

Message from Editors

SPECIAL motor systems are high-efficiency and high-quality electromechanical energy conversion devices suitable for complex operating conditions. As key components, special motor systems are widely used in the fields of aerospace, energy, power, transportation, high-end manufacturing, etc. Innovations of fundamental theories and application technologies in special motor systems can promote the progress of related disciplines and fields, which has drawn great attentions from countries all over the world.

The analysis and optimization design of special motor systems have the characteristics of high nonlinearity, strong coupling, multiple objectives, multiple constraints and even multiple peak values. However, conventional methods are difficult to meet the requirements of more and more sophisticated design of future special motor products. At present, with the development of intelligent calculation theories and technologies represented by artificial intelligence, big data and cloud computing, using advanced computer and intelligent calculation technologies to solve complex analysis and optimization design problems is a new development trend in the field of special motor systems, which has injected great vitality and power into the theoretical and technological progress of special motor systems.

To further promote the development of special motor systems, the joint efforts of industry and academia are needed to make breakthroughs in motor topologies, accurate-modeling methods, multi-objective optimization methods, advanced control theories and so on. In addition, the development of intelligent calculation theories such as neural networks and digital twins, and their application and promotion in special motor field are urgent as well.

The special issue (SS) “Special Motor Systems and Intelligent Calculation” is aimed to help and progress special motor systems and intelligent calculation by providing a forum for both academia and industry to exchange their experience and latest research. Eleven selected papers are included in this SS at first, and a few more in later issues. These papers embody the advantages and application prospects of special motor systems and intelligent calculation.

We would like to take this opportunity to express our gratitude to the authors, reviewers and editors for their support and understanding throughout the paper submission and review process. It is our hope that this special issue could excite more interests and bring valuable ideas on the advanced motor systems, and the valuable research results of related researchers will contribute to a safer, happier and brighter future for humanity.

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