Special Issue

Smart Materials for Smart Actuators and Semi-active Components

Message from the Guest Editors

The development of smart actuators has helped us to achieve higher accuracy in robotic applications. One of the main components of smart actuators is smart materials which can measure physical quantities such as force, displacement, and heat before converting into electrical signals. Materials including magnetorheologiocal, electrorheological, piezoelectric, shape memory alloys, liquid crystals, and dielectric elastomers respond to external stimuli by changing their properties that can be controlled. This Special Issue invites papers on recent advances in smart materials and their application in robotics.

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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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