IEEE POWER ELECTRONICS SOCIETY

Products Newsletter

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IEEE Advancing Technology for Humanity

Pubs Education: AI

AI Search

Did you know that PELS has a website function, 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 **here**. Don't forget to provide feedback on the site regarding your experience with the AI-powered search.

AI Policy for PELS Publications

With the rapid development of AI technology, we would like to share the following **guidelines** for authors and reviewers.

For paper authors: “The use of content generated by artificial intelligence (AI) in an article (including but not limited to text, figures, images, and code) shall be disclosed in the acknowledgments section of any article submitted to an IEEE publication. The AI system used shall be identified, and specific sections of the article that use AI-generated content shall be identified and accompanied by a brief explanation regarding the level at which the AI system was used to generate the content. The use of AI systems for editing and grammar enhancement is common practice and, as such, is generally outside the intent of the above policy. In this case, disclosure as noted above is recommended.” (*IEEE Publication Services and Products Board Operations Manual*, Section 8.2.1.B.10)

For paper reviewers: “Information or content contained in or about a manuscript under review shall not be processed through a public platform (directly or indirectly) for AI generation of text for a review. Doing so is considered a breach of confidentiality because AI systems generally learn from any input.” (*IEEE Publication Services and Products Board Operations Manual*, Section 8.2.1.C.6)"

Author Portal & ScholarOne

PELS has implemented AI and self-citation policies in the Author Portal as well as ScholarOne. This ensures our compliance with the **IEEE PSPB**.

PELS Member-at-Large Nominations

Interested in helping shape the future of IEEE PELS? You can run for election as an Administrative Committee Member-at-Large (AdCom MAL) by petition. To be placed on the ballot, candidates must gather 183 signatures from eligible members by August 1, 2026. Submit your petition request, along with a photo, brief biography (350 words), and candidate statement (150–250 words) to Brad Lehman (**submit your petition here**) by June 15, 2026. IEEE staff will then set up an electronic petition site to collect signatures. For info on the responsibilities of AdCom MALs, visit the **IEEE PELS Governance page**.

Call for Papers: PELS Publications

JESTPE

Special Issue: Ultra-wide Bandgap Power Devices, Circuits, and Applications
Deadline for Submission of Manuscripts: Extended to June 1, 2026
Guest Editors: Johan HR Enslin, Olga Spahn, and Tsorng-Juu Peter Liang

JESTPE's Call for Special Issues (SIs) is permanently open. Prospective authors who are interested in proposing and pursuing a new special issue are encouraged to **email**
Sudip K. Mazumder, JESTPE Deputy EiC.

JWPT (the new *IEEE Journal on Wireless Power Technologies*)
Special Issue: Wireless Power in Space
Deadline for Submission of Manuscripts: July 1, 2026
Guest Editors: Neil Buchanan, Alessandra Costanzo, Nuno Borges Carvalho, Greg Durgin

IEEE Power Electronics Magazine

Great Events Define a Great Industry
Welcome to the May Newsletter! One sign of a healthy and dynamic industry like power electronics is the performance of the events that support and sustain the community of people it represents. The recent **APEC** in San Antonio had 5,452 registrants and 319 exhibitors. There were 71 technical sessions that showcased 571 papers, 30 industry sessions with 174 presentations, 18 professional education seminars with 1,428 registrants, and 655 student participants. These numbers underscore the value and scope of the event for the power electronics industry. Next up on the calendar is **PCIM**, June 9-11, in Nuremberg, Germany.

June 2026 Preview
We are excited about the content planned for the June issue. The theme is Motor Drives and Robotics. Some of the features planned include the following.

- Driving Smart Actuators in Humanoid Robots
- Commercialization and Cost-Optimization of a Hybrid Si/SiC EV Traction Inverter with Minimum Power Semiconductor Die Area
- Weight Reduction for Airborne Electric Motors Due to Higher Frequency
- Bio-inspired Power Electronics Systems: A Path Towards Extreme Resiliency
- The Time Dependence of Reverse Recovery Charge and its role in Advanced Power MOSFETs and Applications
- FEPPCON XII: Sustainable Power Electronics Technology
- Tales of a Cycling Power Electronics Engineer
- And an exclusive feature - stay tuned!

Discover Previous Issues
For more editorial from previous issues of the magazine, please visit our **website**. You will find Open Access columns, podcasts, and much more.

Submit a Feature Proposal
In addition to solicited articles, the magazine also accepts articles contributed by practicing power electronics engineers, experienced designers, and researchers from either industry or academia. These articles offer effective use of the state-of-the-art electronic components and semiconductor devices, application of control theory and circuit design techniques, and the development of analytical tools used in efficient and effective energy conversion, control, utilization, and conditioning of electric power. If you are interested in contributing an original article, please **email** an abstract of the article (less than 250 words) to the Editor-in-Chief. The abstract should be a one paragraph description of your topic of interest, explaining why it is important and what new information or value it brings to the readers of *IEEE Power Electronics Magazine*.

IEEE Transactions on Power Electronics (TPEL)

Call for TPEL Associate Editors

Would you like to be a part of the *IEEE Transactions on Power Electronics* AE team? We are currently accepting applications for new Associate Editors.

Minimum Requirements for AE Applicants
IEEE Senior Member or the equivalent number of years.

Applicants from Academia: 8 or more journal papers in the last 5 years, of which, at least 4 should be in *IEEE Transactions on Power Electronics*.

Applicants from Industry: 2 or more journal papers in the last 10 years, of which, at least 1 should be in *IEEE Transactions on Power Electronics*.

The Application Package
1. A recent CV.
2. A list of published journal papers and patents in the last 10 years.
3. At least one recommendation letter.
4. TPEL AE Application Form.
5. A list of 10 reviewers to add to the reviewer pool of TPEL.
6. A completed AE topic questionnaire.

For more information, visit the TPEL **website**.

Highlighted Papers
The TPEL editors have selected a few papers to highlight from recent issues.

"**Identification of Multiple Critical Parameters in Undersea Wireless Power Transfer System Integrating Primary-Side Phase Acquisition**" by Tao Li, Yijie Wang, Zhigang Liu, Zhichao Sun, Wei Tian, Jian Cui, Jianwei Mai, and Dianguo Xu. This paper presents an innovative parameter identification method for underwater WPT systems. The proposed method is based on acquiring the primary-side phase using a low-latency communication channel. The method allows for impedance parameter identification using only two measurements taken from the soft-start process. The high accuracy of the method is demonstrated by an experimental prototype at 1-kW power level. The identification time is significantly reduced in comparison with the current state-of-the-art technology.

"**An Adaptive Sliding Window-Based Online Data-Driven Diagnosis Method for Inverter Open-Circuit Fault in WRSM Drive Systems**" by Chenyun Wu, Rabia Sehab, Javier Ojeda, Ahmad Akrad, and Cristina Morel. This article proposes a diagnostic strategy for three-phase inverter open-circuit faults in wound rotor synchronous machines (WRSMs) drive systems operating under variable speed and load torque conditions. The approach integrates an adaptive sliding window (ASWIN) algorithm with machine learning models to achieve high accuracy and low latency in diagnosing stationary and nonstationary faults. Experimental validation using collected current signals demonstrated the effectiveness of the proposed strategies across various fault scenarios, including stationary single faults, nonstationary single faults, and mixed stationary faults.

"**An Efficient Active Voltage Balancing for a ZVS Converter With Series Switches**" by Sadegh Esmaeili Rad and Sudip K. Mazumder. Notwithstanding several superior performance metrics of GaN FETs over silicon and some silicon carbide counterparts, breakdown voltage of these commercially available nitride wide-bandgap devices have been limited in the lateral structures. Series connection of such devices, following existing and evolving literature, has been typically pursued to address breakdown voltage limitation in applications. In this paper, authors outline how to realize voltage scalability of GaN FETs by series scaling not the GaN FET but the soft-switching cell itself that comprises the GaN FET. This mitigates the need for a complete centralized control, thereby alleviating issues with higher voltage scalability without sacrificing overall converter efficiency. The concept is validated experimentally on an isolated dc/dc converter under transient and periodic conditions with high peak operational efficiency.

If you would like to submit a paper to TPEL, please click **here**.

IEEE Power Electronics Letters

The **May 2026** issue of TPEL features eight Letters advancing the state of the art in power electronics. Here are two highlighted Letters selected by the editors.

"**Noninvasive Estimation for Core Temperature and Power Loss in Electrolytic Capacitors Using a Single-Sensor Inverse Algorithm**" by Jinxiao Wei, Peng Chen, Yi Zhang, Peng Qin, Xianbin Qi, Shuang Zhao, Helong Li, and Lijian Ding. This letter proposes a single-sensor, noninvasive method for simultaneous estimation of core temperature and power loss in electrolytic capacitors, eliminating the need for equivalent series resistance and capacitance measurements in conventional methods. An inverse numerical algorithm is developed by reversing the conventional forward calculation (e.g., finite-element), enabling accurate reconstruction of heat generation and core temperature from one single shell-mounted measurements. One important novelty involves using the cooling curve to determine the equivalent convection heat transfer coefficient h, which does not rely on the simulations or engineering assumptions for field applications. This method has potential applications in lifetime prediction, efficiency evaluation, thermal management, and the design of protective measures for capacitors.

"**Reluctance-Controlled Planar Transformer With Arbitrary Noninteger Turns Ratio for High-Current LLC DCX**" by Dongxing Yang, Haodong Dai, Zhaoyi Wang, Ziang Li, Jinjun Liu, Jong-Won Shin, and Yuqi Wei. Owning to its high efficiency characteristic, resonant converter is designed to operate at resonant frequency as a dc transformer (DCX), where the transformer turns ratio is designed based on the nominal input and output bus voltages. However, the limited number of printed circuit board layers and turns makes it difficult for planar transformer to achieve noninteger turns ratio. The common solutions include fractional-turn transformer and matrix transformer, but neither method can achieve noninteger turns ratio without increasing the number of turns. This letter proposes a reluctance-controlled arbitrary noninteger turns ratio planar transformer structure. The proposed structure splits the center column of the magnetic core, and primary windings are wound on two columns and connected in series. By adjusting the reluctance ratio of the two columns, the proposed method achieves arbitrary noninteger turns ratio with fewer turns. Finally, a 30–12 V 120 W LLC DCX converter is built to verify the feasibility of the proposed method. Compared with the traditional solution, winding loss was reduced by 1.164 W under full-load condition, and the peak efficiency and full-load efficiency were increased by 0.43% and 1.08%, respectively.

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**. To read the April 2026 issue of TTE, please visit **Xplore**.

IEEE Open Journal of Power Electronics (OJPEL)

The editors of *IEEE Open Journal of Power Electronics* (OJPEL) welcome submissions to the journal. Please submit your paper through the **IEEE Author Portal**. To read papers from Volume 7 of OJPEL, please visit **Xplore**.

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

The April 2026 issue of JESTPE is now available through **Xplore**. The issue features a **Special Issue on Interactive Power Converters for Renewable Energy Grid-Tied Systems**. If you would like to

submit a paper to JESTPE, please visit the **IEEE Author Portal**.

IEEE Journal on Wireless Power Technologies (JWPT)

IEEE Electrification Magazine

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