

**MECHATRONICS****Call for Papers****Focused Section on Electromagnetic Devices for Precision Engineering**

Electromagnetic devices have recently become promising contenders in the area of ultra-high precision manufacturing, manipulation, and sensing due to their capability to provide large displacement with infinite positioning resolutions, apply multi-axis forces and torques, possess high bandwidth, and achieve reliability and versatility in applications. With wide availability of permanent magnetic materials and manufacturing technology, many electromagnetic actuators and sensing elements have been explored in recent years. Applications of these electromagnetic devices have been seen often in micro- and nano-manufacturing, ultra-sensitive biomedical imaging, and critical electrical vehicles. Additionally, these electromagnetic devices play crucial roles as the key components in renewable energy power generators as well as the driving elements of environmentally friendly electrical vehicles. In the realization of these novel electromagnetic devices, new and groundbreaking modeling of electromagnetic components, integrated design of electromagnetic components with ultra high precision mechanisms, and precision control of the electromagnetic devices are critical.

This Focused Section of the IEEE/ASME Transactions on Mechatronics (TMECH) is dedicated to the new advances in modeling, design, analysis, control, implementation and validation of electromagnetic devices for precision engineering. The papers should contain both the theoretical and practical/experimental results and are subject to the TMECH review procedures. Potential topics include but are not limited to:

- Modeling and control of electromagnetic actuators
- Novel electromagnetic sensors
- Novel electromagnetic actuator design for precision manufacturing and precision manipulation
- Optimization techniques for electromagnetic devices
- Novel electromagnetic systems for precision measuring
- Use of electromagnetic devices in precision components in fields such as medical devices, biotechnology, sustainable transportation systems, etc.
- Techniques for magnetic field reconstruction, calibration, identification and estimation for precision mechatronics

Manuscript Submission

Please submit the manuscripts in PDF format to <http://mc.manuscriptcentral.com/tmech-ieee/>, and indicate on your cover letter that **“This paper is submitted for possible publication in the Focused Section on Electromagnetics for Precision Engineering.”** 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:	July 15, 2010	Paper Submission
	September 1, 2010	Completion of First Review
	October 15, 2010	Submission of Revised Paper
	December 7, 2010	Completion of Final Review
	January 7, 2011	Submission of Final Manuscripts and Copyright Forms
	June 2011	Publication

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