Special Issue

Symmetry and Its Applications in Quantum Optics and Quantum Information

Message from the Guest Editors

Symmetry is a fundamental concept in quantum information technology, offering crucial advantages in understanding, manipulating, and protecting quantum systems. In quantum optics, it simplifies calculations and reveals underlying structure. By exploiting symmetry in system design, performance can be enhanced and new functionalities enabled. Furthermore, symmetry plays a vital role in quantum error correction and the development of efficient quantum algorithms. Beyond its practical applications, symmetry provides deep insights into the core principles of quantum mechanics. We cordially invite researchers to submit original, high-quality research papers that advance our understanding of symmetries in quantum information theory and optics. In this Special Issue, topics of particular interest include, but are not limited to, the following: Communication in quantum networks; Characterization and quantification of quantum correlations in optomechanical and magnomechanical systems; Quantum communication security; Quantum sensing techniques and quantum-enhanced interferometry; Geometric methods in quantum information theory; Quantum teleportation and quantum cryptography.

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About the Journal

Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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