

Special Issue

Challenges and Opportunities in Optical Communication Networks

Message from the Guest Editors

This Special Issue on “Challenges and Opportunities in Optical Communication Networks” will welcome original research and review articles exploring the latest developments, innovations, and challenges in optical communication systems. As demand for high-speed, high-capacity, and energy-efficient optical networks grows, researchers must address key issues related to network scalability, spectral efficiency, signal processing, and system security. This Special Issue aims to highlight both the challenges and opportunities in modern optical communication networks and to provide insights into novel methodologies and future directions. We invite contributions in, but not limited to, the following areas:

- Next-Generation Optical Network Architectures;
- Advanced Modulation and Multiplexing Techniques;
- Photonic Integration and Optical Switching;
- Machine Learning Applications in Optical Networks;
- Security and Privacy in Optical Communication Systems;
- High-Speed Optical Transmission and Network Scalability;
- Nonlinear Compensation and Optical Signal Processing.

Guest Editors

Dr. Fady El-Nahal

School of Engineering, University of Warwick, Coventry CV4 7AL, UK

Dr. Dokhyl AlQahtani

Electrical Engineering Department, College of Engineering, Prince Sattam Bin Abdulaziz University, Al-Kharj 11942, Saudi Arabia

Deadline for manuscript submissions

15 July 2026



Photonics

an Open Access Journal
by MDPI

Impact Factor 1.9
CiteScore 3.5



mdpi.com/si/236962

Photonics
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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).