SMASIS Conference Synopsis

Adaptive Structures and Materials Systems by definition are intelligent systems that have sentience and responsiveness to changing environments. The field has rapidly matured due to interdisciplinary efforts across universities, government, and industry. To continue the high impact growth of this field, 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 new device technologies and basic engineering research. The conference is divided into symposia broadly ranging from basic research to applied technological design and development to industrial and governmental integrated system and application demonstrations.

Schedule

March 18, 2019: 400 word abstract due
March 28, 2019: Authors informed of abstract acceptance
April 18, 2019: Full-length draft paper due
May 21, 2019: Authors informed of draft paper acceptance
June 17, 2019: Copyright form due
June 18, 2019: Final revised paper due

Full paper will appear in an archival ASME Conference Proceedings. Selected papers will be published in archival Journals.

Participation

Authors should submit a 400 word abstract to the conference web site
https://www.asme.org/events/smasis
Questions can be directed to:

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Executive Committee

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Call for Papers
ASME Conference on
SMART MATERIALS, ADAPTIVE STRUCTURES AND INTELLIGENT SYSTEMS

September 9 – 11, 2019
Louisville, KY, USA

Sponsored by the Adaptive Structures & Material Systems Branch, Aerospace Division

The conference is divided into symposia broadly ranging from basic research to applied technological design and development to industrial and governmental integrated system and application demonstrations. The symposia and their topical areas specifically are:

Development and Characterization of Multifunctional Materials
Chair: Constantin Ciocanel, N. Arizona
Co-Chairs: Bjoern Kiefer, TU. Dortmund
Ji Su, NASA

Multifunctional material formulations, evaluation, synthesis, and processing; multifunctional composites and hybrid materials; bio-inspired and nano-composites; self-healing, shape memory, piezo and magneto-strictive materials; analytics of multifunctional materials; novel triggering approaches; material property enhancement; interface and interaction science.

Bioinspired Smart Materials and Systems
Chair: Jovana Jovanova, U. of Skopje
Co-Chairs: Larry Peel, Texas A&M - Kingsville
Joseph Calogero, Pratt & Whitney

Modeling of biological systems; understanding physical phenomena in biological systems; biomimetic and bio-inspired devices; machines and robotics; utilizing bio-logical systems; smart prosthetic systems and intelligent implant materials and structures.

Modeling, Simulation and Control of Adaptive Systems
Chair: Wael Zaki, Khalifa University
Co-Chair: James Gibert, Purdue University
Rocco Vertechy, Univ. of Bologna

Micro and macro level modeling; vibration and acoustic control; passive/semi-active/active damping and stiffness variation; actuation and motion control; intelligent and adaptive control; nonlinear control; hysteresis control; modeling simulation and control of micro/nano systems; nonlinear dynamics, and nonlinear vibration.

Energy Harvesting
Chair: Soobum Lee, UMBC
Co-Chair: Shahrzad Towfighian, Binghamton U.
Mostafa Nouh, U. of Buffalo

Modeling and experiments of energy harvesting trans-ducers and applied systems using piezoelectric and magnetostrictive materials; electroactive polymers; in-ductive and capacitive devices; MEMS and NEMS con-figurations; novel circuits and storage devices; novel ap-plications/analysis of traditional transduction (e.g. solar, thermoelectric); energy harvesting using metamaterials.

Integrated System Design and Implementation
Chair: Andres Arrieta, Purdue University
Co-Chairs: Johannes Riemenschneider, DLR
Brent Utter, Lafayette College

Sensors and actuators; power and control electronics; smart devices and technologies; compliant mechanism design; adaptive / intelligent / integrated systems design; smart structures design processes and tools; Industrial and government smart products and system applications; smart electronics and devices; MEMS.

Structural Health Monitoring
Chair: Hae Young Noh, Carnegie Mellon
Co-Chairs: Daniel Cole, Army Research Lab.
Ben Grisso, Navy

Damage identification & mitigation; sensor networks; data fusion; data mining and management; damage diagnostic and prognostic modeling software; system integration, and applications.

Mechanics & Behavior of Active Materials
Chair: Darren Hartl, Texas A&M Univ.
Co-Chairs: Paris von Lockette, Penn State U.
John Gallagher, Merrimack Coll.

Advanced constitutive measurements; micro- and nano-mechanics of actuator & sensor materials; phase field modeling; multi-scale and multi-physics material models; finite element implementations; reliability issues: aging, fatigue, and fracture; materials for energy storage; multi-ferroic materials.

Emerging Technologies
Chair: Onur Bilgen, Rutgers U.
Co-Chairs: Julianna Abel, U. of Minnesota
Andy Sarles, U. of Tennessee

Emerging research works that are aligned with the general theme of SMASIS but may not fit in the other symposia. E.g.: advanced and additive manufacturing; nano-manufacturing; topology optimization; soft robot-ics; human performance sensing and augmentation; wearable technologies, uncertainty analysis in materials and structures; among others.

ASME
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