Message from Editors

CONTROLLING carbon emissions to achieve green and sustainable development has become a global consensus and general trend. China established "30.60" decarbonization goal for carbon peak and carbon neutrality in 2019. As electromechanical energy conversion devices, the electrical machines and systems play important roles in both renewable energy harvesting, such as wind, tidal, ocean current energy, etc., and new energy drive, such as electric vehicle, more electric aircraft, and more electric ship, etc. However, the improvement of their power density, efficiency, and reliability faces many new challenges in the background of new energy applications. How to further improve these performances from the aspects of novel topologies, intelligent optimization methods, advanced control strategy, online fault diagnosis and health management, etc., becomes a key issue to promote applications of electrical machines and systems in the new energy area.

To further promote the development of electrical machines and systems in the new energy area, the joint efforts of industry and academia are needed to achieve breakthroughs in power density, efficiency, torque smoothness, and reliability of electrical machines. Therefore, this special issue (SS) "Electrical Machines and Systems in New Energy Applications" is aimed to help and progress high performance machine systems by providing a forum for both academia and industry to exchange their experience and latest research. Eight selected papers are included in this SS at first, and a few more possibly in later issues. These papers embody some of the advantages and application prospects of electrical machines and systems in new energy applications.

We would like to take this opportunity to express our highest gratitude to the authors, reviewers and editors for their strong support 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 machine systems, and the valuable research results of related researchers contributing to a safer, happier and brighter future for humanity.

While publishing this special issue, all of humanity is recovering from the Covid-19 virus. During last three years of Coronavirus disease pandemic, there are big challenges in industry and the economy all over the world. However, we have seen great braveness, tremendous efforts in fighting the pandemic and fast development in the science and technology overcoming the disease. Meanwhile, researchers and engineers were keeping finding better solutions in electrical machines and systems in new energy applications for a better future and a greener life for human beings. We wish the pandemic is completely over and a more prosperous year 2023.

Professor Lijian Wu
Deputy Editor-in-Chief

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Professor Lijian Wu received the B.Eng. and M.Sc. degrees from Hefei University of Technology, Hefei, China, in 2001 and 2004, respectively, and the Ph.D degree from the University of Sheffield, Sheffield, U.K., in 2011, all in electrical engineering.

From 2004 to 2007, he was an Engineer with Delta Electronics (Shanghai) Co, Ltd. From 2012 to 2013, he was with Sheffield Siemens Wind Power Research Center as a design engineer focusing on wind power generators. From 2013 to 2016, he was an advanced engineer with Siemens Wind Power A/S in Denmark. Since 2016, he has been with Zhejiang University, where he has also been a Professor of electrical machines and control systems. He is currently the Director of Zhejiang University-Shanghai Electric Wind Power Research Center and the Director of Zhejiang University-Jiaxipera Electric Motor and Control Research Center. His current major research interests include design and control of permanent magnet machines.

Guest Editors: