SPIE. SMART STRUCTURES+ NONDESTRUCTIVE EVALUATION

Embassy Suites by Hilton Denver
Denver, Colorado, United States
3 - 7 March 2019

Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems

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

SUBMIT AN ABSTRACT
(SIGN IN REQUIRED)

Submission guidelines for Authors and Presenters

Important Dates

SHOW | HIDE

Abstract Due:
22 August 2018

Author Notification:
29 October 2018

Manuscript Due Date:
6 February 2019

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Call for Papers

Advanced sensors, smart materials, and smart structures technology represent an emerging multidisciplinary field that has unlimited potential of broad engineering applications. This particular conference focuses on the new sensor technologies and phenomena that apply to the civil, mechanical, and aerospace engineering fields. To name a few, these applications include structural health monitoring (SHM), nondestructive evaluation (NDE), damage/deterioration assessment, security and emergency management, and asset management. The potential benefits of applying advanced sensors, smart materials, and smart structures technology to civil, mechanical and aerospace systems are many and they cover improved system reliability, enhanced

system performance and functionality, enhanced security, decreased life cycle costs, and reduction of physical dimensions and weight.

Researchers in academia, government laboratories, and industry are making progress in advancing the state of the art of the sensor-based technologies addressed by this conference. This conference will provide a forum to bring together experts in the relevant but diverse fields to discuss recent advances and future challenges including international research collaboration.

Papers are solicited on new and emerging technologies in the following areas:

New Technological Advances

- machine learning
- human-centric sensing and control
- low-cost smart materials
- large-scale monitoring systems
- multifunctional sensors sensor networks and autonomous operation
- sensors for harsh and extreme environments
- sensors using wireless systems
- fiber optic sensing
- photonic, phononic, and phoxonic crystal sensors
- computer vision and image analysis techniques
- active and semi-active control systems
- wearable sensors for biomedical applications.

Bio-Inspired Sensing and Bio-inspired Actuation

- functional mimicking of extreme species
- organization and processing in bio-networks
- biomolecular sensors and actuators
- biologically mediated fabrication
- bio-inspired smart sensor networks.

Modeling of Smart Materials and Sensor Performance

- sensor integration with structure
- sensor behavior
- reliability investigations
- smart material response under loads and strain.

Design Engineering and Implementation

- design/characterization/creation of multifunctional sensory systems
- smart components, devices, and sub-assemblies
- novel materials for sensing, actuation, and design
- smart systems for evaluation, detection, monitoring, and control
- sensor standardization.

Integration of Smart Sensing Systems

- vehicle health management
- implementation of advanced technologies
- big data and cloud-based analytic
- cyberinfrastructure tools for data management and curation
- integrated asset management
- data-driven decision making
- small-scale and large-scale demonstrations
- smart infrastructure security.

Interrogation of Structures

- aerospace structures, composites
- geotechnical systems, mining/oil/gas exploration and production
- ship and offshore structures
- pipelines
- civil engineering structures
- monuments of cultural heritage
- conventional, nuclear, and alternative energy systems
- transportation systems and vehicles
- chemical and biochemical systems.

Sensor Development and Applications

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