CALL FOR PAPERS

SPIE. OPTICAL SYSTEMS DESIGN

Conferences: 7–11 April 2024
Exhibition: 9–10 April 2024
Palais de la Musique et des Congrès
Strasbourg, France

Co-located with SPIE Photonics Europe

Submit abstracts by
6 December 2023

Optical Instrument Science, Technology, and Applications III (OSD06)

Conference Chairs: **Holger Münz,** Carl Zeiss AG (Germany); **Breann N. Sitarski,** NASA Goddard Space Flight Ctr. (United States); **Richard N. Youngworth,** Riyo LLC (United States)

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Optical instruments play an extremely large role in the application and development of future capability in optics and photonics. Optical instruments are a critical lynchpin in numerous applications ranging from government, industrial, and consumer applications. Science and development on optical instruments is continual as technologies involved vary from robust fully developed instruments to fledgling technologies with a bright future.

This conference on optical instrument science, technologies, and applications has been created to further enable the integration of components, design, and modelling key to successful optical instrument development and applications. The focus of this conference is on optical systems and instruments, along with applications enabled by such methods. Topics can include all stages of development and applications where optical instruments are proposed as solutions versus competing non-optical technologies through optical instruments being the key enabling technology.

Papers are solicited in mature areas and applications of optical systems and instrumentation. Authors are encouraged to submit system and instrument level papers to this conference which has been designed to complement other conferences at the event; these other conferences focus on specific subsystem details such as design, coatings, specific algorithms, and so forth. Additionally, emerging technical areas with projected implementation in the next decade are welcome. Submissions on conceivable contributions of computational methods and machine vision for novel applications and increased productivity are notably endorsed. With value chains from product generation to production and servicing becoming ever more integrated on a global scale, contributions on standardization of hardware and software interfaces, data formats, and full system solutions with optical hardware and software integration are also welcome.

EMERGING AND HOT TOPICS IN INSTRUMENTAL OPTICS

- recent progress on virtual prototyping/system simulation of image processing industrial measuring instruments
- recent progress on algorithms and optics concepts/instruments for 2D and 3D imaging (esp. using lensless, multi- and coded-aperture imaging)
- recent progress on replicative/additive manufacturing of optics
- novel approaches to form and surface measurement
- NMI activities in the field of optics for industry, standardization, and norms
- merging/fusion of optical metrology with tactile and x-ray metrology
- adaptive optics and wavefront sensing for industrial metrology and technology advancements
- structured light, multi-, and hyperspectral imaging for industry
- progress on photonic integrated circuit / ultrafast laser-based metrology
- polarization and beam optics advancement for instrumentation
- progress on coherent methods for object and object scene digitization, object localization
- advancements in high-accuracy large-scale metrology
- progress on quantum sensing for position and attitude measurement and surface and volume qualification/metrology
- instrumentation, development, and metrology for AR/VR/MR systems
- progress on high-speed image processing, real time architectures for optically guided motion control; protocols/standardization
- mobile device-based metrology and metrology for aspheres and freeform optics
- single-photon imaging systems/quantum optics/photonics
- artificial intelligence (AI) applications and development including machine-learning in optical instruments.

CURRENT APPLICATIONS AND EFFECTIVE IMPLEMENTATION

- optical engineering at the system level including end-to-end system development
- optical system layout for instrumentation including microscopes and medical devices
- high-volume instrument development process and methodologies
- telescopic systems including binoculars and other ocular devices
- optical instruments for use with scattering or dispersive media.

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ABSTRACT SUBMISSION GUIDELINES

Present your research at SPIE Optical Systems Design

Below are abstract submission instructions, the accompanying submission agreement, conference presentation guidelines, and guidelines for publishing in the Proceedings of SPIE on the SPIE Digital Library. Submissions subject to chair approval.

Important dates

Abstracts due	6 December 2023
Authors notified and programme posts online	25 January 2024
Registration opens	8 January 2024
Submission system opens for manuscripts and poster videos/PDFs*	5 February 2024
Manuscripts due	20 March 2024

*Contact author or speaker must register prior to uploading

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 programme (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. extended abstract PDF upload for review 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/osd06call**
- 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

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 programme during and immediately after the event
- 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 programme 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

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- 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
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