

Special Issue

Microwave Photonics: Challenges and Applications

Message from the Guest Editor

Microwave Photonics has shown great potential in communication, radar, sensing, aerospace, and other fields in recent years. By utilizing the broadband, low loss, and anti electromagnetic interference characteristics of photons, microwave photon technology provides innovative solutions to the challenges faced by traditional microwave systems, such as bandwidth bottlenecks, signal processing complexity, and environmental adaptability. However, this field still faces key scientific issues such as device integration, system stability, and cost control, which require collaborative breakthroughs between academia and industry. This Special Issue focuses on:

- Key technological breakthroughs: design and optimization of high-efficiency optoelectronic conversion, heterogeneous integration, photon microwave generation, wireless on fiber (RoF), photonic-integrated circuits (PIC), and other devices.
- System and application: microwave photon technology in 5G/6G, photon-assisted radar, quantum microwave sensing, satellite communication, and other scenarios.
- Challenges and prospects: standardization, energy consumption control, and interdisciplinary integration paths for large-scale applications.

Guest Editor

Dr. Zeping Zhao

Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China

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closed (30 April 2026)



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

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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.

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Prof. Dr. Nelson Tansu

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

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