

Optical Micro- and Nanometrology in Manufacturing Technology (EPE109)

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Conference Chairs: **Christophe Gorecki**, Univ. de Franche-Comté (France); **Anand K. Asundi**, Nanyang Technological Univ. (Singapore)

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Microsystems is a rapidly growing technology of strategic importance and in immediate need of new measurement techniques operating during the chip-production and for lifetime cycle prediction. The trend towards miniaturization in manufacturing technologies now allows fabrication of nanosized samples with nanoscale precision and features. For product development and commercialization of these micro and nano-technologies, access and availability of relevant metrological tools that have the ability to measure in three dimensions with atomic scale resolution over large areas are essential. Optical sensing methodologies are well positioned to meet these objectives. New optical inspection techniques are emerging as tools in several areas of semiconductor manufacturing where photons are the ideal probe for materials and devices measurements with high resolution. Optical probes are non-destructive, non-contact diagnostics and particularly appropriate for probing materials destined for use in optoelectronic and photonic devices, where the interaction of light with the material provides the basis for device operation. This conference will focus on the application of optical and related measuring techniques in nano- and micro-measurements, with special emphasis in microelectronics, micro and nano mechanics and structures.

Topics will include, but not limited to:

- interferometry, holography, speckle, moiré and grating imaging,
- microscopy, AFM, SEM and confocal systems for measurement,
- near field scanning microscopy,

- nanometric probes and nano-lithography,
- fiber optic sensors and waveguide devices,
- biomedical and chemical sensors
- diode laser applications,
- laser Doppler and micro PIV
- electro-optic techniques,
- polarimetry,
- optical phase conjugation.

With applications in:

- shape, contour, diameter, angle and length,
- temperature, pressure, refractive index and magnetic fields,
- local analysis of material properties and defects
- contact problems,
- failure modes,
- reliability and long term stability,
- life cycle predictability of materials
- deformation, displacement, vibration, stress, strain, fracture and fatigue, shock waves analysis,
- fluid mechanics,
- micro- and nano topographic inspection,
- nano-scale measurements and thin films characterization,
- near field optics, fluorescence, local spectroscopy,
- smart material characterization,
- evaluation of microstructures and MEMS,
- packaging and integration or/and interface to macro world
- and others.

Abstract Due Date: 6 October 2003
Manuscript Due Date: 29 March 2004

Submission of Abstracts for *Photonics Europe Symposium*

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IMPORTANT!

Submissions imply the intent of at least one author to register, attend the symposium, present the paper (either orally or in poster format), and submit a full-length manuscript for publication in the conference Proceedings.

All authors (including invited or solicited speakers), program committee members, and session chairs are responsible for registering and paying the reduced author, session chair, program committee registration fee. (Current SPIE Members receive a discount on the registration fee.)

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IMPORTANT! To ensure proper processing of your abstract, the SUBJECT line must include only:

SUBJECT: EPE109, GORECKI, ASUNDI

Your abstract submission must include all of the following:

1. **PAPER TITLE**
2. **AUTHORS** (principal author first) For each author: First (given) name (initials not acceptable), Last (family) name, Affiliation, Mailing address, Telephone, Fax, and Email address.
3. **PRESENTATION PREFERENCE** "Oral Presentation" or "Poster Presentation."
4. **PRINCIPAL AUTHOR'S BIOGRAPHY** Approximately 50 words.
5. **ABSTRACT TEXT** Approximately 250 words.
6. **KEYWORDS** Maximum of five keywords.

Conditions of Acceptance

- Authors are expected to secure funding for registration fees, travel, and accommodations, independent of SPIE, through their sponsoring organizations before submitting abstracts.
- Only original material should be submitted.
- Commercial papers, papers with no new 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.
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- Final placement in an oral or poster session is subject to the Chairs' discretion. 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 presentation at the meeting and submission of a manuscript.

Proceedings of SPIE

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