

# Editorial 2023: A Year of New Possibilities

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THE year 2022 was truly record setting for IEEE TRANSACTIONS ON POWER ELECTRONICS (TPEL) and IEEE POWER ELECTRONICS LETTERS. With the fading of COVID-19, the new normal became in-person conferences and multiple paper submissions. For the 2022 issues, the TPEL editorial team successfully published 15,832 pages. This breaks down into 1,292 articles: 1,133 regular papers, 156 letters, two correspondences, and one editorial. As of late 2022, when we prepare this editorial, we have received 2,847 new submissions of papers and letters. In the year 2021, TPEL maintained its most downloaded journal status with 3,217,597 user downloads (including PDF downloads and HTML views) on IEEE *Xplore*. TPEL LETTERS continues to exponentially grow with its fast review turnaround time.

2023 brings our 38th volume of TPEL, implementation of the keyword project, and a page forecast of 16,800 pages. The year will also bring two special sections. TPEL LETTERS will feature a section on patent-related short articles. It is scheduled to be published in May 2023. TPEL will publish its special section, topic to soon be announced, in October 2023.

The key of TPEL's success is high-quality manuscripts received from around the world. In 2023, we encourage all authors to contribute to TPEL with regular papers, special sections, and LETTERS. Just as vital to our success are our dedicated reviewers. In 2021, our team of editors reviewed 2,567 regular papers and 547 letters (original submissions).

Each year, TPEL receives thousands of manuscript submissions from authors around the globe hoping to publish in our journal. To evaluate these papers and letters fairly, we rely on the volunteer efforts of thousands of expert reviewers. We publish only the highest quality papers in the field of power electronics and our reviewers include the most outstanding scholars and industry members in our field. To maintain the high standards of our publication, TPEL reviewers must be considered experts in their particular field for our editorial board to send a manuscript to them for their evaluation.

To show our appreciation for the time and effort our reviewers dedicate to each and every paper, in early 2022, we acknowledged 18 Outstanding Reviewers; see <https://www.ieee-pels.org/publications/tpel/awards>. These reviewers made an outstanding contribution in terms of quality comments, fast turnaround review times, and numbers of papers—all reviewed over 30 papers in the previous calendar year.

We also awarded top associate editors (AEs) through TPEL's Associate Editor Recognition program; see <https://www.ieee-pels.org/publications/tpel/awards>. Two AEs achieved service of 20+ years, while five AEs served TPEL for 15–19 years. Quite

remarkable achievements in journal publishing. We thank these AEs for supporting TPEL.

In late 2022, the TPEL Prize Paper Committee met to select the recipients of the 2021 Transactions on Power Electronics (TPEL) Prize Paper Award and TPEL Prize Letter Award. In 2021, we published 14,350 pages: 1,233 regular papers, letters, and correspondences. We had 2,718 original submissions and 1,389 revisions. Only less than 1% of the published papers are awarded each year. The selection of each of our winners is an extraordinary tribute to the fine research quality, presentation, and potential impact their research has to the field. Congratulations to the 2021 award winners; see <https://www.ieee-pels.org/awards>.

## TPEL FIRST PRIZE PAPER AWARDS IN 2021

- 1) M. Li, Z. Ouyang, and M. A.E. Andersen, "Discovery of the nearly zero flux between two parallel conductors in planar transformers," *IEEE Trans. Power Electron.*, vol. 37, no. 1, pp. 714-723, Jan. 2022, doi: [10.1109/TPEL.2021.3093171](https://doi.org/10.1109/TPEL.2021.3093171).
- 2) P. Zhang, M. Saeedifard, O. C. Onar, Q. Yang, and C. Cai, "A field enhancement integration design featuring misalignment tolerance for wireless EV charging using LCL topology," *IEEE Trans. Power Electron.*, vol. 36, no. 4, pp. 3852-3667, Apr. 2021, doi: [10.1109/TPEL.2020.3021591](https://doi.org/10.1109/TPEL.2020.3021591).
- 3) S. Ehrlich, H. Rossmann, M. Sauer, C. Joffe, and M. März, "Fast numerical power loss calculation for high-frequency litz wires," *IEEE Trans. Power Electron.*, vol. 36, no. 2, pp. 2018-2032, Feb. 2021, doi: [10.1109/TPEL.2020.3008564](https://doi.org/10.1109/TPEL.2020.3008564).
- 4) M. Chen and C. R. Sullivan, "Unified models for coupled inductors applied to multiphase PWM converters," *IEEE Trans. Power Electron.*, vol. 36, no. 12, pp. 14155-14174, Dec. 2021, doi: [10.1109/TPEL.2021.3088083](https://doi.org/10.1109/TPEL.2021.3088083).

## TPEL SECOND PRIZE PAPER AWARDS IN 2021

- 1) M. Khodabandeh, B. Lehman, and M. Amirabadi, "A highly reliable single-phase AC to three-phase AC converter with a small link capacitor," *IEEE Trans. Power Electron.*, vol. 36, no. 9, pp. 10051-10064, Sep. 2021, doi: [10.1109/TPEL.2021.3066621](https://doi.org/10.1109/TPEL.2021.3066621).
- 2) M. Daryaei, S. A. Khajehoddin, J. Mashreghi, and K. K. Afridi, "A new approach to steady-state modeling, analysis, and design of power converters," *IEEE Trans. Power Electron.*, vol. 36, no. 11, pp. 12746-12768, Nov. 2021, doi: [10.1109/TPEL.2021.3076745](https://doi.org/10.1109/TPEL.2021.3076745).

- 3) S. K. Mazumder, M. Mohamadi, and N. Kumar, "Integrated magnetics design for a three-phase differential-mode rectifier," *IEEE Trans. Power Electron.*, vol. 36, no. 9, pp. 10561-10570, Sep. 2021, doi: [10.1109/TPEL.2021.3066506](https://doi.org/10.1109/TPEL.2021.3066506).
- 4) R. Kawashima, T. Mishima, and C. Ide, "Three-phase to single-phase multiresonant direct AC-AC converter for metal hardening high-frequency induction heating applications," *IEEE Trans. Power Electron.*, vol. 36, no. 1, pp. 639-653, Jan. 2021, doi: [10.1109/TPEL.2020.3003026](https://doi.org/10.1109/TPEL.2020.3003026).
- 5) Y. C. Liu, J. Zhang, C. K. Tse, C. Zhu, and S.-C. Wong, "General pathways to higher order compensation circuits for IPT converters via sensitivity analysis," *IEEE Trans. Power Electron.*, vol. 36, no. 9, pp. 9897-9906, Sep. 2021, doi: [10.1109/TPEL.2021.3062228](https://doi.org/10.1109/TPEL.2021.3062228).
- 6) M. Singh and A. A. Fayed, "A 1-A 6-MHz digitally assisted buck-boost converter with seamless mode transitions and fast dynamic performance for mobile devices," *IEEE Trans. Power Electron.*, vol. 36, no. 4, pp. 4338-4351, Apr. 2021, doi: [10.1109/TPEL.2020.3020399](https://doi.org/10.1109/TPEL.2020.3020399).
- 7) Z. Huang, G. Son, Q. Li, and F. C. Lee, "Balance techniques and PCB winding magnetics for common-mode EMI noise reduction in three-phase AC-DC converters," *IEEE Trans. Power Electron.*, vol. 37, no. 3, pp. 3130-3142, Mar. 2022, doi: [10.1109/TPEL.2021.3115457](https://doi.org/10.1109/TPEL.2021.3115457).
- 8) P. Wang, Y. Chen, J. Yuan, R. C. N. Pilawa-Podgurski, and M. Chen, "Differential power processing for ultra-efficient data storage," *IEEE Trans. Power Electron.*, vol. 36, no. 4, pp. 4269-4286, Apr. 2021, doi: [10.1109/TPEL.2020.3022089](https://doi.org/10.1109/TPEL.2020.3022089).

TPEL PRIZE LETTER AWARDS IN 2021

- 1) A. Jafari et al., "High-accuracy calibration-free calorimeter for the measurement of low power losses," *IEEE Trans. Power Electron.*, vol. 36, no. 1, pp. 23-28, Jan. 2021, doi: [10.1109/TPEL.2020.3001001](https://doi.org/10.1109/TPEL.2020.3001001).
- 2) L. Gu, G. Zulauf, A. Stein, P. A. Kyaw, T. Chen, and J. M. R. Davila, "6.78-MHz wireless power transfer with self-resonant coils at 95% DC-DC efficiency," *IEEE Trans. Power Electron.*, vol. 36, no. 3, pp. 2456-2460, Mar. 2021, doi: [10.1109/TPEL.2020.3014042](https://doi.org/10.1109/TPEL.2020.3014042).

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