



Journal of Nanomaterials

Special Issue on
**Matter at the Limits: Understanding and Controlling
Ultrafast Processes at the Nanoscale**

CALL FOR PAPERS

The potential of nanomaterials for energy conversion and data storage applications has motivated scientists to investigate these materials under nonequilibrium operating conditions. The traditional characterization techniques and the steady-state theoretical models both fail in describing the out-of-equilibrium behavior of nanomaterials. Instead, time-resolved spectroscopy and ultrafast microscopy techniques are indispensable for the study of ultrafast processes at the nanoscale where they can elucidate the detailed excitation and relaxation pathways by probing the transient electronic and structural evolution with sufficient spatial, temporal, energetic, or momentum resolution. In addition, recent advances in the theoretical description of excited states and transients for systems out-of-equilibrium allow precise interpretations of ultrafast experimental observations.

In this special issue, we invite authors to submit original research and review articles that study ultrafast phenomena in nanomaterials including chemical, structural, and electronic transitions at the femtosecond and picosecond timescales.

Potential topics include, but are not limited to:

- ▶ Time-resolved spectroscopies and ultrafast microscopies
- ▶ Optoacoustics and magnetoacoustics
- ▶ Dynamics of energy and charge transfer processes at the nanoscale
- ▶ Electronic and structural coupling in spatially confined systems
- ▶ Coherent control of selected degrees of freedom
- ▶ Ultrafast processes at surfaces and interfaces
- ▶ Phase transition dynamics in phase change nanomaterials
- ▶ Ultrafast magnetization reversal in nanomaterials

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/jnm/mluc/>.

Lead Guest Editor

Ebrahim Najafi, California Institute of Technology, Pasadena, USA
enajafi@caltech.edu

Guest Editors

Giovanni M. Vanacore, California Institute of Technology, Pasadena, USA
vanacore@caltech.edu

Renske van der Veen, University of Illinois at Urbana-Champaign, Urbana, USA
renske@illinois.edu

Dario Polli, Politecnico di Milano, Milano, Italy
dario.polli@polimi.it

Carlo A. Rozzi, CNR-Istituto di Nanoscienze, Modena, Italy
carloandrea.rozzi@nano.cnr.it

Michele Amato, Université Paris-Sud, Orsay, France
michele.amato@u-psud.fr

Manuscript Due

Friday, 2 September 2016

First Round of Reviews

Friday, 25 November 2016

Publication Date

Friday, 20 January 2017