Special Issue

Recent Progress in Quantum Communication

Message from the Guest Editor

This Special Issue will showcase rapid advancement and cutting-edge research in quantum communication, a critical technology for ensuring information security in the future. It will highlight progress in practical Quantum Key Distribution (QKD) systems, including the deployment of satellite-based QKD for global secure networks and the development of high-rate, long-distance fiber-optic systems. Emphasis is placed on overcoming scalability challenges through the integration of quantum repeaters and the exploration of quantum memories to enable efficient entanglement distribution across vast distances. This issue will also explore quantum networks, featuring research on quantum teleportation, interconnection of quantum processors, and hybrid quantum–classical network architectures. Contributions will cover robust and miniaturized hardware, such as improved single-photon sources and detectors, essential for real-world applications. This compilation provides a comprehensive overview of theoretical innovations and experimental breakthroughs paving the way for a secure quantum internet.

Guest Editor

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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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