Special Issue

Electromagnetic Levitation Actuators

Message from the Guest Editor

Electromagnetic levitation phenomena have already become a driving force towards creating a new generation of actuators with inherent benefits, such as controllable mechanical friction, considerably extended motional range, thereby yielding actuators with wider operational capabilities, and at the same time, significantly reducing the dissipated energy. Complete elimination of mechanical attachments and, consequently, mechanical wear and control of mechanical friction by means of vacuum in such actuators open up a number of advantages, offering their further miniaturization and significant improvements in performance, and the promise of actuators with longer operational lifetimes. This Special Issue is aimed at collecting original papers and state-of-the-art reviews with a focus on levitating actuators based on electric, magnetic, inductive, diamagnetic, superconducting, optical, and hybrid levitation.

Guest Editor

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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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