



CALL FOR PAPERS

**SPIE. PHOTONICS
WEST
BIOS**

25 - 30 January 2025
The Moscone Center
San Francisco, CA, USA

Submit abstracts by
17 July 2024

Optics and Biophotonics in Low-Resource Settings XI (BO302)

Conference Chairs: **David Levitz**, DL Analytics, LLC (United States); **Aydogan Ozcan**, UCLA Samueli School of Engineering (United States)

Program Committee: **David Erickson**, Cornell Univ. (United States); **Gerard L. Coté**, Texas A&M Univ. (United States); **Wolfgang Drexler**, Medizinische Univ. Wien (Austria); **Matthew D. Keller**, Global Health Labs., Inc. (United States); **Avi Rasooly**, National Institutes of Health (United States); **Chetan A. Patil**, Temple Univ. (United States); **Bala Pesala**, Aduvo Diagnostics, Ltd. (India); **Eric A. Swanson**, Massachusetts Institute of Technology (United States); **Sebastian Wachsmann-Hogiu**, McGill Univ. (Canada); **Ian M. White**, Univ. of Maryland, College Park (United States); **Hatice C. Koydemir**, Texas A&M Univ. (United States); **Aniruddha Ray**, The Univ. of Toledo (United States); **Qingshan Wei**, North Carolina State Univ. (United States)

SPECIAL ABSTRACT REQUIREMENTS

Submissions to this conference must include:

- 100-word text abstract (for online program)
- 250-word text abstract (for technical review)
- An optional figure (for committee review only). The figure, if provided, must be submitted as a separate PDF document.

Approximately 85% of the world's population (6 billion people) lives outside OECD nations, where resources and facilities available to deliver medical care are limited. Optical technologies are uniquely positioned to enable emerging economies to improve the delivery of healthcare of their people. Optical methods can non-invasively assess the microstructure, function, and composition of tissues, as well as deliver targeted therapies. The revolution in digital electronics has significantly reduced both the price and size of components (sensors, light sources, computing units) critical to most optical systems. Integrating such optical components with compact microfluidics and low-cost biomarkers allows for building robust optical systems that are inexpensive and scalable.

This conference is designed to serve as a forum for those engineers, scientists, clinicians, and aid workers who are developing and delivering biophotonics-based solutions for healthcare delivery in low- resource settings. An emphasis is placed on mobility, cost-effectiveness, energy efficiency, and scalability, in pursuit of the ultimate goal of clinical validation and transitioning to the field.

Topics include:

- smartphone-based imaging, sensing and diagnostics systems
- mobile and miniature optical systems
- design adaptation for low-resource settings
- integrated optics and microfluidics
- translational research in low-resource settings
- low-cost optical and optically-guided therapeutics
- spectroscopy and spectral imaging
- low-cost optomechanical design
- energy efficient systems
- algorithms for mobile image analysis
- machine learning and computer vision for mobile imaging and sensing systems
- contrast agents for field-use or point-of-care
- mobile confocal and coherence-domain imaging
- polarization-based mobile imaging and/or detection methods.

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#PhotonicsWest

CONTINUED NEXT PAGE →

SPIE.

Present your research at SPIE Photonics West

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	17 July 2024
Registration opens	October 2024
Authors notified and program posts online	7 October 2024
Submission system opens for manuscripts and poster PDFs*	25 November 2024
Poster PDFs due for spie.org preview and publication	2 January 2025
Manuscripts due	8 January 2025
Advance upload deadline for oral presentation slides**	23 January 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/bo302call
- Choose one conference that most closely matches the topics of your abstract. You may submit more than one abstract, but submit each abstract only once
- Click the title of the conference to view the full description and submit by clicking the "Submit an Abstract" button on that 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 track

Listed below are the application tracks available for this meeting. Application tracks aggregate presentations and focus on emerging technical and societal needs that require a multidisciplinary approach.

- **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
- **Brain function:** Papers that highlight the development of innovative optics and photonics technologies that increase our understanding of brain physiology and function
- **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
- **Photonic chips:** Papers that highlight advances in materials, design, fabrication, integration, testing and packaging of photonic components at the chip level

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 conference registration fee
- Agree to receive email messaging for the conference series
- 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: one person may not present more than two posters in a poster session; poster presenters may submit an optional poster PDF available 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 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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- More publication information available on the [SPIE Digital Library](http://SPIEDigitalLibrary)

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Contact the coordinator listed in your spie.org account.

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For questions about publication or the SPIE Digital Library, contact your proceedings coordinator.