

## Special Issue

# Development and Optimization of High-Power Semiconductor Laser Diodes and Photodetectors

### Message from the Guest Editors

In consideration of the high efficiency and highly integrated features, semiconductor laser diodes and detectors are all important optoelectronics devices, especially in sensing, computing, 6G, lidar, quantum technology, automatic pilot, advanced manufacturing, and other industries. The new generation of semiconductor lasers and detectors is moving towards higher performance, lower power consumption, lower price, and new mechanisms for light generation and detection. This Special Issue will focus on high-power semiconductor laser diodes and photodetectors, including mechanisms, materials, processes, and applications of semiconductor laser diodes and detectors. Potential topics include, but are not limited to, the following:

- Design of light emitting and detection;
- High-power laser diodes and detectors;
- Single-mode laser diodes;
- Tuneable laser and integrated laser devices;
- Cooled and uncooled detectors;
- Detectors with high operating temperature;
- Lasers and detectors based on quantum mechanism;
- Other semiconductor lasers and detectors.

---

### Guest Editors

Dr. Chengao Yang

State Key Laboratory of Optoelectronic Materials and Devices, Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, China

Prof. Dr. Jiang Wu

Institute of Fundamental and Frontier Sciences, University of Electronic Science and Technology of China, Chengdu, China

---

### Deadline for manuscript submissions

closed (20 January 2026)



## Photonics

---

an Open Access Journal  
by MDPI

---

Impact Factor 1.9  
CiteScore 3.5



[mdpi.com/si/219637](https://mdpi.com/si/219637)

*Photonics*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[photonics@mdpi.com](mailto:photonics@mdpi.com)

[mdpi.com/journal/  
photonics](https://mdpi.com/journal/photonics)





# Photonics

---

an Open Access Journal  
by MDPI

---

Impact Factor 1.9  
CiteScore 3.5



[mdpi.com/journal/  
photonics](https://mdpi.com/journal/photonics)



## About the Journal

### Message from the Editor-in-Chief

You are invited to contribute a research article or a comprehensive review for consideration and publication in *Photonics* (ISSN 2304-6732). *Photonics* is an online open access journal covering both the fundamental and applications of optics and photonics. *Photonics* strives to provide an avenue to allow authors to disseminate their scientific findings—both theoretical/ simulations and experimental works—in highly accessible peer-reviewed journal publications. The manuscript in *Photonics* will be handled with quick turnaround production processing time. We welcome authors to submit their manuscripts for publications in *Photonics*. Our goal in *Photonics* is to enable fast dissemination of high impact works to the scientific community.

---

### Editor-in-Chief

Prof. Dr. Nelson Tansu

School of Electrical and Electronic Engineering (EEE), The University of Adelaide, Adelaide, SA 5005, Australia

---

### Author Benefits

#### High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, Ei Compendex, CAPlus / SciFinder, and other databases.

#### Journal Rank:

CiteScore - Q2 (Instrumentation)

#### Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 15 days after submission; acceptance to publication is undertaken in 1.9 days (median values for papers published in this journal in the second half of 2025).