

## IMPORTANT DATES

**October 12, 2021**

Abstracts due to SEM

**End of December 2021**

Authors notified, via e-mail, of acceptance/rejection

**February 22, 2022**

Final papers due

## WANT TO PARTICIPATE IN THE MICHAEL SUTTON INTERNATIONAL STUDENT PAPER COMPETITION?

Watch our [website](#) for details.

## LOCATION INFORMATION

Direct links to the SEM reservation block will be made available on our [website](#) by March 2022.

### Omni William Penn Pittsburgh

530 William Penn Place

Pittsburgh, PA 15219

(412) 281-7100

[www.omnihotels.com/hotels/pittsburgh-william-penn](http://www.omnihotels.com/hotels/pittsburgh-william-penn)

## COVID-19

2022 SEM Annual Conference is being planned as an in-person event at the Omni William Penn Pittsburgh located in Pittsburgh, PA. Your safety and wellness are our number one priority. SEM will work diligently to follow all CDC guidance and all state and local health mandates. Details and updates can be found at [sem.org/annual](http://sem.org/annual).

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# 2022 SEM ANNUAL CONFERENCE

**2022 SEM ANNUAL CONFERENCE  
AND EXPOSITION ON EXPERIMENTAL  
AND APPLIED MECHANICS**

JUNE 13–16, 2022 | PITTSBURGH, PA USA

# CALL FOR PAPERS

# TRACKS

**The SEM Annual Conference and Exposition** focuses on all areas of research and applications pertaining to experimental mechanics, and has evolved to encompass the latest technologies supporting optical methods; additive & advanced manufacturing; dynamic behavior of materials; biological systems; micro- and nano mechanics; fatigue and fracture; composite and multifunctional materials; residual stress; inverse problem methodologies; thermomechanics; and time dependent materials.

This broad focus on experimental mechanics includes topics in digital image and digital volume correlation techniques, speed impacts to shock and blast, durability and extreme environmental effects, model/experiment integration, materials for advanced manufacturing, damage detection and non destructive testing, tools spanning various length scales and new experimental techniques and methods to address real-life applications, research and collaborative efforts across all disciplines complementing experimental mechanics.

## **12TH INTERNATIONAL SYMPOSIUM ON THE MECHANICS OF BIOLOGICAL SYSTEMS & MATERIALS**

- Orthopedic and Disease Biomechanics
- Cellular Biomechanics and Mechanobiology
- Time Dependence of Biomaterials
- Experimental Techniques in Biological and Biomimetic Systems
- Additive Manufacturing and Bioprinting
- Optical Methods and Visualization in Biological Systems
- Mechanics of Microbes and Biofilms

## **23RD INTERNATIONAL SYMPOSIUM ON MICRO- AND NANOMECHANICS (ISMAN)**

- Mechanics of 1D and 2D Materials
- MEMS Devices for Actuation, Sensing, and Characterization
- Micro- and Nanoscale Deformation Mechanisms
- Nanotribology
- In-situ Nanomechanics
- Instrumentation and Nano-metrology
- Novel Materials, High-entropy Alloys

## **8TH INTERNATIONAL SYMPOSIUM ON THE MECHANICS OF COMPOSITE AND MULTIFUNCTIONAL MATERIALS**

- Multifunctional Composites
- Recycled Composites
- Damage Detection
- Reconfigurable Composites
- Fracture in Composites
- Mechanics of Composite Interfaces
- Sustainable Composites

## **ADDITIVE AND ADVANCED MANUFACTURING**

- Mechanics of Materials Made via Additive and Advanced Manufacturing (including Dynamic Behavior, Fracture and Fatigue, Residual Stresses, Microstructure)
- Novel Manufacturing Approaches for Additive and Advanced Manufacturing
- Design and Process Optimization of Additive and Advanced Manufacturing
- Novel Materials for Additive and Advanced Manufacturing (including Polymers, Composites, Biomaterials, Recycled Materials)

## **ADVANCEMENT OF OPTICAL METHODS IN EXPERIMENTAL MECHANICS**

- Innovative 3D/Volumetric Measurements
- Optical Method for Multi-Scale and Inverse Problems
- DIC—Method, Applications and its Challenges
- Photoelasticity and Interferometry Applications
- Machine Learning Method on Optical Analysis
- New Developments in Optical Methods and Fringe Analysis
- Optical Method for Bio-Medical Applications

## **DYNAMIC BEHAVIOR OF MATERIALS**

- Dynamic Response of Low-Impedance Materials
- Novel Experimental Techniques
- Dynamic Fracture & Fragmentation
- Quantitative Visualization of Dynamic Events
- Dynamic Behavior of Composites
- Dynamic Response of Advanced/Additively Manufactured Materials
- Dynamic Behavior and Modeling for Advanced Manufacturing

## **FRACTURE & FATIGUE**

- In-situ Techniques and Microscale Effects on Mechanical Behavior
- Fatigue and Fracture Under Extreme Environments
- Damage Initiation Mechanisms and the Influence of Incipient Damage
- Fracture and Fatigue in Additive Manufacturing
- Damage and Fracture of Highly Deformable Solids
- Interfacial and Mixed-Mode Fracture, Fracture and Fatigue in Brittle Materials
- Advances in Mechanics of Deformation, Plasticity, and Failure

## **INVERSE PROBLEM METHODOLOGIES**

- Identification of Heterogeneous Materials
- Plasticity, Viscoelasticity and Other Nonlinear Materials
- Machine Learning
- Test Design for Optimal Results
- Dynamic Behavior

## **RESIDUAL STRESS**

- Measurement Techniques
- Applications & Validations
- Modeling
- Effects on Integrity and Distortion
- Special Joint Session: RS in Additive Manufacturing

- In Celebration of Gary Schajer's Election to SEM Fellow: Inverse Methods and Relaxation Methods
- In Honor of Drew Nelson Becoming Emeritus: Advances in Residual Stress Technology

## **THERMOMECHANICS AND INFRARED IMAGING**

- Thermography-Based NDE: Recent Advances and New Applications
- Thermal Methods for the Structural Integrity Assessment and Mechanical Characterisation of AM Materials
- Advances in Image and Data Processing for Quantification
- Fatigue Characterisation by Using Thermography: A New Challenge
- Energy-Based Methods for Fracture Mechanics

## **TIME-DEPENDENT MATERIALS**

- Damage, Durability, Fatigue, and Fracture
- Materials in Extreme Environments
- Viscoelasticity and Viscoplasticity
- Data-Driven and High-Throughput Methods in Material Characterization
- Performance and Degradation in Glassy Polymers
- Structure/Function/Performance Relationships
- Constitutive Modeling of Materials and Composites

## **IN ADDITION TO THE TRACKS LISTED ABOVE, WE ALSO WELCOME ABSTRACTS RELATING TO THE FOLLOWING:**

- Applications
- Education
- Research
- Data Science-Machine Learning (Research)

## **SUBMISSION**

All abstracts must be submitted electronically via the following abstract submission link: [sem.org/annual](http://sem.org/annual)

Acceptance of a paper is based on the requirement of the author to present the accepted paper at the Conference. Accepted authors will be required to submit per the Track/Topic/Symposium Policy i.e. a full manuscript, extended abstract (must be 2-3 pages, no word limit) presentation materials or oral presentation. Note to all submitting authors: Publication of your Proceedings paper (if submitted) requires that you sign the SEM copyright form found at [sem.org](http://sem.org). The SEM copyright language grants the author the non-exclusive right to use all or part of the work submitted in any book or article written by the author; provided, that the copyright notice which appears on the journal or proceedings in which the work is first published, and a full citation of the publication is affixed to copies of such book or article so as to give reasonable notice of such copyright. Self plagiarism is not allowed. However, publication in an SEM journal of continuing work covering the same topic as published in the SEM Proceedings is highly encouraged. Submit your abstract now!

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