Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2024 (SSN06)

Conference Chair: Branko Glisic, Princeton Univ. (United States)

Conference Co-Chairs: Maria Pina Limongelli, Politecnico di Milano (Italy); Ching Tai Ng, The Univ. of Adelaide (Australia)

Program Committee: Hiroshi Asanuma, Chiba Univ. (Japan); Tommy H. T. Chan, Queensland Univ. of Technology (Australia); Genda Chen, Missouri Univ. of Science and Technology (United States); Benjamin L. Grisso, Naval Surface Warfare Ctr. Carderock Div. (United States); Ryan L. Harne, The Pennsylvania State Univ. (United States); Jung-Wuk Hong, KAIST (Republic of Korea); Neil A. Hoult, Queen’s Univ. (Canada); Haiying Huang, The Univ. of Texas at Arlington (United States); Ying Huang, North Dakota State Univ. (United States); Mohammad Reza Jahanshahi, Purdue Univ. (United States); Robin James, General Motors Co. (United States); Gi-Woo Kim, Inha Univ. (Republic of Korea); Simon Laflamme, Iowa State Univ. of Science and Technology (United States); Hui Li, Harbin Institute of Technology (China); Jian Li, The Univ. of Kansas (United States); Jun Li, Curtin Univ. (Australia); Suyi Li, Virginia Polytechnic Institute and State Univ. (United States); Weibin Li, Xiamen Univ. (China); Wei-Hsin Liao, The Chinese Univ. of Hong Kong (Hong Kong, China); Chin-Hsiung Loh, National Taiwan Univ. (Taiwan); Kenneth J. Loh, Univ. of California, San Diego (United States); Theodore E. Matikas, Univ. of Ioannina (Greece); Norbert G. Meyendorf, Univ. of Dayton (United States); Isabel M. Morris, New Mexico Institute of Mining and Technology (United States); Rebecca Napolitano, The Pennsylvania State Univ. (United States); Hae Young Noh, Carnegie Mellon Univ. (United States); Wieslaw M. Ostachowicz, The Szewalski Institute of Fluid-Flow Machinery, Polish Academy of Sciences (Poland); Piervincenzo Rizzo, Univ. of Pittsburgh (United States); Donghyeon Ryu, New Mexico Institute of Mining and Technology (United States); Fabio Semperlotti, Purdue Univ. (United States); Zhongqing Su, The Hong Kong Polytechnic Univ. (Hong Kong, China); Tyler N. Tallman, Purdue Univ. (United States); Jiong Tang, Univ. of Connecticut (United States); Marco Torboli, Ulsan National Institute of Science and Technology (Republic of Korea); Enrico Tubaldi, Univ. of Strathclyde (United Kingdom); Chun H. Wang, The Univ. of New South Wales (Australia); Ming L. Wang, Northeastern Univ. (United States); Xingwei Wang, Univ. of Massachusetts Lowell (United States); Ya Wang, Texas A&M Univ. (United States); Yang Wang, Georgia Institute of Technology (United States); Rosalind M. Wynne, Villanova Univ. (United States); Fuh-Gwo Yuan, North Carolina State Univ. (United States), National Cheng Kung Univ (Taiwan); Daniele Zonta, Univ. degli Studi di Trento (Italy), Univ. of Strathclyde (United Kingdom)

This conference requires a 500-word abstract for review during the submission process

Advanced sensors, smart materials, and smart structures represent an emerging multidisciplinary field that has unlimited potential of applications in a broad spectrum of engineering. This particular conference focuses on the recent advances and technological breakthroughs in research and development of sensor technologies and smart structures that can be applied to the civil, mechanical, and aerospace engineering fields. To name a few, these applications include structural health monitoring (SHM), nondestructive evaluation (NDE), damage assessment, security and emergency management, and asset management. The potential benefits of applying advanced sensors, smart materials, and smart structures to civil, mechanical, and aerospace systems are numerous, with improved system reliability, enhanced system performance, diversified functionality, elevated security, decreased life cycle costs, and reduction of structural dimensions and weight.

In recent years researchers in academia, government laboratories, and industry have been making remarkable progress in advancing the state of the art of technologies that are addressed by this conference. This conference will provide a forum to bring together experts in the relevant but diverse fields to discuss the latest development and future challenges, as well as international research collaborations.

Papers on new and emerging technologies are solicited. Topics of interest include, but are not limited to:

ADVANCES IN SENSING TECHNOLOGY
- new sensing technology
- new development of smart materials and structures
- human-centric sensing and control
- low-cost smart materials
- large-scale monitoring systems
- multifunctional sensors
- sensor network technology
- sensors for harsh and extreme environments
- wireless sensors
- fiber optic sensing
- flexible sensors
- photonic, phononic, and phoxonic crystal sensors
- computer vision and image analysis techniques
- active and semi-active control systems
- wearable sensors for biomedical applications.

MODELING OF SMART MATERIALS AND SENSOR PERFORMANCE
- modeling of smart materials
- sensor performance and behaviors
- sensor reliability and durability
- sensor calibration and validation
- sensor and sensor network optimization.

www.spie.org/SSN06call
CALL FOR PAPERS

25 - 28 March 2024
Hilton Long Beach Hotel
Long Beach, California, United States
Submit abstracts by 13 September 2023

SENSOR DESIGN, FABRICATION, AND IMPLEMENTATION
• innovative sensor design
• design, fabrication, and characterization 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.

DATA-DRIVEN SENSORY SYSTEMS AND SMART STRUCTURES
• advanced signal processing
• machine learning in smart sensing and structures
• AI technology in sensor development
• big data and cloud-based analytics
• cyberinfrastructure tools for data management and curation
• integrated asset management
• data-driven decision making.

APPLICATIONS OF SMART SENSORY SYSTEMS AND SMART STRUCTURES
• aerospace structures
• 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.

www.spie.org/SSN06call
Present your research at SPIE Smart Structures + NDE

Follow the instructions below to develop a successful abstract for submission to a conference and review policies for publication in the Proceedings of SPIE in the SPIE Digital Library. Submissions subject to chair approval.

**Important dates**

<table>
<thead>
<tr>
<th>Event</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstracts due</td>
<td>13 September 2023</td>
</tr>
<tr>
<td>Registration opens</td>
<td>Early December 2023</td>
</tr>
<tr>
<td>Author notified and program posts online</td>
<td>4 December 2023</td>
</tr>
<tr>
<td>Submission system opens for manuscripts and poster PDFs*</td>
<td>22 January 2024</td>
</tr>
<tr>
<td>Poster PDFs due for spie.org preview and publication</td>
<td>28 February 2024</td>
</tr>
<tr>
<td>Manuscripts due</td>
<td>6 March 2024</td>
</tr>
<tr>
<td>Advance upload deadline for oral presentation slides**</td>
<td>22 March 2024</td>
</tr>
</tbody>
</table>

*Contact author or speaker must register prior to uploading
**After this date slides must be uploaded onsite at Speaker Check-In

**What you will need to submit**

- Presentation title
- Author(s) information
- Speaker biography
- 250-word abstract for technical review
- 100-word summary of abstract for display in the program
- Keywords used in search for your paper (optional)
- Check the individual conference call for papers for additional requirements (for example, some conferences require two- to three-page extended summary for technical review, or have instructions for award competitions)

Note: Only original material should be submitted. Commercial papers, papers with no new research/development content, and papers with proprietary restrictions will not be accepted for presentation.

**How to submit your abstract**

- Visit the conference page: [www.spie.org/SSN06call](http://www.spie.org/SSN06call)
- You may submit more than one abstract, but submit each abstract only once
- Submit by clicking the “Submit an Abstract” button on the conference page
- Sign in to your SPIE account, or create an account if you do not already have one
- Follow the steps in the submission wizard until the submission process is completed
- If your submission is related to an application track below, indicate the appropriate track when prompted during the submission process

**Application tracks**

An application track is a grouping of presentations on a topic of interest across all conferences. During submission of the abstract, the submitting author should select an application track if it is relevant to their research.

- AI/ML: Papers that highlight the use of artificial intelligence, machine learning, and deep learning to create and implement intelligent systems across multiple sectors, technologies, and applications
- Sustainability: Papers that highlight the use of optics and photonics for renewable energy, natural resource management, sustainable manufacturing, and greenhouse gas mitigation in support of the UN Sustainable Development Goals
- Translational research: Papers that highlight the transition from bench to bedside using the latest photonics technologies, tools, and techniques for healthcare
- 3D printing: Papers that highlight the innovative use of optics and photonics in multidisciplinary applications for multidimensional manufacturing

**Submission agreement**

All presenting authors, including keynote, invited, oral, and poster presenters, agree to the following conditions by submitting an abstract:

- Register and pay the author registration fee
- Oral presenters: recording and publication of your onsite presentation (slides synched with voice) for publication in the Proceedings of SPIE in the SPIE Digital Library
- Poster presenters: submit a poster PDF by the advertised due dates for publication in the Proceedings of SPIE in the SPIE Digital Library; poster PDFs may also be published and viewable in the spie.org program during and immediately after the event. Each poster must have a unique presenter; one person may not present more than one poster per session

- Email messaging for the conference series
- Submit a manuscript by the advertised due date for publication in the Proceedings of SPIE in the SPIE Digital Library
- Obtain funding for registration fees, travel, and accommodations
- Attend the meeting
- Present at the scheduled time

**Review and program placement**

- To ensure a high-quality conference, all submissions will be assessed by the conference chair/editor for technical merit and suitability of content
- Conference chairs/editors reserve the right to reject for presentation any paper that does not meet content or presentation expectations
- Final placement in an oral or poster session is subject to chair discretion

**Publication of Proceedings in the SPIE Digital Library**

Increase your professional visibility and publish in the world's largest collection of optics and photonics research. Your peers will access approximately 18 million papers, presentations, and posters from the SPIE Digital Library each year.

- Only manuscripts, presentations, and posters presented at the conference and received according to publication guidelines and due dates will be published in the Proceedings of SPIE in the SPIE Digital Library
- Manuscripts, presentations, and posters will be officially published after the event in the SPIE Digital Library
- Conference chairs/editors may require revision before approving publication and reserve the right to reject for publication any manuscript or presentation that does not meet acceptable standards for a scientific publication
- Conference chair/editor decision to accept or reject a manuscript, presentation, or poster for publication is final
- Authors must be authorized to provide a suitable publication license to SPIE; authors retain copyright of all scientific material
- SPIE retains rights to distribute and market the official SPIE recording of the presentation and/or submitted video/poster
- SPIE partners with relevant scientific databases and indexes to enable researchers to easily find papers published in the Proceedings of SPIE. The databases that abstract and index these papers include Astrophysical Data System (ADS), EI Compendex, CrossRef, Google Scholar, Inspec, Scopus, and Web of Science
- More publication information available on the SPIE Digital Library