



**SPIE.** PHOTONICS  
WEST  
OPTO

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

**CALL FOR PAPERS**

Submit abstracts by  
**17 July 2024**

## Optical Interconnects and Packaging 2025 (OE204)

*Conference Chairs:* **Ray T. Chen**, The Univ. of Texas at Austin (United States); **Henning Schröder**, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration IZM (Germany)

*Program Committee:* **Darrell Childers**, US Conec Ltd. (United States); **Douwe H. Geuzebroek**, Brilliance B.V. (Netherlands); **Tingyi Gu**, Univ. of Delaware (United States); **Ruth Houbertz**, ThinkMade Engineering & Consulting (Germany); **Marika P. Immonen**, TTM Technologies, Inc. (Finland); **Takaaki Ishigure**, Keio Univ. (Japan); **Wei Jiang**, Nanjing Univ. (China); **Mikko Karppinen**, VTT Technical Research Ctr. of Finland Ltd. (Finland); **Sanjay Krishna**, The Ohio State Univ. (United States); **Tobias Lamprecht**, OST – Ostschweizer Fachhochschule (Switzerland); **Frank Lerch**, EPiGAP OSA Photonics GmbH (Germany); **Matthias Lorenz**, AEMtec GmbH (Germany); **Christopher T. Middlebrook**, Michigan Technological Univ. (United States); **Peter O'Brien**, Tyndall National Institute (Ireland); **Hyo-Hoon Park**, KAIST (Republic of Korea); **Nikos Pleros**, Aristotle Univ. of Thessaloniki (Greece); **Richard C. A. Pitwon**, Resolute Photonics Ltd. (Ireland); **Moritz Seyfried**, ficonTEC Service GmbH (Germany); **Harish Subbaraman**, Oregon State Univ. (United States); **Michael Thiel**, Nanoscribe GmbH & Co. KG (Germany); **David J. Thomson**, Optoelectronics Research Ctr. (United Kingdom); **Andreas Umbach**, AUCCEPT Consulting (Germany); **Alan X. Wang**, Baylor Univ. (United States); **Ian H. White**, Univ. of Cambridge (United Kingdom); **Chris Q. Wu**, Corning Incorporated (United States); **Yi Zou**, ShanghaiTech Univ. (China)

Papers are solicited in the following areas:

### PIC INTEGRATION AND OPTICAL COUPLING

- silicon photonics, SiN, Ge, SiGe, III-V device integration including chiplet
- Integrated Quantum Photonics, Quantum PIC (QPIC) Integration
- small size and low loss waveguide-based active and passive devices
- heterogeneous and monolithic device integration including silicon photonics
- advances in chip-to-waveguide or chip-to-fiber coupling schemes including: grating coupler, adiabatic taper, and butt-coupling approaches
- 2D membrane-based devices
- photonic crystals and surface plasmonic waveguides for interconnect applications
- new regimes involving surface plasmons or optical polaritons
- implementation of optical interconnects in Si CMOS process compatible environment
- measurement and testing methods for hybrid electronic/photonic assemblies
- reliability assessment of optical interconnects, sub-systems, and electronic/photonic assemblies
- foundry service explorations for new PDK and PAK comprehensive library formation
- packaging density enhancement of integrated photonic devices.

### PARALLEL OPTICAL LINK MODULE TECHNOLOGIES

- single-mode conversion in data centers
- data communication systems with parallel optical links and active optical cables
- integration and packaging technologies for parallel on-board transceivers, co-packaging
- optical bus architectures for on-board interconnects
- ultra-low cost and ultra-low power optical links using novel laser and photodiode array components for interconnect applications
- fiber optical connectors and coupling approaches
- assembly and alignment of arrayed components
- free-space parallel optical interconnect
- mid-IR optical interconnects for free space communications and sensing
- room temperature MidIR QCLs, QCDs, ICLs, ICDs and APDs
- massively distributed optical interconnects suitable for neuromorphic optical computing.

### OPTICAL COMMUNICATIONS, SENSING, AND COMPUTING IN NEXT-GENERATION SYSTEMS

- optical interconnect solutions and packaging for quantum communication, sensing, and quantum computing
- advanced photonic integration technologies for computer-com applications
- rack- and enclosure scale disaggregation
- optically enabled hyperconverged infrastructures
- multi-tier optical connectivity
- optical packet and circuit switch technologies and architectures for data centers
- WDM and SDM switching technologies and architectures for intra-data center interconnections
- power-efficient optical computing for data centers
- future demands for parallel optics in data center: inter-rack, inter-board, and inter-chip
- digital and analog optical computing
- neuromorphic optical computing
- error reduction of AI/ML using optical interconnects and computing
- latency and power reductions in optical computing
- system miniaturization for quantum computing, communication, and sensing.

### MICRO-OPTIC ASSEMBLY AND HYBRID PHOTONIC MICROSYSTEM MANUFACTURING

- micro-optic component assemblies and integrated micro-optics
- 3D optical routing and assembly of coupling elements
- new connectors and novel light coupling approaches
- quantum sensor integration, NV cells, and atom trap devices
- prototyping for advanced interconnect fabrication
- new fiber optical integration/coupling/connectorization techniques
- fiber handling
- advanced micro-optic components, holograms, gratings, and aspherical lenses
- reflective, refractive, and diffractive micro-optic elements and micro-optical systems
- active optical alignment and assembly automation
- passive micro-optic alignment techniques
- metamaterial for innovative micro- and nano-optical components
- solder reflow compatible connectivity
- interconnect reliability, qualification, and test
- multimode fiber for single mode optical biosensing systems including coronavirus detection.

[www.spie.org/oe204call](http://www.spie.org/oe204call)

#PhotonicsWest

CONTINUED NEXT PAGE →

**SPIE.**



# SPIE. PHOTONICS WEST OPTO

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

**CALL FOR PAPERS**

Submit abstracts by  
**17 July 2024**

## **SUBSTRATE-BASED OPTICAL INTERCONNECT TECHNOLOGIES**

- photonic substrate packaging and embedding for optoelectronic and micro-optical components
- optical interconnect design and system architectures, end-to-end link modelling and simulation
- electronic/photonic printed circuit boards and optical backplanes, panel level integration of photonics
- planar optical waveguide, substrate guided, flexible, lay-in fiber, and free space optical interconnects
- machine-to-machine, board-to-board, chip-to-chip, intra-chip optical interconnects
- silicon/glass/silicon nitride/polymer based photonic interposer
- heterogeneous integration on chip/chip-level using photonic short reach interconnects (polymer/glass/SiN)
- trends in ultra-short reach optical links
- additive manufacturing and 3D-writing of optical interconnects
- laser structuring of optical waveguides and interfaces in glass and polymer.

## **MATERIALS FOR PHOTONIC PACKAGING AND INTERCONNECTS**

- advanced photonics packaging materials
- thin glass for board, modules, and panel-level-packaging
- polymers and organic/inorganic hybrid materials for optical interconnects
- novel nanostructures and nanotechnologies for optical interconnects
- structured fibers, multicore fibers and other novel optical fibers
- integrated meta-material applications
- nanomaterials and applications
- novel bonding materials and processes
- meta material for photonic packaging and interconnects.

[www.spie.org/oe204call](http://www.spie.org/oe204call)

#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/oe204call](http://www.spie.org/oe204call)
- 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

## 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 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 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
- Conference chair/editor and/or SPIE staff 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 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](http://SPIEDigitalLibrary)

# ABSTRACT SUBMISSION GUIDELINES

## SYMPOSIUM CHAIRS



**Ulrich T. Schwarz**  
Technische  
Univ. Chemnitz  
(Germany)



**Karin Hinzer**  
Univ. of Ottawa  
(Canada)

## SYMPOSIUM CO-CHAIRS



**Andrea Blanco-Redondo**  
CREOL, The College  
of Optics and  
Photonics, Univ. of  
Central Florida  
(United States)



**Georg von Freymann**  
Rheinland-Pfälzische  
Technische Univ.  
Kaiserslautern-  
Landau (Germany)

# SPIE. DIGITAL LIBRARY

## SPIE WILL PUBLISH YOUR RESEARCH GLOBALLY

[www.SPIEDigitalLibrary.org](http://www.SPIEDigitalLibrary.org)

Your work will live far beyond the conference room—all proceedings from this meeting will be published in the SPIE Digital Library. Promote yourself, your ideas, and your organization to millions of key researchers from around the world through this web-based repository of the latest technical information.

## Contact information

### QUESTIONS?

Contact the coordinator listed in your spie.org account.

For questions about your presentation, submitting an abstract or the meeting, contact your conference program coordinator.

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