Special Issue

Quantum Information and Symmetry

Message from the Guest Editor

Recent research in the fields related to the quantum information theory (QIT) became one of the most intriguing and promising investigations in contemporary physics. Many novel QIT concepts are discussed in the literature, and the broad range of new models of quantum optics and solid state physics are recently considered in the context of QIT. For instance, new ideas concerning optical lattices, superconducting devices, nano-resonators, circuit QED models, nonlinear Kerr-like systems were topics of the numerous papers. Such articles were devoted not only to various aspects of quantum correlations such as quantum entanglement, quantum steering, EPR correlations or quantum discord but also to more practical proposals of the systems which could be applied in the quantum teleportation, quantum coding, quantum computing, etc. On the other hand, the ideas of symmetry are widely discussed in all physical sciences. They have become keystones of various concepts and considerations leading to the novel discoveries in physics. Thus, this Special issue is devoted to the broad range of QIT topics which are related to the ideas of symmetry.

Guest Editor

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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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