2003 MRS FALL MEETING

December 1-5 • Boston, MA

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MRS Symposium Q: Mechanical Properties of Nanostructured Materials and Nanocomposites

Nanostructured materials and nanocomposites exhibiting unique functional and structural properties have the potential to have a revolutionary impact on technological progress in the 21st century. Of exciting interest, from both fundamental and applied viewpoints, is the outstanding deformation behavior of nanostructured materials and nanocomposites. In the past decade, tremendous investments in time, energy, and resources have been made to learn, control, and design materials at the nanoscale level for highly desired mechanical properties in metals, alloys, polymers, ceramics, and their composite systems, using advanced technologies of their synthesis, processing, and characterization. The main aim of this symposium is to provide a critical, up-to-date review and discussion on science and technology of nanomaterials and nanocomposites, with focuses placed on a fundamental understanding of the relationships between their fabrication, structure, strength, and ductility. We aim to create a forum for researchers involved in nanoscience and nanoengineering of bulk and composite materials, thick coatings, and thin films for structural applications, to share views and develop new ideas and concepts. Particular emphasis is placed on developing close interactions among scientists and engineers and fostering future transdisciplinary and multi-institutional cooperation in this new and rapidly growing area.

Specific topics of interest include, but are not limited to:

- Fabrication and processing of nanostructured materials and nanocomposites
- Theory and modeling of nanostructures
- Nanostructured and nanocomposite materials characterization
- Stress analysis of nanostructured coatings
- Plastic deformation of nanostructured materials
- Fracture of nanostructured materials
- Fatigue properties of nanostructured materials and nanocomposites
- Deformation-induced phase transformations in nanostructures
- Structure and mechanical properties of nanocomposites: polymer with dispersed ceramic or metal nanoparticles, ceramic/ceramic or metal/ceramic systems
- Structural materials from immiscible polymer blends
- Innovative structural applications of nanomaterials and nanocomposites
- Design of nanomaterials and nanocomposites for structural applications

The symposium will consist of both invited and contributed talks and poster sessions.

Invited speakers include: **L. Ajdelsztajn** (Univ. of California-Davis), **C. Bampton** (Boeing), **J.Th. M. De Hosson** (Univ. of Gröningen, The Netherlands), **R. Dowding** (Army Research Lab), **P. Green** (Univ. of Texas-Austin), **P. Hazzledine** (UES Inc.), **C.C. Koch** (North Carolina State Univ.), **A.K. Mukherjee** (Univ. of California-Davis), **S. Nutt** (Univ. of Southern California), **S. Seal** (Univ. of Central Florida), **S. Suresh** (Massachusetts Inst. of Technology), **T. Tsakalakos** (Rutgers Univ.), and **B. Yakobson** (Rice Univ., Houston).

Symposium Organizers

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The 2003 MRS Fall Meeting will serve as a key forum for discussion of interdisciplinary leading-edge materials research from around the world. Various meeting formats—oral, poster, round-table, forum and workshop sessions—are offered to maximize participation.

ABSTRACT DEADLINES:

June 5:
for abstracts sent via fax or mail

June 19:
for abstracts sent via the MRS Web site

For additional meeting information, visit the MRS Web site at

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