

## MRS Symposium DD: Microelectromechanical Systems—Materials and Devices

Microelectromechanical Systems (MEMS) represent the integration of miniaturized mechanical, chemical, fluidic, and optical devices with microelectronics. Recently, this field has also seen the integration of nanoscaled devices with MEMS. MEMS have a broad range of applications in optical- and radio-frequency communications, physical/chemical/biosensing, display technology, drug delivery, and the manipulation and isolation of cells.

Accompanying this rapid growth of applications is a corresponding diversification in the range of materials used in MEMS. It is now common to find examples of nanomaterials, ceramics, metals and alloys, polymers and elastomers, and composite materials. There is great interest in incorporating multifunctional nanomaterials (carbon nanotubes, and nanocrystalline ceramics and metals), smart materials (piezoelectric and ferroelectric materials, shape memory alloys, and specialized coatings), and biomaterials (polymers, titanium alloys, and zirconia) within MEMS devices.

This symposium will provide a common forum for materials researchers and device engineers to explore themes of common interest across these classes of materials, devices, and applications. Topics include: novel approaches to MEMS fabrication; novel device concepts; materials selection in design, testing and characterization; process integration; and scale-dependent process-structure-property relationships.

Abstracts are solicited in the following areas:

### MEMS Materials

- RF-MEMS and optical MEMS
- Metrology, tribology, materials characterization, and mechanical behavior
- Surfaces, surface modifications, and interfaces
- Reliability, packaging, and life assessment
- Modeling and software tools for materials integration
- Biocompatibility of MEMS materials and devices
- New materials and fabrication methodologies (including integration of nanostructured, nanocomposite, and biomimic materials with MEMS)

### MEMS Devices

- Microfluidics and nanofluidics
- *In vivo* drug/gene/protein delivery
- Novel Actuators
- Cell-based systems
- Neural interfaces
- Sensors
- Microengines and microfuel cells

A tutorial complementing this symposium is tentatively planned. Further information will be included in the program that will be available in September.

**Invited speakers** include: **Joerg Bagdahn** (Fraunhofer IWN-Halle, Germany), **Ioannis Chasiotis** (Univ. of Illinois, Urbana-Champaign), **Maarten de Boer** (Sandia National Labs), **Ingrid de Wolf** (IMEC, Belgium), **Hal Kahn** (Case Western Reserve Univ.), **Scott Manalis** (Massachusetts Inst. of Technology), **William Sharpe Jr.** (Johns Hopkins Univ.), **Joost Vlassak** (Harvard Univ.), and **Brian Wardle** (Massachusetts Inst. of Technology).

## Symposium Organizers

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For additional meeting information, visit the MRS Web site at [www.mrs.org/meetings/](http://www.mrs.org/meetings/) or contact:

