

**MECHATRONICS****Call for Papers****Focused Section on Mechatronics for MEMS and NEMS****Abstract**

The advancement of emerging MicroElectroMechanical Systems (MEMS) and NanoElectroMechanical Systems (NEMS) requires comprehensive mechatronic-based (i.e., modeling, identification, control and experimentation) analysis and investigation. One of the most challenging aspects of “micro- and nano-scale” mechatronic systems as compared to their “macroscale” versions is the added complexity of uncertainties and nonlinearities that are unique to micro- and nano-scale. This added complexity combined with the extra precision requirement calls for development of comprehensive modeling frameworks and controllers for these applications. Accordingly, in an effort to respond to such demanding needs for new applications of MEMS and NEMS, the IEEE/ASME Transactions on Mechatronics invites papers for a special issue in “*Mechatronics for MEMS and NEMS*”. It is expected that this issue will bring together the current advances in this area that could stimulate future research directions in this field. This special issue particularly targets current research and development efforts in modeling, control and applications of MEMS and NEMS including new sensing and actuation mechanisms at micro- and nano-scale, modeling and control of micro- and nano-scale sensors and actuators, and applications. Contributions from industry are particularly encouraged and both theoretical and experimental works are welcome.

This Focused Section of IEEE/ASME Transactions on Mechatronics (TMECH) is dedicated to new advances in mechatronics that are applicable to MEMS and NEMS. The papers should contain both fundamental and practical experimental results and are subject to the TMECH review procedures. Potential topics include but are not limited to:

- State-of-art research and technological development survey in the field,
- MEMS and NEMS based on smart materials and structures,
- Optical and magnetic MEMS and NEMS,
- MEMS- and NEMS-On-Chip
- MEMS and NEMS for grasping and manipulation applications,
- Modeling and control of micro- and nano-scale sensors and actuators,
- Research challenges in MEMS and NEMS (e.g., fabrication, system integration, power and propulsion, reliability), and
- Applications (e.g., biology and medicine, materials characterization and bottom-up assembly, probe-based storage, molecular and precision manufacturing and positioning)

Manuscript Submission

Please submit the manuscripts in PDF format to <http://mc.manuscriptcentral.com/tmech-ieee>. To distinguish papers submitted to this special issue, please indicate on your cover letter that “This paper is submitted for possible publication in the Focused Section on Mechatronics for MEMS and NEMS”. The header on the first page must also read “*Submitted to Focused Section on Mechatronics for MEMS and NEMS*”. In addition, the paper title must start with the word “**MechMN:** ”. Instructions for authors are available online at: <http://www.ieee-asme-mechatronics.org>. If you have any questions relating to this Focused Section, please email one of the guest editors.

Important Dates**November 1, 2008**

January 15, 2009

March 15, 2009

May 1, 2009

May 15, 2009

August 2009

Paper Submission

Completion of First Review

Submission of Revised Papers

Completion of Final Review

Submission of Final Manuscripts and Copyright Forms

Publication

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