Special Issue

Soft Electromagnetic Actuators and Their Mechanisms

Message from the Guest Editors

Recent advances in soft matter research have enabled the translation of conventional mechanisms of actuation into mechanically compliant devices, actuators, and small-scale robots. In particular, soft electromagnetic actuators have recently gained attention, as they offer remote actuation, decoupling of forces and torques, and multiple modes of deformation, with emerging applications in haptics, robotics, and biomedicine. As a growing field, research in soft electromagnetic actuators can greatly benefit from new soft electronic and magnetic materials, innovative design and fabrication approaches, and physical modeling of novel or existing actuators. This Special Issue invites researchers to contribute with their original works and relevant reviews concerning recent advances in soft electromagnetic actuators with a specific emphasis on materials, modeling of soft actuators, device design and fabrication, and programmable/tunable assembly of soft robots. ,

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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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