SPIE. SMART STRUCTURES+ NONDESTRUCTIVE EVALUATION

17–20 March 2025
Sheraton Vancouver Wall Centre
Vancouver, B.C., Canada

Submit abstracts by **11 September 2024**

Biologically Inspired Materials, Processes, and Systems (BIMPS) 2025 (SSN01)

Conference Chair: **Akhlesh Lakhtakia,** The Pennsylvania State Univ. (United States)

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Biologically inspired engineering arises from the understanding and adaptation of concepts from the bioworld into a great variety of technical and scientific disciplines. These adapted concepts eventually fertilize the development of novel materials, devices, and systems with tailored functionalities. This field is highly multidisciplinary, embracing aspects related to physics, chemistry, biology, engineering, materials science, nanotechnology, neuroscience, and arts and humanities. Among others, key aspects refer to mechanical properties, computing and control, design integration, optimization, multifunctionality, multicontrollability, cost effectiveness, sustainability, energy efficiency, resilience, and ecology.

This newly revamped conference welcomes contributions from industry, academia, and government research organizations all around the world. Topics of interest cover any relevant scientific or technological aspects of BIMPS, from theoretical considerations and design, fabrication, and characterization, to practical applications and upscaling.

Topics include, but are not limited to:
- fundamental research (e.g., aerodynamics, adhesion, superhydrophobicity and self-cleaning, nano and microfluidics, structural colors, optics, rheology, photonics, locomotion, visual systems)
- materials development (e.g., biomaterials, composites, hybrid materials, structural materials, high-strength membranes, ultralightweight structures, self-healing materials)
- device design (e.g., sensors, multifunctional devices, miniature devices, neuromorphic devices and systems, photonic devices)
- applications (e.g., robotics, architecture, biomedicine and pharmaceutics, marine uses, communications and informatics, artificial muscles, functional/decorative coatings, construction, transportation, manufacturing)
- energy efficiency, resource efficiency, waste management, and biobeneficial bioinspiration (e.g., autonomous systems, green energy, biodegradability, circular economy)

The conference will include a Keynote Lecture, contributed talks, and posters. Abstracts portraying new groundbreaking contributions to the broad field of engineered biomimicry will be promoted to invited talks.

A special session devoted to soft robotics will be held in cooperation with the conference on Electroactive Polymer Actuators, Sensors, and Devices (EAPAD)

BEST STUDENT PRESENTATION AWARD

The BIMPS conference chairs will issue the **Craig F. Bohren Best Student Presentation Award** for the best presentation given by a student. This award is sponsored by an SPIE Fellow. A cash prize will be given to the first, second, and third place winners.

www.spie.org/SSN01call

SPIE.

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

Abstracts due	11 September 2024
Registration opens	18 November 2024
Author notified and program posts online	25 November 2024
Submission system opens for manuscripts and poster PDFs*	13 January 2025
Poster PDFs due for spie.org preview and publication	19 February 2025
Manuscripts due	26 February 2025
Advance upload deadline for oral presentation slides**	14 March 2025

*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 (1000-character max including spaces)
- Abstract for technical review (200-300 words; text only)
- Summary of abstract for display in the program (50-150 words; text only)
- Keywords used in search for your paper (optional)
- Check the individual conference call for papers for additional requirements (i.e., special abstract requirements or 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/SSN01call
- 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 by submitting an abstract:

- Register and pay the conference registration fee
- Agree to receive email messaging for the conference series
- Oral presenters: agree to recording and publication of your onsite presentation (slides synched with voice) in the Proceedings of SPIE in the SPIE Digital Library
- Poster presenters: one person may not present more than two posters in a poster session; submit a poster PDF for preview in the online program (web and app) and for publication in the Proceedings of SPIE in the SPIE Digital Library
- 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 and/or SPIE staff 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

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- Manuscripts, presentations, and posters will be officially published after the event in the SPIE Digital Library
- Conference chairs/editors or SPIE staff 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
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