Special Issue

MEMS-based Actuators

Message from the Guest Editor

In this Special Issue, a wide range of topics are covered, including the design, fabrication, characterization, packaging and system integration or final applications of Micro/Nano-Electro-Mechanical Systems (MEMS/NEMS)-based actuators:

- Material research oriented to actuator microsystems and functional thin film materials
- Processes and fabrication technologies for miniaturized actuator systems
- Modelling and simulation of actuator microsystems
- Electrostatic, piezoelectric, mechanical, thermal, acoustic, magnetic or any physical actuation principles
- Optical MEMS (MOEMS), optoelectronic actuators
- Chemical and bio-actuators
- Calibration, characterization and testing techniques for MEMS-based actuators
- Reliability and failure analysis
- System integration, interface electronics, micromechatronics and microrobotics
- Applications and markets, control and measurement systems based on miniaturized/microactuators

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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