



**Abstract Deadline: June 24, 2008**  
[www.mrs.org/fall2008](http://www.mrs.org/fall2008)

**REMINDER:**  
In fairness to all potential authors,  
late abstracts will not be accepted.

**CALL FOR PAPERS**

## MRS Symposium Z: Mechanics of Biological and Biomedical Materials

Biological materials exhibit very unique mechanical properties resulting often from their complex hierarchical structure that spans the nanometer- to mm-length scales. The understanding of the mechanics of such systems requires unique experimental, theoretical, and computational formulations. The unique mechanical properties of biological materials are often attributed to the nanostructural details and hierarchy exhibited by such material systems. Understanding mechanics of these systems is important for both designing replacement materials for medical applications as well as materials design for new structural materials that mimic biological design. It is imperative that fundamental understanding and realistic prediction methodologies of mechanical responses in these systems exist. This requires collaboration between many disciplines of engineering and science.

The focus of this symposium is to bring together researchers from many areas of mechanics and materials dealing with micromechanics, continuum methods, numerical methods, and experiments that investigate mechanical response in biological and bio-replacement systems at micro- and nanolength scale. In addition, the role of mechanics at the cellular and tissue level, and its medical implications, will be discussed. Interactions between experimental and computational aspects are especially significant in biological systems due to complexity and hierarchy of structure due to the scientific and computational challenges encountered in modeling biological systems.

### Contributed papers and posters are solicited in the following areas:

- Multiscale modeling for bridging length scales for modeling mechanical behavior in biological materials
- Modeling and simulation of mechanical properties in biological materials
- Experimental routes to characterization of mechanical response from nano- to macroscale for biological materials
- Mechanics at tissue and cellular level
- Mechanics of bioreplacement systems and influence of degradation characteristics of human body on mechanics of these materials
- Cellular and tissue mechanics and their roles on disease
- Mechanics of biomimetic material systems

### Invited speakers include:

**Yves Bréchet** (Inst. National Polytechnique-Grenoble, France), **Lars Berglund** (KTH, Sweden), **Peter Cloetens** (European Synchrotron Radiation Facility-Grenoble, France), **Vikram S. Deshpande** (Univ. of California-Santa Barbara), **Virginia L. Ferguson** (Univ. of Colorado-Boulder), **Lorna J. Gibson** (Massachusetts Inst. of Technology), **Sungho Jin** (Univ. of California-San Diego), **Michele Marcolongo** (Drexel Univ.), **Christine Ortiz** (Massachusetts Inst. of Technology), **Oskar Paris** (Max-Planck-Inst. of Colloids and Interfaces-Potsdam, German), **Robert O. Ritchie** (Univ. of California-Berkeley), **Eduardo Saiz** (Lawrence Berkeley National Lab), **Mehmet Sarikaya** (Univ. of Washington), **Donglu Shi** (Univ. of Cincinnati), **Joachim Spatz** (Univ. of Heidelberg and MPI for Metal Research, Germany), **Osamu Takai** (Nagoya Univ., Japan), **Simone Vesentini** (Politecnico di Milano, Italy), **Julian F. V. Vincent** (University of Bath, United Kingdom), and **Jonathan Wilker** (Purdue Univ.).

## Symposium Organizers

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