Special Issue

Linear Motors and Direct-Drive Technology

Message from the Guest Editors

In the past decade, linear motors have been widely recognized in various direct-drive fields, such as vehicles, aerospace, industrial production, and others. The topological structure design, optimization, and intelligent control of linear motors is the key to improving the performance of direct-drive systems. The development of permanent magnetic materials, optimization algorithms, and artificial intelligence has brought new vitality to the field. The aim of the present Special Issue is to collect original papers concerned with the theory and application of linear motors and direct-drive technology, without any limitations on the specific application field. Topics of contributing papers can include, but are not limited to:

- Design and analysis of linear motors;
- Design and analysis of electromagnetic linear actuators;
- Design and analysis of direct-drive systems;
- Modeling and analysis of electromagnetic fields;
- Optimization design strategy;
- Linear motion control;
- Motor fault diagnosis;
- Optimal control schemes.

Guest Editors

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Dr. Cao Tan

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Deadline for manuscript submissions

closed (30 July 2023)

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About the Journal

Message from the Editorial Board

We are just entering the Next Wave of Technology (NWT) where actuators will play the same role as the computer chip did for computers/social media approximately four decades ago. Just in the U.S., production of $1 trillion year of electromechanical systems (vehicles, orthotics, manufacturing cells, freight trains, aircraft, etc.) will be impacted by the NWT, all driven by actuators. Five key trends can be found for the future perspectives: “Performance to Reliability”, “Hard to Soft”, “Macro to Nano”, “Homo to Hetero” and “Single to Multi functional”. We invite papers that primarily impact these economic sectors; those illustrating basic scientific principles are also welcome.

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