

**Call for papers
Focused section on
Hysteresis in Smart Mechatronic Systems: Modeling, Identification, and Control**

Hysteresis nonlinearity invariably appears in various smart mechatronic systems such as smart material-based actuators, smart-material based sensors, pneumatic actuators, and electromagnetic systems. This nonlinearity yields undesirable responses, which causes limited tracking performance or oscillations in the responses which may lead to system instability. As an example, the presence of hysteresis in smart material-based actuators, which are used widely in micro/nano-positioning applications, yields considerable tracking error and lack of accuracy of the systems responses. Considerable continuing efforts are thus being made to seek for effective compensation of hysteresis nonlinearity in different smart mechatronic systems.

Recently, obvious contributions and developments have been elevated in the research areas of: hysteresis modeling, compensation of hysteresis nonlinearity, and control of hysteretic systems. Also, novel smart material-based actuators and smart-material based sensors show strong hysteresis nonlinearity in their outputs. The IEEE/ASME Transactions on Mechatronics invites papers for a special section on “Hysteresis in Modern Mechatronic Systems: Modeling, Identification, and Control” to present developments in the area of hysteresis in smart mechatronic systems and to alleviate the difficulties associated with hysteresis nonlinearity in new smart mechatronic systems. The objective is to investigate new techniques for high performance smart mechatronic systems with consideration of hysteresis effects. This section will provide an opportunity for researchers and practitioners to exchange their most recent accomplishments and challenges in the area of modeling and compensation of hysteresis nonlinearity in smart mechatronic systems. It is expected that this issue will bring together the current advances in this area that could encourage future research directions in this field. Contributions from industry are encouraged, and both theoretical and experimental works are welcome. Potential topics include but are not limited to:

- Developments in hysteresis models for mechatronic systems
- Identification techniques for hysteresis models
- Developments in compensation schemes for hysteresis
- Limit cycles in systems with hysteresis
- Signals estimation/observation in systems with hysteresis
- Hysteresis in smart materials-based mechatronic systems
- Hysteresis in ferromagnetic and ferroelectric actuators and sensors
- Hysteresis in micromechatronic systems
- Hysteresis in pneumatic actuators
- Hysteresis in sensors
- Hysteresis in systems with friction
- Hysteresis in thermal and energy systems
- Hysteresis in electronic/electrical circuits and systems
- Hysteresis in robotic systems
- Hysteresis in mechanical systems with backlash

Manuscript preparation:

Papers must contain original contributions and be prepared in accordance with TMECH standards. Instructions for authors are available online at <http://www.ieee-asme-mechatronics.org/>

Manuscript submission:

Manuscripts should be submitted through the online submission service available at <http://mc.manuscriptcentral.com/tmech-ieee>. The cover letter should report the following statement: “This paper is submitted for possible publication in the focused section on Hysteresis in Smart Mechatronic Systems: Modeling, Identification, and Control”. All manuscripts will be subjected to the peer review process. If you have any question relating to this Focused Section, please email one of the Guest Editors. Manuscripts should be submitted through the online submission service available at <http://mc.manuscriptcentral.com/tmech-ieee>

Important dates:

Paper Submission.....	October 1, 2014
Completion of First Review.....	February 1, 2015
Submission of Revised Papers.....	April 1, 2015
Completion of Final Review.....	June 1, 2015
Submission of Final Manuscripts and Copyright Forms.....	August 1, 2015
Publication.....	December 2015

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