



Vertical External Cavity Surface Emitting Lasers (VECSELS) XI (LA106)

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The purpose of the conference is to highlight the recent progress in the field of vertical external cavity surface emitting lasers (VECSELS). In a VECSEL, the light is emitted perpendicular to the semiconductor gain media layers placed in an external cavity. This offers mode control enabling excellent transverse beam quality with multi-Watt output power levels. The external cavity also enables the integration of elements for nonlinear intracavity frequency conversion, wavelength tuning, or passive mode-locking.

Compared to external-cavity diode-pumped solid-state lasers, the VECSELS operate in much broader spectral regions owing to wavelengths versatility of semiconductor gain media. Direct CW emission from VECSELS has been demonstrated for the entire wavelength range covered by compound semiconductors, extending from blue to mid-IR. Moreover, efficient intra-cavity nonlinear frequency conversion allows to further broaden spectral coverage, reaching ultra-violet and terahertz emission, promoting VECSELS to a status of the most versatile laser type.

While high power, continuous-wave VECSELS have been widely used in medicine, spectroscopy, or for pumping of solid-state lasers, new applications are emerging taking advantage of the unique features they offer. For example, owing to their low-noise properties, high-power, and single-frequency wavelength-tunable operation, CW VECSELS are increasingly used in quantum-technology applications, such as ion-trapping. In parallel, mode-locked ultrafast VECSELS are opening new application opportunities in high-resolution spectroscopy, frequency metrology, and multiphoton microscopy.

A selection of invited papers will provide a comprehensive overview of the latest progress in this fast-developing field. In addition, contributed papers are solicited on all aspects of VECSEL research, including:

- novel architectures (MECSELS and MIXSELS)
- numerical modeling
- material engineering and wavelength tailoring
- intracavity nonlinear frequency conversion
- power scaling and novel thermal management
- single frequency operation and stabilization
- mode-locked operation
- application specific designs
- industrial developments.

BEST STUDENT PRESENTATION AWARD

The committee is pleased to announce that a cash prize of \$500, donated by Coherent Inc., will be awarded for the best student presentation; judged, by the committee, on the basis of scientific content, impact, and clarity.

To be eligible for consideration, the student must:

- submit their abstract online by the deadline
 - be the primary author
 - select "Yes" when asked if they are a full-time student
 - select themselves as the speaker
 - be accepted to present an oral presentation
 - make the oral presentation.
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Present your research at SPIE Photonics West

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

Abstract submission deadline	11 August 2021
Author notification	11 October 2021
Submission system opens for presentations and manuscripts*	29 November 2021
Manuscript due date	29 December 2021
Oral presentation videos due	29 December 2021
Poster PDF and preview videos due	29 December 2021
Oral presentation slide deadline	20 January 2022

*Authors must register prior to uploading.

What you will need to submit

- Title
- Author(s) information
- 250-word abstract for technical review
- 100-word summary for the program
- Keywords used in search for your paper (optional)
- Check the individual conference Call for Papers for additional requirements (for example, some conferences require 2- to 3-page extended summary for technical review, or have 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/la106call
- You may submit more than one abstract but submit each abstract only once.
- Click 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 track

- **Brain:** Papers that describe the development of innovative technologies that will increase our understanding of brain function.
- **Translational Research:** Papers that showcase the latest photonics technologies, tools, and techniques with high potential to impact healthcare.
- **3D Printing:** Papers that showcase innovative ways to apply this multidimensional/multidisciplinary technology.
- **COVID-19 Research:** Papers that illustrate the creativity and breadth of the optics and photonics community's response to the COVID-19 pandemic.

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: Submit a presentation video by the advertised due date, or agree to the presentation capture of your presentation on site, for online conference viewing during the event and publication in the Proceedings of SPIE on the SPIE Digital Library.
- Poster Presenters: Submit a Poster PDF and optional preview video by the advertised due date, for online conference viewing during the event and publication in the Proceedings of SPIE on the SPIE Digital Library.
- Submit a 4-page-minimum manuscript by the advertised due date, for online conference viewing during the event and publication in the Proceedings of SPIE on the SPIE Digital Library.
- Obtain funding for registration fees, travel, and accommodations, independent of SPIE, through their sponsoring organizations.
- Ensure that all clearances, including government and company clearance, have been obtained to present and publish. If you are a DoD contractor in the USA, allow at least 60 days for clearance.
- 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

- SPIE will publish all presentations for viewing during the conference, as well as permanently archive all presentations in the conference proceedings on the SPIE Digital Library.
- SPIE retains rights to distribute and market the official SPIE recording of the presentation, presentation video, and/or poster.
- Most SPIE conferences follow an onsite publication model, meaning that manuscripts received by the advertised due date will be published for online viewing during the event, as well as archived in the SPIE Digital Library.
- A select few of SPIE conferences may elect to follow a Post-Meeting model of publication in order to conduct a more thorough review of manuscripts. In this model, manuscripts will be published 2-4 weeks after the event in the SPIE Digital Library, and may not be published for online viewing during the event.
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- Conference Chairs/Editors may require manuscript revision before approving publication and reserve the right to reject for publication any paper that does not meet acceptable standards for a scientific publication.
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- Only papers, presentations, and posters presented at the conference and received according to publication guidelines and due dates will be published in the conference Proceedings of SPIE on the SPIE Digital Library.
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- More publication information available on the [SPIE Digital Library](http://www.spiedigitallibrary.org)

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