Special Issue

Recent Advances in Optical Metamaterials: Numerical Methods, Modeling, and AI Techniques

Message from the Guest Editor

The field of optical metamaterials has matured beyond the initial demonstration of exotic properties, such as negative refraction and electromagnetic cloaking, into a phase focused on practical application and scalable fabrication. This evolution has been critically enabled by parallel advancements in computational electromagnetics and, more recently, the emergence of sophisticated artificial intelligence (AI) and machine learning (ML) techniques. This Special Issue aims to capture the state-of-the-art at this intersection of disciplines. We seek to highlight pioneering research that leverages advanced numerical methods, multi-physics and multi-scale modeling, and data-driven AI approaches to overcome the longstanding challenges in the design, analysis, and optimization of optical metamaterials and metasurfaces. By bringing together contributions from computational physics, photonics, and computer science, this issue will serve as a foundational reference for researchers developing the next generation of metamaterial-based devices for applications in imaging, sensing, communications, and quantum photonics.

Guest Editor

Prof. Dr. Yongzhi Cheng
School of Information Science and Engineering, Wuhan University of Science and Technology, Wuhan 430081, China

Deadline for manuscript submissions

20 April 2026

hv

Photonics

an Open Access Journal by MDPI

Impact Factor 1.9
CiteScore 3.5

mdpi.com/si/254602

Photonics
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
photonics@mdpi.com

mdpi.com/journal/photonics

MDPI

Photonics

an Open Access Journal by MDPI

Impact Factor 1.9
CiteScore 3.5

mdpi.com/journal/photonics

MDPI

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 14.8 days after submission; acceptance to publication is undertaken in 1.9 days (median values for papers published in this journal in the first half of 2025).