



SPIE. PHOTONICS
WEST
OPTO

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

CALL FOR PAPERS

Submit abstracts by
17 July 2024

Novel In-Plane Semiconductor Lasers XXIV (OE602)

Conference Chairs: **Alexey A. Belyanin**, Texas A&M Univ. (United States); **Peter M. Smowton**, Cardiff Univ. (United Kingdom)

Program Committee: **Yasuhiko Arakawa**, Institute of Industrial Science, The Univ. of Tokyo (Japan); **Mikhail A. Belkin**, Walter Schottky Institut (Germany); **Dan Botez**, Univ. of Wisconsin-Madison (United States); **Federico Capasso**, Harvard John A. Paulson School of Engineering and Applied Sciences (United States); **Gary A. Evans**, Southern Methodist Univ. (United States); **Mariangela Gioannini**, Politecnico di Torino (Italy); **Michael Kneissl**, Technische Univ. Berlin (Germany); **Kei-May Lau**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Shinji Matsuo**, NTT Device Technology Labs. (Japan); **Luke J. Mawst**, Univ. of Wisconsin-Madison (United States); **Jerry R. Meyer**, U.S. Naval Research Lab. (United States); **Roberto Paiella**, Boston Univ. (United States); **Katrin Paschke**, Ferdinand-Braun-Institut (Germany); **Richard V. Penty**, Univ. of Cambridge (United Kingdom); **Johann Peter Reithmaier**, Univ. Kassel (Germany); **Haisheng Rong**, Intel Corp. (United States); **Gary M. Smith**, MIT Lincoln Lab. (United States); **Nelson Tansu**, The Univ. of Adelaide (Australia); **Miriam S. Vitiello**, Istituto Nanoscienze (Italy); **Qijie Wang**, Nanyang Technological Univ. (Singapore)

High-quality, in-plane semiconductor lasers exhibit improved performance over a wide range of emission wavelengths from ultraviolet into the THz range. Devices are finding an ever-increasing number of applications in, for example, telecommunications, spectroscopy, and environmental monitoring, displays, quantum information, and medical diagnostics and therapy. Well-developed GaAs- and InP-based lasers operating from the 0.8 to 2- μ m are achieving multi-watt output powers with beams of high spatial and spectral purity. Lasers made from material systems, such as dilute nitride-antimonides or quantum-dot or nanowire active regions, are pushing performance and spectral coverage. Mode-locked diode lasers are demonstrating improvements such as reduced pulse length and timing jitter. Applications in communication are pushing advances in laser dynamics, including the use of coupled and/or chaotic semiconductor lasers. The GaN based laser field continues to innovate and make progress in terms of e.g. power, reliability and to extend operation deeper into the red and the ultraviolet parts of the spectrum. In the infrared, Sb-based quantum well lasers display high performance at wavelengths up to $\sim 5 \mu$ m, and quantum cascade lasers operate at wavelengths from just below 3μ m to almost 300μ m. Emerging applications in the mid/far-infrared stimulate the development of high-efficiency, high-power quantum cascade lasers operating at an ambient temperature and with new functionalities such as ultrashort pulse generation, frequency combs, injection locking, and beam control. Novel laser sources utilize recent advances in plasmonics, nanophotonics, topological photonics, and nonlinear optics for efficient generation and manipulation of light. A variety of approaches for silicon-based lasers, including hybrid structures by local area growth or wafer bonding are yielding advancing performance. Laser sources based on novel two-dimensional and topological materials are showing promise. This conference provides a forum for the most recent breakthroughs in device design and performance, including energy efficiency and lasers for uncooled operation. We solicit papers describing novel designs that achieve higher performance levels and unique operational characteristics, as well as papers describing the technical limitations of the current in-plane laser technology and lasers tailored to particular applications such as lidar or neuromorphic computing or for quantum applications. We are interested in new methods of fabrication or new methods of characterization that are necessary for improved performance. Papers of experimental and/or theoretical nature are welcome.

Examples of in-plane laser types of interest include, but are not limited to:

- topological lasers
- quantum cascade
- lasers for uncooled operation
- InGaAsP/InP and InGaAsP/GaAs
- InGaAsN, InGaAsNSb or GaAsBi
- AllnGaP/GaAs visible
- Sb-based
- GaN based UV, blue and visible
- silicon-based lasers
- nanowire or quantum dot lasers
- type-II quantum-well and superlattice lasers
- communications lasers
- sub-wavelength scale lasers
- photonic bandgap and microcavity lasers
- DFB and DBR lasers
- multi-segment and ring lasers
- mode-locked lasers
- coherent and incoherent laser arrays
- high-brightness lasers
- narrow-linewidth lasers
- vertically-coupled in-plane lasers
- lasers for environmental monitoring

www.spie.org/oe602call

#PhotonicsWest

CONTINUED NEXT PAGE \rightarrow

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/oe602call
- 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

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.