actuators

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Cooperative Microactuator Devices and Systems

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Message from the Guest Editors

This Special Issue collects selected review papers from invited authors in the field of cooperative microactuators. Combining similar microactuators in microactuator arrays enables the control of time and spatially resolved actuation patterns, while the combination of microactuators based on different transducer principles even allows for novel process chains across different functional levels as well as several length scales. In addition to understanding and controlling the different synergies, various cross-coupling effects due to the close neighbourhood of microactuators have to be mitigated. This Special Issue will cover the topic of cooperative microactuator devices and systems based on electrostatics, electromagnetics, electroactive polymers, magnetic polymers, shape memory materials, and combinations thereof.

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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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