

Call for Papers

Special Section on High Torque Performance Machine Systems

With the rapid development of aerospace, industrial robots, numerical control machine tool and other high-end equipment, machine system, as the core power source of high-end equipment, requires a higher torque performance. High torque density means that the machine has a smaller size and weight, which is critical in aerospace, electric vehicles and other applications where machine volume and mass requirements are stringent. In industrial robots and numerical control machine tools, the torque pulsation of the machine has an important effect on positioning accuracy and running smoothness. In this context, high torque performance machine system has gradually become an important research branch in the field. At present, in order to achieve the goal of high torque density, the machine often works in the state of high electromagnetic load. However, limited by the current density and heat dissipation conditions, the torque density of the machine is difficult to further breakthrough. In addition, the suppression of pulsation often leads to the decrease of torque density, and it is difficult to balance the high torque density and low torque pulsation. On the other hand, under the requirements of machine system integration development, the integration degree of the machine system is high, and multi-physical factors coupling effect become strong. Since the model accuracy of the machine system is poor, high-quality design and control is difficult to achieve. The above key problems pose severe challenges to the design, analysis and control of high torque performance machine system.

High torque performance machine system contains many challenges. From the perspective of machine body, the research branch includes but not limited to the machine topology structure, application of new materials, and new optimization algorithms. This part of the research should also consider the influence of coupling factors of multiple physical fields. From the perspective of control system, the research branches include but are not limited to control strategy, hardware circuit and application of new power electronic devices. This part of the research needs to be considered in combination with the special operating conditions of high torque performance machines. In addition to the above research, the fault tolerant design of machine system, robustness optimization and high reliability operation method of high torque performance machine in high reliability applications also need to be considered carefully.

In order to further strengthen academic exchanges, and promote the exchange of experiences and achievements of researchers and experts from both academia and industry all over the world, the editorial department of "Transactions of China Electrotechnical Society" and "CES TEMS" specially invited Professor Wenxiang Zhao from Jiangsu University as the Deputy Editor-in-Chief organizing the topic of "High Torque Performance Machine Systems". Detailed topics include but are not limited to:

- New principles and topologies of high torque performance machines
- Drive and control techniques of high torque performance machine
- Fine modeling of high torque performance machine systems
- Application of new materials and devices for high torque performance machines
- Loss and temperature field analysis of high torque performance machines
- Fault detection and high reliability control for high torque performance machines
- Vibration and noise analysis and suppression of high torque performance machines
- Multi-objective optimization design of high torque performance machines
- High torque performance machine system application

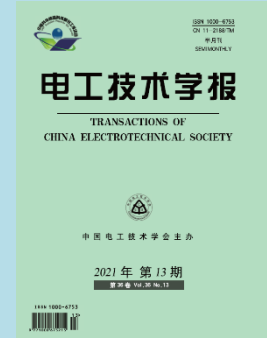
Contact the Deputy Editor-in-Chief if your manuscript is not within the listed topics, as papers within the general topic of electrical machines and systems are all welcome by the CES TEMS and Transactions of China Electrotechnical Society.

Brief guideline for authors:

Papers styles:

1. Review articles.
2. Original research.
3. Rapid communications.

All manuscripts must be submitted through Manuscript Central at <http://www.ces-transaction.com/> (Transactions of China Electrotechnical Society), and



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<https://mc03.manuscriptcentral.com/tems> (CES TEMS), Submissions must be clearly marked “**High Torque Performance Machine Systems**” on the cover page. When uploading your paper, please select your manuscript type “Special Issue”. Refer to <http://www.ces-transaction.com/> and <http://www.cestems.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

About the journal

Transactions of China Electrotechnical Society

“Transactions of China Electrotechnical Society” was founded in 1986. “Journal” is a comprehensive academic journal in the field of electrical engineering hosted by China Electrotechnical Society.

“Journal” is the core journal of many principal retrieval systems such as Engineering Index (EI), Chinese core journals, the key magazine of China technology as well as other related databases.

“Journal” comprehensively reports high-level academic and scientific research achievements in basic theory research and engineering application in the field of electrical engineering. The publication covers various disciplines in the field of electrical engineering, mainly related to electrical appliances, power electronics, power systems, industrial automation, electrical theory, electrical insulation, materials, information technology, and new energy technologies.

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CES TEMS

CES TEMS is a brand-new quarterly journal published by the China Electrotechnical Society (CES) and the Institute of Electrical Engineering of the Chinese Academy of Sciences, with co-sponsorship of IEEE PELS, starting from March 2017.

CES TEMS is an open-access journal, currently with no publication charge applied to the authors. Published papers will be included in the IEEE Xplore. Also, CES TEMS has been Indexed by CSCD. Inclusion in other globally recognized data base such as the Web of Science (SCI) is under arrangement.

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