

Special Issue

Recent Advances in MEMS/NEMS Actuators and Sensors: From Theory to Application

Message from the Guest Editors

The rapid advancement of AI technology presents both promising opportunities and notable challenges for MEMS/NEMS, particularly in the integration of AI-enabled actuators and sensors and the expansion of their practical applications. This Special Issue is dedicated to showcasing cutting-edge research in MEMS/NEMS, encompassing both theoretical insights and technological innovations. We welcome both original research articles and review papers that address state-of-the-art topics—though not limited to those listed below—provided they align with the journal's aims and scope. This Special Issue will also feature selected contributions from JCK MEMS/NEMS 2025, an annual East Asian forum that emphasizes international collaboration to address environmental and social challenges across East Asian economies. These contributions will highlight recent progress in micro/nano sensors, actuators, and related technologies.

Guest Editors

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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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