Special Issue

Quantum Optics: Communication, Sensing, Computing, and Simulation

Message from the Guest Editors

Quantum optics has emerged as one of the most dynamic frontiers in modern physics, simultaneously advancing fundamental science and enabling transformative technologies. Recent progress in nonclassical light sources, high-fidelity detection methods, and engineered quantum systems is driving significant advances in quantum communication, quantum simulation, quantum sensing, and scalable quantum computing.

This Special Issue seeks to highlight cutting-edge developments in quantum optics and related areas of quantum information science, encompassing both theoretical research and experimental realizations. We invite original research articles, comprehensive reviews, and perspectives that address new concepts, experimental breakthroughs, and emerging applications. The scope is intentionally broad, ranging from foundational studies of light–matter interactions to practical implementations of quantum technologies. Our aim is to provide a platform for disseminating innovative results, fostering interdisciplinary collaboration, and accelerating the transition of quantum optical research into real-world applications across physics, information science, and engineering.

Guest Editors

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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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