PELS News

Transparent Peer Review Update

In 2025, the *IEEE Open Journal of Power Electronics* (OJPEL) was part of a Transparent Peer Review (TPR) pilot program. This opt-in initiative allows the publication of reviewer reports, editor decision letters, and author responses alongside articles to increase transparency and accountability. This transparent model aims to improve scholarly dialogue. The OJPEL editorial team is proud to announce that readers can now see papers that participated in the TPR on **Xplore**. Here are two papers that participated in the TPR.

"**Impact of Encapsulation on the Core Loss of Ferrites in Inductive Power Transfer**" by Alexander K. Bailey, Willsen Wijaya, Seho Kim, Jerry Sun, Tom Allen, and Grant A. Covic. Inductive power transfer (IPT) magnetics are often "potted" with an encapsulant material to improve thermal performance. Mismatched thermal expansion of the encapsulation and magnetic core materials creates a residual mechanical stress that permanently reduces the magnetic performance of the Mn–Zn ferrite core layer. An encapsulated small-scale Double-D IPT pad designed for 2.5 kW is built and tested, and the core loss of the ferrite tiles increases by 121% after encapsulation with a polyurethane-based material. The change in the core loss of the potted IPT pad after encapsulation is predicted using finite element analysis, and the proposed method matches within 7.3%. Three methods are presented to mitigate this increase in losses and experimentally verified on ferrite toroids. These results show that the choice of encapsulation material significantly impacts the thermal, structural, and electromagnetic behavior of the IPT pad.

"**Open-Circuit Fault Diagnosis for Charging Modules Based on Transfer Light Gradient Boosting Machine**" by Quanxue Guan, Jiabei Hu, Xue Hu, Yuqian Fan, Qingling Cai, and Xiaojun Tan. Deep learning methods have been widely employed to diagnose faults in power converters. However, it is challenging to diagnose multiple faults in two-stage charging power modules. Besides, diagnostic models often excel only under the exact operating conditions on which they were trained. To enable rapid and accurate open-circuit fault (OCF) diagnosis for charging pile power converters operating under varying conditions, this paper proposes an improved Light Gradient Boosting Machine (LightGBM) framework based on transfer learning. Measured waveforms are first segmented via a sliding window, from which eleven concise time-domain features are extracted and fed to the computationally efficient LightGBM for fault classification. To address the prevalent class-imbalance problem encountered in real-world fault data acquisition, this paper proposes a channel-attention-based Wasserstein generative adversarial network with a gradient penalty for data augmentation. Domain adaptation from one working condition with sufficient labelled data to other few-labelled conditions is realized through a novel dynamic re-weighting scheme from the perspectives of instance weights and feature mapping. Furthermore, a new loss function is established to integrate Maximum Mean Discrepancy for aligning the feature spaces of source and target domains, with cross-entropy for reducing the source-domain classification error. Experiments on a fast-charging power module demonstrate that the proposed lightweight method achieves an average diagnosis accuracy of 99.16% for both single- and multi-switch OCFs, and a diagnosis speed of about 13 ms across diverse load and grid conditions. It also achieves an accuracy of over 98.68% in the target condition with merely ten labeled samples, outperforming state-of-the-art alternatives. Moreover, the proposed algorithm maintains robustness under abrupt load transients and severe external noises. Compared to existing deep learning methods and state-of-the-art transfer networks, the proposed method cuts training time by one order of magnitude while maintaining the highest accuracy.

Pubs Education

PELS Publications Operation Manual

After several months of collaboration, PELS now has a **Publications Operation Manual**. The process began with creating a draft in June 2025 between the PELS Admin and VP of Products. In September of 2025, the Editor-in-Chiefs for PELS Publications reviewed the document. It was then shared with PELS editors for comments in November of 2025. This month it was finalized and posted on the PELS website. This manual describes the governance model, editorial structure, and operational procedures for publications that PELS is a sole or principal sponsor of and provides substantial administrative support for their operations. Note that this PELS publication manual summarizes the main operation aspects of our journals. For more information and guidelines (such as appeal procedures), please refer to the **IEEE Publication Services and Products Board Operations Manual (PSPB)**. The PELS manual will be a living document with continued updates.

Clear Skies and ScholarOne Collaboration

Soon in ScholarOne you will see a new item on the Manuscript Information page called Clear Skies. The Clear Skies/STM Integrity Hub integration is a part of a pilot program IEEE is working on to surface potential ethics violations. In summary, S1 has an integration with Clear Skies and STM, which we are starting to utilize, and we also have a dedicated internal team that is alerted when there is a potential ethical issue based on the Clear Skies report in S1M. That team then reviews the alert, and they create a note in S1M detailing what the issue is and what the next steps are for the editor, if any action needs to be taken.

Clear Skies will be able to check for the following items in new submissions:
 Similarity to known papermill articles
 Duplicate submissions (identifying when a [publication title] submission is also under
review at another publisher simultaneously)
 Retracted references
 Invalid DOIs
 Tortured phrases (identifying the use of non-standard phrases in the submission, which may indicate that the author is seeking to avoid plagiarism detection)
 Unusual document patterns (e.g., if the submitted Word file was only revised once
after file creation)
 Fake or disposable author email addresses (this could indicate a fake author
persona; fake authors are often, but not always, associated with a papermill. Another
possibility is that the submitting author lists a fake email address for their co-author
because they wish to keep that co-author ignorant of the submission, perhaps because
the co-author has not consented to publication)

Journals are being onboarded to the pilot in phases, and there are two initial communications that are being sent to each Editor-in-Chief ahead of the integration, and then one follow-up once the integration is complete.

There is also a dedicated support alias, **integrity-check@ieee.org**, for this feature if you have questions about any of the alerts. This goes directly to the ethics team spearheading the project.

If you would like to familiarize yourself with the available tools ahead of their being onboarded to the PELS publications, please watch this **video** (runtime: 9:19) for an introduction and practical guidance for EiCs on how to incorporate the tools into the workflow.

Call for Papers: PELS Publications

JESTPE
Special Issue: Applications of Wide-bandgap Technology for Innovative Future Grid Applications
Deadline for Submission of Manuscripts: March 1, 2026
Guest Editors: L. M. Tolbert, S. Ji, and C. Ho

Special Issue: Ultra-wide Bandgap Power Devices, Circuits, and Applications
Deadline for Submission of Manuscripts: April 15, 2026.
Guest Editors: J. Enslin, O. Spahn, and T. Liang

Special Issue proposals within scope of the journal are welcome, guidelines available online at PELS **website** and IAS **website**. For further information, **email** JESTPE DEiC Sudip Mazumder.

JWPT (the new *IEEE Journal on Wireless Power Technologies*)
Special Issue: Wireless Power in Space
Deadline for Submission of Manuscripts: July 1, 2026.
Bonus: Accepted papers will be invited to a Special Session at IEEE WiSEE 2026 (Leuven, Belgium.)
Guest Editors: Neil Buchanan, Alessandra Costanzo, Nuno Borges Carvalho, Greg Durgin

TPEL
Special Section: Advanced Model Predictive Control for Resilient Converter-Dominated Electrical Grids
Deadline for Submission of Manuscripts: March 31, 2026.
Guest Editors: Jose Rodriguez, Zhenbin Zhang

Special Section: Power Semiconductor Devices: From Modeling & Characterization to Gate Driving and AI-Enabled Technologies
Deadline for Submission of Manuscripts: March 31, 2026.
Guest Editors: Alan Mantooth, Leo Lorenz

Special Section: High-Power Electronics for Modern Energy Grids
Deadline for Submission of Manuscripts: March 31, 2026.
Guest Editors: Giovanni De Carne, Jinpeng Wu, Drazen Dujic

Special Section: Grid-Forming Technologies under Converter and Resource Constraints
Deadline for Submission of Manuscripts: March 31, 2026.
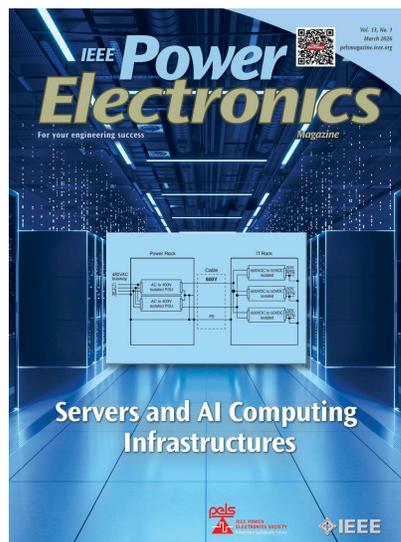Guest Editors: Dominic Gross, Yunjie Gu

TPEL Letters
Special Section: Cyber-Security in Power Electronics Systems: Modeling, Detection, and Resilience
Deadline for Submission of Manuscripts: March 31, 2026.
Guest Editors: Zhi Jin (Justin) Zhang, Reynaldo Nuqui

IEEE Power Electronics Magazine

Are you going to APEC 2026?
The first months of the new year always bring with them a promise of new growth, activity, and experiences, as we wait for spring to rejuvenate the Earth and pave the way for summer. This is also a time to consider your professional event travel plans and consider attending the 2026 **IEEE Applied Power Electronics Conference (APEC)**. Held from March 22nd to 26th, this year's show will be held at the Henry B. Gonzalez Convention Center in San Antonio, Texas. We encourage you to participate, if only remotely, as it is full of great news and information on the latest in our industry.

The world's largest power electronics conference, APEC offers great opportunities to meet other power electronics professionals and build your professional network. The APEC 2026 Exposition already has almost 300 companies signed up

to showcase the latest in power semiconductors, ICs, magnetics, capacitors, wire, thermal management, simulation tools, and everything else in power electronics. APEC's Plenary Session features talks from today's power electronics leaders, and APEC's Technical and Industry Sessions present peer-reviewed papers from leading power electronics researchers from around the world.

Stay Tuned
The March 2026 issue is now in production. It will focus on Servers and AI Computing Infrastructures. The issue promises to have a healthy feature well, industry news, column assortment, pre-APEC coverage, and Society News.

Get Access to Previous Issues
For more editorial from previous issues of the magazine, please visit our **website**. You will discover a variety of Open Access columns, podcasts, and more. Be sure to read our December 2025 issue on **Digital Twins and AI Tools**.

IEEE Transactions on Power Electronics (TPEL)

High Performer Status
TPEL has been ranked as High Performer across all IEEE Transactions and Journals in terms of turnround time, and TPEL is the only one High Performer among all power-relevant IEEE Transactions and Journals in the third quarter of 2025.

Call for TPEL Associate Editors
TPEL is accepting applications and nominations for Associate Editors. Please visit the **website** for the application requirements.

TPEL Review Paper Submissions
For those who wish to submit a review paper to TPEL, please **email** the following information to the Admin. The Admin will then forward these files to the EiC for review.
1. A biography for each author.
2. The publication history for each author related to the topic.
3. The abstract of the paper.

February 2026 Highlighted Papers
TPEL editors have selected these papers to highlight from the **February 2026** issue.

"**A Low Memory-Consuming Diagnosis Method for Multiple Open-Circuit Faults of Dual Three-Phase PMSM Drives**" by Zhongchen Li, Qiang Geng, Feng Zhu, Zhanqing Zhou, and Guozheng Zhang.This article proposes an open-circuit fault (OCF) diagnosis method based on current trajectory characteristics for dual three-phase permanent magnet synchronous machine drives. The proposed method achieves rapid fault detection and switch-level OCFs identification and localization by analyzing the geometric features of current vector trajectories, including the area, symmetry, shape, and phase information. The experimental results verify the effectiveness and advantages of the proposed method.

"**Circulating Current Suppression of Current-Fed Push–Pull DC–DC Converter With Natural Commutation Strategy**" by Zhifeng Sun, Yankun Chen, Jinhui Zeng, Qunfang Wu, Jiangli Ren, Wei Su, and Pengfei Yu. This paper addresses the issue of high current stress and circulating power in existing natural commutation strategies for current-fed push-pull (CFPP) converters by proposing a circulation current suppression (CCS) modulation strategy. A 500-W CFPP prototype has been built for experimental validation. The results demonstrate that, compared with state-of-the-art strategies, the proposed CCS strategy achieves at least a 35.21% reduction in current stress and at least a 67.26% reduction in circulating power.

"**A Combined PWM and Phase-Shift Control Method With Adaptive ZVS Boundary Regulation for Bridge-Arm Reused FSBB-Converter**" by Fei Liu, Yang Zhao, and Xinbo Ruan. This article demonstrates the realization of combined phase-shift control and pulse width modulation strategy for a four-switch buck-boost converter cascaded with an LLC resonant converter. The benefits of the approach include the ability to operate with zero voltage switching across the full operating range of the converter and minimization of inductor current ripple. The approach is experimentally validated on a 500-W laboratory prototype converter.

IEEE Power Electronics Letters

The **February 2026** issue of *IEEE Transactions on Power Electronics Letters* featured 20-plus Letters. Here are two highlighted Letters from the issue.

"**Optimized Multilayer PCB Litz Windings for Uniform Current Distribution and Reduced Loss**" by Zhangwei Xiang and Qiang Li. Printed circuit board (PCB) litz wire is a promising method to solve the high eddy loss issue in PCB windings. However, it suffers from high dc conduction loss due to the existing two-layer integration style and poor flexibility. This article first proposes a way to minimize the twists, reducing the dc resistance by 31% with the same ac related loss. Furthermore, a multilayer PCB litz integration is proposed to realize uniform current sharing in four or more layers. When implementing three turns in 12 layers, the proposed design has at least 43% lower ac resistance (ACR) than other capacity enhancing configurations at 200 kHz. With the improvements, the flexibility is also increased, with any turns can be made in any even number of layers. The new configuration makes PCB litz wire competitive with traditional litz wire, especially in high-power applications.

"**Design Considerations for Load Droop Control in DC Systems**" by Muhammad Anees, Hao Tu, and Srdjan Lukic. In dc power distribution systems, droop control is typically applied on the source side to facilitate power sharing; however, it can also be implemented on the load side to enable dynamic demand response by adjusting consumption per the available source capacity. In particular, load droop control offers the added benefit of transforming a constant power load (CPL), which exhibits a negative impedance, into a voltage-dependent load with positive impedance behavior, thereby mitigating the well-known CPL instability. Today, most commercial off-the-shelf CPLs do not include built-in droop functionality. Consequently, implementing load droop in practice introduces a nonnegligible delay, which can diminish its stabilizing effect and potentially reintroduce instability. In this work, we investigate how such delays influence system stability and demonstrate that system behavior is highly sensitive to these delays. Further, we analyze the impact of ramp-rate control in commercial converters by modeling it using a filter-based ramp-rate controller (FRRC). We derive stability conditions for the droop-FRRC-controlled system and determine the minimum capacitance to maintain stability. The theoretical findings are validated through hardware-in-the-loop tests.

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**. To read the February 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 February 2026 issue of JESTPE is now available through **Xplore**. The issue features a **Special Issue on High Power Density Power Converters Achieved by Device and Components Integration**. If you would like to submit a paper to JESTPE, please visit the **IEEE Author Portal**.

IEEE Journal on Wireless Power Technologies (JWPT)

Early Access Milestone for New Journal

JWPT's EiC Jasmin Grosinger presents one of the first Early Access papers for the journal: "**Development of Dynamic Wireless Power Transfer System for Japan's First Demonstration Test on Public Road**" by Osamu Shimizu, Sakahisa Nagai, Toshiyuki Fujita, Daisuke Gunji, Hiroshi Fujimoto, Hayato Sumiya, Koichi Tanaka, Kazushi Moriishi, and Kentaro Nouchi. This journal paper represents the outcome of six years of research and development, demonstrating that electric vehicles can be safely and reliably charged while driving under real public-road conditions. The work confirms compliance with durability, safety, and electromagnetic field regulations—an essential step toward practical deployment of dynamic charging infrastructure. This successful demonstration highlights how wireless power transfer technologies are transitioning from controlled test environments to real-world transportation systems, supporting more efficient and sustainable electric mobility. If you would like to submit a paper to JWPT, please visit the **IEEE Author Portal**.

IEEE Electrification Magazine


Join the TEC Council

As a member of the IEEE Power Electronics Society (PELS), there is no fee to join the IEEE Transportation Electrification Council (TEC).

The TEC is a Technical Council within the IEEE that serves as "one voice" for Transportation Electrification and coordinates broad and deep activities in the growing electrification revolution

across transportation domains. These domains include advances in electric and hybrid cars, more-electric ships and aircraft, rail systems, personal transport, and the motive, storage, power grid, electronic intelligence, and control technologies that make them possible.

Individuals can join the TEC as a Participant and through the Council's sponsored activities, including conferences and peer-reviewed publications. Participants have the opportunity to publish and collaborate on research, network with colleagues, stay current on news and events, develop standards, and participate in educational activities. The Council also is building a Distinguished Lecturer Program in which Council members may participate.

For more information, please click **here**.
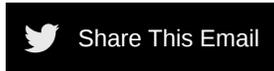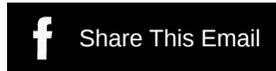
Share This Email

Share This Email

Share This Email

IEEE Power Electronics Society | 445 Hoes Lane | Piscataway, NJ 08854 US