IEEE | Journal of Microelectromechanical Systems

J-MEMS Special Topical Focus

Nonlinear Phenomena in MEMS and NEMS

Call for Papers

Nonlinear phenomena in MEMS are ubiquitous and have been studied for decades. They stem from state-dependent load conditions (e.g. spring hardening), non-linear transducers (e.g. electrostatic actuators), materials texture and microstructure (e.g. anharmonic lattices) or shaped geometries (e.g. shaped gaps). These nonlinear phenomena may adversely affect the performance of existing devices, but may also be optimized and harnessed to design devices with new principles of operation and enhanced performance. Therefore, there is continuous need in accurate characterization, identification, and modeling. Nonlinear phenomena are of high relevance as MEMS and NEMS have been reaching the limits of linear operation across all frequency and size-scales.

J-MEMS invites manuscripts of original research and *state-of-the-art reviews* for a series on "Nonlinear Phenomena in MEMS and NEMS". Submitted papers must be original, enhancing the state-of-the-art, and not be published earlier or under consideration for publication in other journals or conferences. In JMEMS, presentation of new concepts and technologies is expected to include experimental verification. Papers from industry are specifically encouraged. The topics of interest w/r to nonlinear phenomena include, but are not limited to:

- Resonators for sensing, timing, and RF applications
- Nonlinear and non-reciprocal devices
- Parametric resonance in the mechanical and acoustic domains
- Energy harvesters and compliant mechanical amplifiers
- MEMS/NEMS logic for novel computing paradigms (neuromorphic, quantum, physical)
- State-of-the-art surveys and reviews related to these topics

Submitted manuscripts will go through the regular peer review process. Full manuscripts should be submitted electronically through IEEE's ScholarOne: https://mc.manuscriptcentral.com/jmems

Be sure to select **"Nonlinear Phenomena in MEMS and NEMS"** as the Manuscript Type, rather than "Original Paper." This will ensure that your paper is directed to the appropriate editors. **Accepted papers will be published online and printed in the next regular issue without a waiting period, and will be highlighted as contribution to this Special Topical Focus.**

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