SMASIS Conference Synopsis
Adaptive Structures and Materials Systems by definition are intelligent, flexible systems that have sentience and responsiveness to ever changing environments. The field has rapidly matured due to synergistic interdisciplinary efforts across sectors of universities, government and industry. To continue the high impact growth of this field and lead it into the future, the purpose of this conference is to assemble world experts across engineering and scientific disciplines (mechanical, aerospace, electrical, materials, and civil engineering, biology, physics chemistry, etc) to actively discuss the latest breakthroughs in smart materials, the cutting edge in adaptive structure applications and the recent advances in both new device technologies and basic engineering research exploration. The conference is divided into six symposia broadly ranging from basic research to applied technological design and development to industrial and governmental integrated system and application demonstrations.

Schedule
May 3, 2008: 1000 word extended abstracts due
June 6, 2008: Authors informed of abstract acceptance
June 20, 2008: Copyright form due
July 28, 2008: Final manuscript due
Manuscript will appear in an archival ASME Conference Proceedings. Selected papers will be published in archival Journals.

Participation
Authors should submit a 1000 word abstract to the conference web site www.asmeconferences.org/SMASIS08. Questions can be directed to the Conference General Chair / Co-Chair.

Conference General Chair:
Christopher S. Lynch
cslynch@seas.ucla.edu

Conference Technical Chair:
Diann Brei
dibrei@umich.edu

Call for Papers
NEW ASME Conference* on
SMART MATERIALS, ADAPTIVE STRUCTURES AND INTELLIGENT SYSTEMS
October 28-30, 2008 • Turf Valley Resort, Ellicott City, MD

Sponsored by the Adaptive Structures & Materials Systems Technical Committee, Aerospace Division,
Co-Sponsored by the Technical Committee on Vibration and Sound, Design, Division
Co-sponsored by the AIAA Technical Committee on Adaptive Structures

*This ASME conference will replace the annual ASME IMECE ASMS Symposium

STRUCTURAL HEALTH MONITORING / NDE SYMPOSIUM

Chair: Shiv Joshi (NextGen Aeronautics), sjoshi@nextgenaero.com
Co-Chair: Kara Peters (North Carolina State University), kjpeters@ncsu.edu

Organizing Committee:
Charles R. Farrar (Los Alamos National Laboratory), Sridhar Krishnaswamy (Northwestern), Victor Giurgiutiu (South Carolina), Ratan Jha (Clarkson), Aditi Chatopadhyay (Arizona State), Dr. Teng K. Ooi (U.S. Army), Aaron Corder (U.S. Army), Douglas Adams (Purdue), Jerome P. Lynch (Michigan)

Description: The potential applications of structural health monitoring systems and benefits of this emerging technology are well documented. It is known that for complex structural and material systems, the ability to diagnose and predict structural failures through embedded sensing, actuation and data management can reduce operating costs while increasing safety. The key commercialization drivers for the technology are life cycle cost, avoidance of catastrophic failure and inspection of hard to reach places. As of now, aerospace, ground and sea vehicles are driving the development of the technology. Alternatively, continuous or on-demand inspection of bridges, buildings, off-shore structures and oil drilling machinery are likely to be among the first non-aerospace applications. Remarkable research and development in the structural health monitoring field has been reported in aeronautical, automotive, and civil engineering. Even so the technology still needs further maturation for widespread use. Many system level hurdles remain and will be addressed in this symposium. The specific focus will be on algorithms, sensor networks, data management and experimental demonstrations of structural health monitoring or non-destructive evaluation of structural systems. Papers demonstrating industrial applications and implementations are also of interest. This conference will explore current state-of-the-art technologies that enable operation based inspection and repair. Technologies for a variety of aerospace, mechanical and civil applications will be presented.

Topical areas:
• Algorithms pertaining to data fusion, data mining and management of sensor network data
• Correlation and identification of failure mechanisms to sensor and sensor network data responses
• Strategies for and demonstrations of damage mitigation based on structural monitoring data
• Software and hardware implementation of structural health monitoring and non-destructive evaluation systems
• Strategies for fusing sensor data over multiple scales ranging from material level failures to structural system failures
• Sensors and actuators for structural health monitoring and non-destructive evaluation
• Model updating and validation using structural health monitoring data
• Sensor networking strategies
• Power harvesting and power management for structural health monitoring systems