

# CALL FOR PAPERS

## SEM XI International Congress & Exposition on Experimental and Applied Mechanics

*Experimental Mechanics Applied to Damage: Detection, Analysis and Mitigation*

Rosen Plaza Hotel  
Orlando, Florida USA

Conference Date:

June 2 - 5, 2008

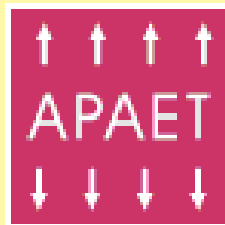
Abstracts Due:

October 16, 2007

### SEM XI International Congress Cosponsors:



BRITISH SOCIETY FOR  
STRAIN MEASUREMENT



### SEM XI International Congress Symposia and Tracks:

9<sup>th</sup> International Symposium on MEMS and Nanotechnology (ISMAN)  
International Symposium of Electronics/MEMS Packaging and Reliability  
International Symposium on Optical Metrology in Industrial, Medical, and  
Daily Life Applications  
Dynamic Behavior of Materials  
Experimental and Applied Mechanics



Organized by the  
**Society for Experimental Mechanics, Inc.**  
7 School Street, Bethel, Connecticut 06801 USA  
(203) 790-6373 • Fax (203) 790-4472 • sem.org

## Optical Metrology 2008 - International Symposium on Optical Metrology in Industrial, Medical, and Daily Life Applications



Sponsored by the Optical Methods Technical Division

Organized by: Jaime Cárdenas-García, The University of Texas at Brownsville; Cosme Furlong, Worcester Polytechnic Institute; Yu-Lung Lo, National Cheng Kung University; Ramon Rodriguez-Vera, Centro de Investigaciones en Optica

Recent advances in imaging and computing systems, laser instrumentation, data acquisition and processing, and MEMS and Nanotechnologies are enabling the development of advanced optical metrology tools with unprecedented capabilities and a wide range of applications.

To provide a forum to discuss recent advances in optical metrology as it relates to industrial, medical, and daily life applications, the Optical Methods Technical Division of the Society for Experimental Mechanics (SEM) is pleased to organize *Optical Metrology 2008*. The aim of this Symposium is to bring practitioners and researchers from multiple disciplines to present their work in, but not limited to, the following areas:

- Fundamental Optical Metrology
- Novel Measuring Methods and Techniques
- 3D Quality Inspection and Metrology
- Intelligent Measuring Devices
- Shape and Deformation Measurements
- Interferometric and Diffractive Methods
- Metrology for Precision Measurements
- Innovative Photonic Components and Techniques
- Dimensional Measurements in Production
- Quality Management
- Fiber Optics Sensors
- Photonics Measurements in Medicine and Biology
- Measurements of Geometrical Quantities (Industrial Application of Geometrical Measurements)
- Optical and Laser Applications in Everyday Life
- Thin-film Metrology
- Trends and Future Directions in Optical Metrology
- MEMS and Nanotechnology for Optical Metrology
- Optical Methods for MEMS and Nanotechnology

We are grateful to the following individuals for their additional organizational contributions: C. Sciammarella, R.J. Pryputniewicz, W. Osten, W. Juptner, R. Burguete, H. Morimoto, C. Papalettere, J. Gilbert, M. Sutton, M. Takeda, R. Tatam, K. Mohan, P. Rastogi, A. Asundi, K. Gastinger, J. Schmit, E. Novak

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## International Symposium of Electronics/MEMS Packaging and Reliability

Sponsored by the Electronic Packaging and MEMS and Nanotechnology Technical Divisions

Organized by: Seungbae Park, State University of New York at Binghamton; Pradeep Lall, Auburn University

Due to the rapid evolution of semiconductor and MEMS technology and the ever-increasing pressure to reduce costs and development cycle time, the role of mechanical analysis has been changed from a problem-solving (passive) mode to a predictive (active) mode, where the mechanical analysis is performed for design/performance optimization and reliability prediction of a new technology product at its conceptual stage of development. The dependency of product development on the mechanical analysis has fostered increasing activity in experimental analysis both for specific studies and/or guidance of numerical modeling. Papers will be sought in the following areas:

- Mechanical Issues: Stress/Strain Analysis, Shock/Vibration, Delamination
- Thermal Issues: Thermal Management Issues, Thermal Interface Materials
- Multi-physics Issues: Humidity, Electro/Thermomigration
- Material Issues: Polymers, Ceramics, Pb-free Solders
- Advanced Packaging Issues: 3D Packaging (PoP, Stacked Die Package, etc), MEMS Packaging

## 9<sup>th</sup> International Symposium on MEMS and Nanotechnology (ISMAN)

Sponsored by the MEMS and Nanotechnology Technical Division

Organized by: Cosme Furlong, Worcester Polytechnic Institute; Gordon A. Shaw, National Institute of Standards and Technology; Ryszard J. Pryputniewicz, Worcester Polytechnic Institute

Microelectromechanical systems (MEMS) and Nanotechnology are revolutionary enabling technologies. These technologies merge the functions of sensing, actuation, and controls with computation and communication to affect the way people and machines interact with the physical world. This is done by integrating advances in various multidisciplinary fields to produce very small devices that use very low power and operate in many different environments. Today, developments in MEMS and Nanotechnology are being made at an unprecedented rate, driven by both technology and user requirements. These developments depend on micromechanical and nanomechanical analyses, and characterization of structures comprising nanophase materials.

To provide a forum for an up-to-date account of the advances in the fields of MEMS and Nanotechnology and to promote an alliance of governmental, industrial, and academic practitioners, SEM initiated a *Symposium Series on MEMS and Nanotechnology*. The 2008 Symposium will be the ninth in the series and will address pertinent issues relating to design, analysis, fabrication, testing, optimization, reliability, and applications of MEMS and Nanotechnology, especially as these issues relate to experimental mechanics of the microscale and nanoscale structures. Papers are sought in the following and related areas:

- Bio MEMS
- Composite MEMS
- Computational Methods
- Deformation and Damage at the Nanoscale
- Design, Analysis, and Fabrication Methods
- Education in MEMS and Nanotechnology
- Fatigue and Fracture in MEMS and NEMS
- Influence of Design and Fabrication Methods on Reliability and Durability of MEMS and NEMS
- Integration of MEMS and Nanotechnology Into Systems
- MEMS and NEMS for Extreme Environments and Homeland Security
- MEMS Applications in Telecommunications and Wireless Systems: Health Monitoring of Structures
- MEMS in Flight and Aerospace Applications
- MEMS Packaging
- Metrology, Including Full-field and Local Testing and Characterization Based on Electrical, Mechanical, Optical, and Other Methods
- Microfluidics, Biofluidics, and Lab-on-a-chip
- Micromechanics and Nanomechanics
- Micromechanics and Nanomechanics of High-density Data Storage Technologies (i.e., Millipede System)
- Nanoscale Strain and Stress Measurements
- Novel Applications of MEMS and NEMS
- Novel Materials, Their Characterization, and Applications
- Optical MEMS
- RF MEMS
- Scaling Effects
- Sensors: Temperature, Pressure, Humidity Flow, Motion, etc.
- Standardization

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## Track I: Dynamic Behavior of Materials

Sponsored by the SEM Dynamic Behavior of Materials Technical Division

Organized by: Danny J. Frew, Sandia National Laboratories; Vijaya Chalivendra, University of Massachusetts, Dartmouth

A growing number of military, industry, and academic engineering problems are addressing, in one form or another, the response of materials that have been subjected to dynamic loadings. SEM continues to support this growing research area and is sponsoring this track to provide a forum for the open exchange of information among researchers. Contributions in the following general areas are sought:

- Composite Materials
- Fracture and Fatigue
- MEMS/NEMS
- Time Dependent Materials
- Model Validation/ Verification
- Novel Testing Techniques
- Low Impedance Materials
- Metallic Materials
- Response of Brittle Materials
- Shock and High Pressure Response
- Dynamic Materials Response

## Track 2: Experimental and Applied Mechanics

Organized by: Kristin B. Zimmerman, General Motors Public Policy Center; Emmanuel E. Gdoutos, Democritus University of Thrace; Eann A. Patterson, Michigan State University

*Experimental and Applied Mechanics* covers the wide variety of subjects that are related to the broad field of experimental or applied mechanics. Both research and application papers are requested. Papers will be organized into sessions based on a specific discipline.

- Acoustoelasticity
- Applications
- Applied Photoelasticity
- Biological Systems and Materials
- Civil Structures Testing
- Composite Materials
- Dynamic Behavior of Materials
- Education
- Electronic Packaging
- Experimental Fluid Mechanics
- Fiber Optic Sensors
- Fracture and Fatigue
- Hybrid Techniques
- Inverse Problems
- MEMS and Nanotechnology
- Modal Analysis/Dynamic Systems
- Model Validation
- Numerical and Finite Element Solutions
- Optical Methods
- Research in Progress
- Residual Stresses
- Smart Structures
- Strain Gages
- Structural Testing
- Thermal Methods
- Time Dependent Materials
- Sensors and Instrumentation
- Uncertainty Quantification
- Wood and Wood Based Composites

*Please be sure to check the other tracks and symposia to best allocate your abstract.*

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## SEM Annual Student Paper Competition

The SEM Annual Student Paper Competition will be held at the XI International Congress. More information will be made available at [sem.org](http://sem.org), or contact SEM at 203-790-6373, [sem@sem1.com](mailto:sem@sem1.com).

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## Electronic Submissions

SEM will only accept electronic submissions for the 2008 SEM XI International Congress. Details about submitting abstracts and the electronic submission form are on the SEM website:

**[sem.org](http://sem.org)**

All abstracts will be received electronically. No copies are required for electronic submission. Do not fax. Do not send duplicate submissions. Authors will receive an automatic reply indicating their abstract was received. Accepted papers will also be received electronically, per guidelines on the SEM website, and only a CD-ROM Proceedings will be available for the XI Congress.

Please submit a short abstract of the paper (not more than 200 words) electronically by October 16, 2007. Do not include photos or equations in your abstract. Abstract submissions for the MEMS Symposium must include 5 keywords.

If the abstract is accepted, authors will be notified by December 10, 2007. The author will be required to submit the finished paper electronically by March 17, 2008.

Please Note: Once you have successfully submitted your abstract, a confirmation message will appear on the screen. This is the only confirmation that you will receive. If you have questions or concerns about abstract submittal, please contact SEM at 203-790-6373 or [abstract@sem1.com](mailto:abstract@sem1.com).

Authors will be notified, via email, whether the abstract has been accepted or not by December 10, 2007. Accepted authors will be required to submit the finished paper electronically by March 17, 2008. NOTE: If you have not received notification regarding your abstract by January 3, 2008 please contact Kathy Ramsay or Shari Matthews at 203-790-6373, or [abstract@sem1.com](mailto:abstract@sem1.com).

Presentation slots in the final program are guaranteed **only** for authors who submit a written paper by March 17, 2008.

Keep checking the SEM web site for more details: [sem.org](http://sem.org)

## 2008 SEM Exposition

A comprehensive Exposition of testing and analysis equipment will be a highlight of the 2008 SEM XI International Congress. Please contact Joni Normandin to reserve your booth today, (860) 484-4387, joninormandin007@aol.com.

Following is a list of Exhibitors from the 2007 SEM Annual Exposition held in Springfield, Massachusetts, June 4-6, 2007:

- Blackwell Publishing
- Bose Corporation – ElectroForce Systems Group
- CSM Instruments
- Cambridge University Press
- Capacitec, Inc.
- Correlated Solutions, Inc.
- DRS Data & Imaging Systems, Inc.
- HPI – Hitec Products, Inc.
- HITEC Corporation
- Karl Stetson Associates, LLC
- MTS Nano Instruments
- PCB Piezotronics, Inc.
- Photo-Sonics, Inc./IMC
- Photron USA, Inc.
- SPIE
- Springer
- Stress Photonics Inc.
- Tekscan, Inc.
- Texas Measurements, Inc.
- Trillion Quality Systems
- Vishay Micro-Measurements

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## Important Dates

<b>October 16, 2007</b>	Abstracts due to SEM
<b>December 10, 2007</b>	Authors notified of acceptance/rejection
<b>March 17, 2008</b>	Accepted authors are required to submit a complete paper to SEM
<b>June 2-5, 2008</b>	<b>2008 SEM XI International Congress &amp; Exposition on Experimental and Applied Mechanics</b>

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## Location

### Rosen Plaza Hotel

9700 International Drive, Orlando, FL 32819 USA  
Reservations - Direct Phone 407-996-1703  
Hotel - Main Phone 407-996-9700  
Fax 407-996-9119  
Toll Free (US/Canada) 1-800-627-8258



**HOTEL RESERVATION DEADLINE: May 9, 2008**

### Hotel Rates:

\$145 per night for Single/Double, \$165 per night for Triple, \$185 per night for Quad, plus applicable taxes.  
Government Rate available upon request with ID shown upon arrival.

The Rosen Plaza Hotel is located just 15 minutes from the Orlando International Airport. Mears Transportation Group offers full-service ground transportation for approximately \$30 round trip. Shuttle service is available to all area hotels and attractions from baggage claim level of Orlando International Airport.

**Please Note:** There are two Rosen Hotels on International Drive. The SEM XI Congress is being held at The ROSEN PLAZA HOTEL - next to the West Concourse of the Orange County Convention Center.

**Important Notice:** You must tell the hotel you are with the SEM XI International Congress when you register.  
If you do not do so, your rate may be significantly higher.