Nanotech Science using Laser-Solid Interactions (LA13)

Part of SPIE's International Symposium on High-Power Lasers
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Conference Chairs: **Kouichi Murakami,** Univ. of Tsukuba (Japan); **David B. Geohegan,** Oak Ridge National Lab.; **Frank Träger,** Univ. Kassel (Germany)

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It is thought that well-controlled nanostructures can be synthesized and manipulated by lasers, (eg. pulsed laser ablation), to possess novel functional properties by impurity doping and surface modification. Such modifications may be useful for detecting selectively special biomolecules by photoluminescence, surface-enhanced-resonant-Raman-scattering, etc. For the future nano-devices, physical and chemical properties of nanostructures should be also controlled through changing states of functional impurities and surfaces by laser light without heating. Thus, laser-solid interactions will develop new fields of nanotechnology and nanoscience. For example, laser ablation has been recognized to be a powerful technique for synthesis of nanostructured materials such as Fullerenes, C-nanotube, Si-nanoparticles, and Si-nanowires. Furthermore, laser irradiation techniques have shown feasibility that the surface of nanostructures can be manipulated or modified, and nanostructures can be doped with various kinds of impurities to possess new properties. This special meeting will be of interest to researchers in nanotechechnology science. We hope to bring together researchers from the wide fields of materials science, optics, physics, chemistry, biology, electrical engineering, etc.

Papers are solicited on, but not limited to, the following topics:

- synthesis of 0-D and 1-D nanostructures such as nanocrystallites, nanoparticles, nanowires, nanotubes, etc. ranging from elemental materials such as C, Si, Ag to multi-element materials, using laser-solid interactions
- surface modification and size-manipulating (shaping, tailoring) of nanostructures by laser radiation technique
- controlling optical, electrical and magnetic properties by impurity-doping such as Er (f- electron systems), donors, acceptors, metal-elements, etc. in nanostructures by using laser
- biomolecule detection using nanoparticles and nanowires by laser methods
- laser photo-control of physical and chemical properties of nanostructures
- electronic excitation effects of atom and molecule manipulation
- laser ablation and laser processing of materials for nanotech. science
- femtosecond laser application to nano-processing and nanostructures

Abstract Due Date: 25 June 2001
Manuscript Due Date: 17 December 2001
Final Summary Due Date: 19 November 2001

Submission of Abstracts for High-Power Lasers symposium

Abstract Due Date: **25 June 2001** Manuscript Due Date: **17 December 2001**
Final Summary Due Date: **19 November 2001**

Submissions imply the intent of at least one author to register, attend the symposium, and present the paper (either orally or in poster format).

Your abstract must include all of the following:

1. **SUBMIT TO:** LA13, MURAKAMI/GEOHEGAN/TRAEGER
2. **SUBMIT EACH ABSTRACT TO ONE CONFERENCE ONLY** Nanotech Science using Laser-Solid Interactions (LA13)
3. **ABSTRACT TITLE**
4. **AUTHOR LISTING** (principal author first)
   For all authors: First (given) name (initials not acceptable), Last (family) name, Affiliation, Mailing address, Telephone, Fax, and Email address.
5. **PRESENTATION**
   Indicate your preference for "Oral Presentation" or "Poster Presentation." Final placement is subject to chairs' discretion.
6. **ABSTRACT TEXT**
   Approximately 250 words.
7. **KEYWORDS**
   List a maximum of five keywords.
8. **BRIEF BIOGRAPHY** (principal/presenting author)

Conditions of Acceptance

- **Authors are expected to secure registration fees and travel and accommodation funding, independent of SPIE, through their sponsoring organizations before submitting abstracts.**
- Only original material should be submitted.
- Commercial papers, descriptions of papers with no research/development content, and papers where supporting data or a technical description cannot be given for proprietary reasons will not be accepted for presentation in this symposium.
- Abstracts should contain enough detail to clearly convey the approach and the results of the research.
- Government and company clearance to present and publish should be final at the time of submittal.
- Applicants will be notified of acceptance by mail no later than 29 October 2001**.** Early notification of acceptance will be placed on the SPIE Web site the week of 24 September 2001 at www.spie.org/info/pw/

Paper Review

To ensure a high-quality conference, all abstracts and *Proceedings of SPIE* papers will be reviewed by the Conference Chairs for technical merit and content.

Instructions for Submitting Abstracts

All authors are STRONGLY ENCOURAGED to submit their abstracts by the due date using the Web form located at URL:

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Using this method of submission ensures that your abstract will be immediately accessible to the conference chair for review. Using other methods of submission (listed below) will delay the processing of your abstract.

- or E-MAIL each abstract separately to: abstracts@spie.org in ASCII text (not encoded) format. IMPORTANT: to ensure receipt and proper processing of your abstract, the Subject line must include only the following:
  SUBJECT: **LA13, MURAKAMI/GEOHEGAN/TRAEGER**
- or MAIL your abstract to:
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Oral or Poster Presentation

Instructions for Oral and Poster presentations will be included in your author kit. All Oral and Poster presentations are included in the *Proceedings of SPIE* and require a manuscript.

Proceedings of SPIE

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