



## Call for Papers

### IEEE Journal of Emerging and Selected Topics in Power Electronics

#### Special Issue on Advanced Technologies of Motor Drives for Zero-Emission E-Mobility

To fulfil the Paris Agreement's objective to constrain the average global temperature increase to a level "well below 2°C", there has been a significant surge in the adoption of e-mobility, including electric vehicles (EVs), hybrid electric vehicles (HEVs), electric trains and railways, and electric aircraft, etc. However, despite e-mobility emitting fewer greenhouse gases directly, a considerable amount of the electricity consumed by their motor drives is generated from fossil fuels. Improving the energy efficiency of motor drives becomes a crucial focus in the next phase of e-mobility development, integral to the overarching goal of achieving net-zero emissions within the e-mobility sector. For motor drives in e-mobility, comprising motors, power electronic devices, and passive components, emerging technologies aimed at bolstering energy efficiency manifest in various ways, such as new materials and power devices and harmonic mitigation to reduce iron losses, smart control for efficient operations across a wide speed range, thermal management to address changes in properties at the device, component, and system levels, EMI prediction and mitigation for optimal efficiency, energy recycling and reuse, to prevent unnecessary energy consumption, and condition monitoring for maintenance and replacement, and so on. In light of these dynamic scenarios, this special issue aims to stimulate and compile the latest research on the design, modeling, analysis, control, and testing of advanced motor drives in e-mobility, emphasizing perspectives on energy efficiency improvement of motor drives. Topics of interest include, but are not limited to:

- Advanced materials and power devices efficiency improvement
- Loss reduction in motors, power electronics, and passive components
- Efficient control strategies
- Recycling and reusing energy via motors
- Emerging validation including HIL testing, multi-physics simulation, co-simulation, and digital twins
- Harmonic mitigation for loss reduction
- Thermal management to mitigate increase in loss
- EMI prediction and mitigation for optimal efficiency
- Failure resilience for energy conservation
- Data-driven condition monitoring and prediction for operations at optimal efficiency
- Intelligent energy management
- Design, modeling, control, and analysis of systems

All submissions should be made through *Manuscript Central* at <http://mc.manuscriptcentral.com/jestpe-ieee>. The cover page should be clearly marked with "Special Issue on Advanced Technologies of Motor Drives for Net-Zero Emission" and the appropriate manuscript type should be selected when uploading the submission. Manuscripts submitted for this special issue will be handled by the guest editorial board outlined below. For more information on special issues and electronic submissions, please go to <http://www.ieee-pels.org/publications/jestpe>. Note: The core of JESTPE is power electronics, so papers must include power electronics contents, and experimental verification is compulsory, otherwise papers may be considered as out of scope.

#### Deadline for Submission of Manuscript: **May 31, 2024**

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##### Proposed Timeline

- **Jan 15, 2024:** Call for papers to JESTPE Editorial Office
- **May 31, 2024:** Manuscript submission deadline
- **September 30, 2024:** Final acceptance notification
- **November 30, 2024:** Manuscript forwarded to IEEE for publication
- **January 2025:** Special Issue appears in IEEE JESTPE