Special Issue

Piezoelectric Actuators and Transducers: Materials, Design, Control and Applications

Message from the Guest Editor

Piezoelectric actuators are often used in precision positioning devices because of their nanometer-order resolution. In addition, they are small and light and generate a large blocking force. On the other hand, the deformation of piezoelectric actuators is generally limited to several tens of micrometers. In order to overcome this disadvantage, they are often combined with mechanisms to enlarge the movable range by accumulating minute motions. This Special Issue will collect contributions related (but not limited) to the following topics:

- piezoelectric positioners, movers, and motors
- driver
- Control strategy
- modelling/ simulation
- energy harvesting
- piezoelectric composites and smart structures
- piezoelectric and structural health monitoring
- near-field ultrasonic levitation
- applications to science, technology, precision engineering, and industry

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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