase ZVS inverter into equivalent single-phase circuit, considering the phase coupling and conduction-mode transitioning. Experimental results confirm the theoretical analysis.

IEEE Transactions on Transportation Electrification (TTE)

Authors are encouraged to submit their manuscripts for publication in TTE. All manuscripts can be submitted through the IEEE Author Portal. For more information, please click **here**.

IEEE Open Journal of Power Electronics (OJPEL)

The pilot on Transparent Peer Review (TPR) is now live for OJPEL. TPR has several benefits when both authors and reviewers opt in.

1. Enables readers to gain insights into the article's peer review history and discussions between reviewers and authors.
2. Provides educational opportunities for new and early-career researchers to learn from constructive reviews and responses to reviewer comments.
3. Addresses concerns from authors regarding editorial bias.
4. Provides more accountability for authors, reviewers, and editors during the peer review process.

All power electronics topics (including other active special compendia) are eligible to be a part of the pilot program. For more information, please click **here**. The deadline for manuscript submissions to OJPEL's Transparent Peer Review pilot program has been extended to January 1, 2025.

IEEE Journal of Emerging and Selected Topics in Power Electronics (JESTPE)

PELS, in partnership with the IAS, would like to thank Tsorng-Juu (Peter) Liang, National Cheng-Kung University, Taiwan, for his numerous hours of service as EIC to JESTPE, from the years 2022-2024.

PELS, in partnership with the IAS, would like to welcome Fernando Briz, Universidad de Oviedo, as EIC of JESTPE. He served as Deputy Editor-in-Chief from 2022-2024. The appointment will begin on January 1, 2025.

PELS, in partnership with the IAS, would like to welcome Sudip Mazumder, University of Illinois Chicago, USA, as the Deputy Editor-in-Chief for JESTPE. Prof. Mazumder previously served as TPEL Editor-at-Large from 2019-2024. The new appointment will begin on January 1, 2025.

JESTPE currently has two active special issues receiving submissions.

●Special Issue on Modular Power-Electronics and Reconfigurable Circuits in Energy Storage, Energy Conversion, and Power Management
(The submission deadline is December 31, 2024.)

●Special Issue on High Power Density Power Converters Achieved by Device and Components Integration (The submission deadline is January 31, 2025.)

For more information, please visit **online**.

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