Message from Editors

COMPARED with the rotary machines, the linear machines can get linear motion independent on the intermediate transmission device, which can benefit from advantages of higher acceleration/deceleration, faster dynamic response, higher precision, lower maintenance, lower noise, smaller volume or size, and so on. Till now, the linear machines have been widely adopted to industrial applications requiring linear movement, such as linear metros, MAGLEVs, servo systems, wave-energy generators, conveyors, linear compressor, fast action solenoids, loudspeakers, microphones, *etc*., which have great potentiality and huge market in future.

However, the performance indexes of linear machines are seriously affected by multiple factors, such as cut-open iron core, the large air-gap length, the end-effects, the half-filled slots, the unbalanced/asymmetric magnetic circuits, the vertical force, and so on. Due to the non-linear and strongly coupled linear machines systems, it is difficult to obtain accurate parameters and reasonable equivalent circuits, which brings great challenge to the performance analysis, electromagnetic design, system-level optimization, efficiency or thrust promotion, *etc*. As a result, the further large-scale development and applications of the linear machines and drive systems are severely restricted. To further strengthen the development of linear machines and drives, the joint efforts of industry and academia are needed to make breakthroughs for linear machines and drives, including topologies, mathematical modelling, design methodologies, high performance control strategies, and so on. Moreover, the development of multi-objective system-level optimization techniques are urgently desirable to linear machines and drives.

The special issue (SS) "Topologies, Modelling, Design, Control and System Integration for Linear Machines and Drives" is aimed to help and progress linear machines and drives by providing a forum for both academia and industry to exchange their experience and latest research. Thirteen 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 linear machines and drives.

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

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