
Behavior and Mechanics of Multifunctional Materials XIII

This conference has an open **call for papers**:

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Abstract Due:
22 August 2018

Author Notification:
29 October 2018

Manuscript Due Date:
6 February 2019

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Call for Papers

Smart structures utilize active materials as sensors and actuators to sense and respond to their environment. These include piezoelectrics, electrostrictives, magnetostrictives, electroactive polymers (EAP), shape memory alloys (SMA), and ferromagnetic shape memory alloys (FSMAs). Development of smart structures involves the integration of active and passive material systems, often including the coupling of relevant mechanical, electrical, magnetic, thermal, optical, or other physical properties. This integration can subject the active materials to large stress levels, cyclic loads, thermal loads, or chemical effects that result in nonlinear responses and large variations in material properties. Meeting the materials needs of the smart structures community over the coming decade and beyond will require the development of new active materials, further characterization of new and existing active materials, and development of mathematical models of material behavior and material failure suitable for reliable structural design.

This conference will bring together researchers from the materials, mechanics, and applications of smart materials communities with common interests in material properties. Papers are solicited in the area of smart and multifunctional materials with emphasis on their behavior and mechanics.

Topics of interest are broadly grouped into the following categories:

- mechanics of smart and multifunctional materials
- modeling and simulation of smart and multifunctional materials
- constitutive behavior: composition/structure/property relations, coupled field behaviors, micromechanics models, multiscale models, molecular dynamics
- multifunctional materials development and characterization
- multifunctional composite materials and nano-structured composite materials
- bio-functional materials and structures
- shape memory alloys (SMAs) and porous SMAs
- shape memory polymers and ionic gels
- ferromagnetic shape memory alloys (FSMAs)
- single crystal and polycrystalline ferroelectrics and magnetostrictives
- ferroelectrics and electrostrictives
- magnetostrictives; galferol
- mechanics of metamaterials

- bioinspired materials and structures
 - additive manufacturing
 - thin-film active materials for structural applications (e.g. flow control)
 - reliability models: fracture toughness and fatigue of multifunctional and active materials.
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