



Wide-Band-Gap Devices Enabled High Efficiency and High Power-Density Motor-Drives

Guest Editors:

Prof. Dr. Alberto Castellazzi

Solid-State Power Processing (SP2) Lab, Department of Mechanical and Electrical Systems Engineering, Faculty of Engineering, Kyoto University of Advanced Science, Kyoto 615-8577, Japan

Prof. Dr. Xibo Yuan

Department of Electrical & Electronic Engineering, University of Bristol, Bristol BS8 1UB, UK

Deadline for manuscript submissions:

15 May 2025

Message from the Guest Editors

Electric motor drives are a pivotal element of our society, comprising well over half of the total electrical energy usage worldwide in a range of domains. Semiconductor power devices are key elements of motor-drive system design, determining the efficiency and volumetric/gravimetric density of the power converters and the machines.

Recently, new and revisited circuit topologies have been proposed, which utilize the high switching speed and frequency capability, high operational temperature and integration-level opportunities offered by WBG semiconductor technologies. This Special Issue aims to collect papers relating to WBG-based motor-drive design, demonstrating significant progress in this area. Topics of interest include (but are not limited to):

- Multi-level inverters, Y-Inverter and Current-Source Inverters;
- Integrated Motor Drives;
- Innovative machine concepts;
- High-frequency control solutions;
- High-boost ratios DC-DC converters;
- High-reliability applications;
- Reliability challenges and solutions;
- Long cable effects at high switching frequencies;
- Winding insulation and bearing degradation;
- Multi-domain physical design and design automation.





an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Flavio Canavero

Department of Electronics and
Telecommunications,
Politecnico di Torino, 10129
Torino, Italy

Message from the Editor-in-Chief

Electronics is a multidisciplinary journal designed to appeal to a diverse audience of research scientists, practitioners, and developers in academia and industry. The journal is devoted to fast publication of latest technological breakthroughs, cutting-edge developments, and timely reviews of current and emerging technologies related to the broad field of electronics. Experimental and theoretical results are published as regular peer-reviewed articles or as articles within Special Issues guest-edited by leading experts in selected topics of interest.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within Scopus, SCIE (Web of Science), CAPlus / SciFinder, Inspec, Ei Compendex and other databases.

Journal Rank: JCR - Q2 (*Physics, Applied*) / CiteScore - Q2 (*Control and Systems Engineering*)

Contact Us

Electronics Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/electronics
electronics@mdpi.com
[X@electronicsMDPI](https://x.com/electronicsMDPI)