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

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 1, 2008</td>
<td>Paper Submission</td>
</tr>
<tr>
<td>January 15, 2009</td>
<td>Completion of First Review</td>
</tr>
<tr>
<td>March 15, 2009</td>
<td>Submission of Revised Papers</td>
</tr>
<tr>
<td>May 1, 2009</td>
<td>Completion of Final Review</td>
</tr>
<tr>
<td>May 15, 2009</td>
<td>Submission of Final Manuscripts and Copyright Forms</td>
</tr>
<tr>
<td>August 2009</td>
<td>Publication</td>
</tr>
</tbody>
</table>

Guest Editors

Dr. Nader Jalili, Associate Prof.
Smart Structures and NEMS Lab.
Department of Mechanical Eng.
Clemson University
Clemson, SC 29634-0921, USA
Tel: (864) 656-5642, Fax: -4435
Email: jalili@clemson.edu

Dr. Peter Liu, Professor
Systems and Computer Engineering
Carleton University
Ottawa, ON
Canada
Tel: (613) 520-2600 ext. 1774
Email: xpliu@sce.carleton.ca

Dr. Gursel Alici, Assoc. Prof
School of Mechanical, Materials
and Mechatronics Engineering
University of Wollongong
NSW, 2522, Australia
Tel: 61-2-4221-4145, Fax: -3101
Email: gursel@uow.edu.au

Dr. Antoine Ferreira, Prof.
PRISME Institute
Interactive Robot Sys. Team
ENSI Bourges, 18000 Bourges, France
Tel: +33 2 4848-4079
Email: antoine.ferreira@ensi-bourges.fr