

# 16th International Conference on Micro- and Nanosystems (MNS)

## **MNS-1: Micro/Nano Dynamics**

This symposium invites papers and technical presentation submissions on fundamental experimental and theoretical research into micro and nano dynamics. Topics of interests include, but are not limited to: Nonlinear phenomena, such as chaotic dynamics, parametric excitation, self-excitation, and nonlinear resonant interaction; Collective behaviors, such as localization and synchronization; Dynamic response phenomena; used to realize enhanced sensitivity in MEMS and NEMS sensors; Reliability issues, such as their response to mechanical shock and capillary forces; Transient behaviors, such as dynamic pull-in and escape phenomena; and linear/nonlinear dynamics.

Draft conference papers (which include expectation to present a technical presentation) submissions are due by Feb. 14, 2022. Manuscripts will be peer reviewed, authors will have opportunity to make edits, and accepted manuscripts will be published in the conference proceedings. Researchers interested in only presenting can submit an “extended abstract,” that is at least one page, and is not published in the proceedings. Extended abstracts are due on Apr. 11, 2022. Novel design ideas and early results will be considered for both technical papers and presentations. All submitted papers will automatically be considered for the Best Paper Award competition.

## **MNS-2: Micro/Nano Bioengineering**

This symposium invites papers and technical presentation submissions on fundamental experimental and theoretical research into biologically-inspired and biomedical systems which incorporate micro-and nano-systems. Topics include microfluidics for research and pharmaceutical applications, lab-on-a-chip devices for micro-analysis, and fabrication details necessary to realize such devices. Applications of these technologies include: implantable micro and nano-devices, genomics, molecular diagnostics, cell analysis, diagnostics, and tissue engineering.

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### **MNS-3: Micro/Nano Robotics and Functional Materials**

This symposium invites papers and technical submissions on fundamental and theoretical research into micro and nano robotics, which are characterized as robotic systems smaller than 3 mm in size. These systems are expected to revolutionize the field of robotics especially in the healthcare and military sectors. Topics about micro/nanorobotics may include robotic fabrication, micro/nano-actuators, robotics control and robotics dynamics. We also invite papers into smart and functional materials which include research in piezoelectric and shape-memory alloys and other smart materials.

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### **MNS-4: Micro/Nano IoT, Sensors and Digital Computing**

This symposium invites papers and technical presentation submissions on fundamental experimental and theoretical research into development of micro and nano systems for wide range of applications in sensing, digital computing and internet of things. The use of Micro/Nano-electro-mechanical-systems (MEMS, NEMS) has enabled miniature size and low-cost data collection/computation for smart devices, internet of things and sensing/computation in wearable devices. Topics in this symposium can range from novel fabrication/characterization techniques, integration of microsystems with bio-inspired sensing and new technologies that perform computational processes along with sensing such as MEMS sensor networks, MEMS logic gates, and neuromorphic (neuro-inspired, neural network) MEMS. These technologies are ill-defined within the literature and would fit well under the umbrella of “Smart MEMS”.

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### **MNS-5: Micro/Nano Power Sources and Storage**

This symposium invites papers and technical presentation submissions on fundamental experimental and theoretical research into methods of generating and/or storing power that

have the potential to be scaled down to meet the needs of micro/nano systems. Due to their small size, micro and nano-systems cannot rely on traditional off-the-shelf chemical batteries, which are typically manufactured on the millimeter scale and larger. Concepts can be based on any of the four fundamental forces: the electromagnetic force; gravity; strong and weak nuclear forces.

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