## Call for Papers

# IEEE Transactions on Power Electronics (TPEL)

## Special Section on Advanced Wide Bandgap Single-Stage Grid-Connected Power Interface

**Scheduled Publication Time: October 2025**

The development of high power density, cost-effective and power efficient grid-connected power electronic interface is essential to enable highly effective and reliable power conversion for many emerging power applications, such as: renewable energy power conversion; electrified transportation; storage; smart grid; lighting systems; industrial control systems; consumer electronics and computing systems.

Grid-connected AC/DC or DC/AC power interface can be classified into multiple-stage power conversion or single-stage power conversion. The latter approach, which typically employs power integration technique or uses advanced control scheme to combine multiple power conversion stages into a single conversion process, is able to enhance the overall power conversion efficiency; minimize the overall number of switching devices, and achieve high power density power conversion. The development of new single-stage grid-connected power interface, which covers: new power converter or inverter topologies, advanced control schemes, high frequency magnetics/transformers design, smart protection scheme, is vital to advance the performance of modern power conversion. With the technology advancement in wide bandgap (WBG) switching modules and devices, it provides a unique opportunity to develop innovative high power density WBG based single-stage power electronic converter and inverter systems that will serve as light weight, highly compact and power-efficient power conversion blocks for many aforementioned power applications.

The aim of the special section is to provide a timely opportunity for researchers and engineers to share their latest findings on the development of advanced single-stage grid-connected power electronic conversion systems and the associated control techniques. The ultimate goal of this special section is to advance the power electronics research community's knowledge on novel concepts of single-stage WBG power solution that can be applicable to various sustainable energy and industrial applications. Prospective authors are invited to submit original contributions and survey papers in these areas. Potential topics include, but are not limited to:

- New single-stage AC/DC, DC/DC converter and DC/AC inverter topologies applicable to grid-connected, renewable energy systems, wireless power transfer (WPT) and battery chargers Advanced control schemes applied to single-stage power conversion or inversion
- New single-stage bi-directional converter systems applicable to energy storage and EV applications (wired or wireless)
- Novel power converter integration concepts that are applicable for developing new single-stage power topologies
- WBG devices technology applied to single-stage AC/DC, DC/DC converters and DC/AC inverters
- Soft-switching single-stage grid-connected power circuit topologies
- High frequency magnetics design for single-stage power conversion or inversion
- Single-stage grid-forming inverter systems
- Advanced intelligent protection techniques applied to single-stage power conversion or inversion
- Multi-mode single-stage grid-connected converters and inverters
- Thermal protection schemes for WBG based single-stage power converters or inverters

All manuscripts must be submitted through ScholarOne at https://mc.manuscriptcentral.com/tpel-ieee. Submissions must be clearly marked "Special Section on Advanced Wide Bandgap Single-Stage Grid-Connected Power Interface" 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://www.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: March 31, 2025**

| | | |
|---|---|---|
| **Guest Editors** | Sewan Choi | Seoul National University of Science and Technology, South Korea |
| | Tomokazu Mishima | Kobe University, Japan |

**Timeline**

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

**Guest Associate Editors**

| | |
|---|---|
| John Lam | York University, Canada |
| Jungwon Choi | University of Washington, USA |
| Giulia Di Capua | University of Cassino and Southern Lazio, Italy |
| Carl Ho | University of Manitoba, Canada |
| Liang Jia | Google LLC, USA |
| Masoud Karimi | Mississippi State University, USA |
| Ali Khajehoddin | University of Alberta, Canada |
| Ching-Ming Lai | National Chung Hsing University, Taiwan |
| Chi Kwan Lee | University of Technology Sydney, Australia |
| Sze Sing Lee | Newcastle University, Singapore |
| Saad Mekhilef | Swinburne University of Technology, Australia |
| G. Moschopoulos | Western University, Canada |
| Xiaohui Qu | Southeast University, China |
| Olivier Trescases | University of Toronto, Canada |
| Michael Chi K Tse | City University of Hong Kong, China |
| Navid Zargari | Rockwell Automation, Canada |