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Call for Papers

Synthesis and Photonics of Nanoscale Materials VII (LA112)

Part of the SPIE International Symposium on SPIE LASE: Lasers and Applications in Science and Engineering
23-28 January 2010 • Moscone Center • San Francisco, CA United States

Conference Chairs: **Jan J. Dubowski**, Univ. de Sherbrooke (Canada); **David B. Geohegan**, Oak Ridge National Lab. (United States); **Frank Träger**, Univ. Kassel (Germany)

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This symposium is dedicated to the use of lasers in nanoscience, and the exploration of their unique capabilities to synthesize, characterize, modify, and manipulate nanostructures and their interaction with their local environment. Lasers are powerful tools for the nonequilibrium synthesis of unique nanostructures by pulsed laser vaporization, deposition, and surface processing. Fundamental understanding of laser-based formation of nanostructures and laser interactions with nanostructures are of interest not only for the remote characterization of nanomaterials by optical spectroscopy, but for remote manipulation and control over their size, shape, orientation, and alignment. Understanding the dynamics of laser processing at nanoscale dimensions is essential to explore new laser welding, cutting, doping, alloying and intermixing methods for nanomaterials. This symposium crosscuts nanoscience research in materials science, chemistry, biology, physics, and engineering to explore new laser-based techniques for synthesis, characterization, manipulation, and control of nanostructures.

Papers are solicited on the following topics:

- laser-based synthesis of 0D and 1D nanostructures such as nanocrystals, nanoparticles, quantum dots, nanohorns, nanowires, nanotubes, etc., and artificial 2D heterostructures, ranging from inorganic elemental materials such as C, Si, Ag to multi-element (semiconductor) materials, polymers and composites
- laser-nanomaterial interactions - fundamental science (e.g. probing melting at the nanoscale)
- laser-based surface modification and size manipulation of individual nanostructures (i.e. shaping, cutting, melting/recrystallization, doping, welding)
- laser-processing to create nanostructured surfaces, including sub-λ ablation, machining, LIPSS
- laser-control of optical, electrical and magnetic properties of nanostructures and their devices by impurity doping, impurity-free processing and bandgap engineering
- laser-tuning of quantum dot emission wavelength
- laser-based methods for biomolecule detection using nanoparticles and nanowires
- laser photo-control of physical and chemical properties of nanostructures for catalysis, photovoltaics, photonics
- laser characterization of nanostructures, including electronic excitations and vibrational dynamics by photoluminescence, Raman scattering, transient ultrafast absorption, and nonlinear spectroscopic techniques
- femtosecond laser interactions/advantages in nanoscale laser processing.

Abstract Due Date: 13 July 2009
Manuscript Due Date: 21 December 2009

Submission of Abstracts for SPIE LASE: Lasers and Applications in Science and Engineering

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- Please also submit a 100-word abstract suitable for early release. If accepted, this abstract text will be published prior to the meeting in online or printed programs promoting the conference.
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2. Prepare to submit:

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