

Special Issue

Quantum Fields and Off-Shell Sciences

Message from the Guest Editor

Intensive experimental studies on light-matter interactions and their associated technological breakthroughs, especially done in the field of dressed photon research, have led to a growing concern regarding unsettled off-shell quantum field interactions. In order to respond to the demand of this new tide, a new initiative has been recently launched. The aim of this Special Issue is to promote the progress of such research activities from a wider perspective, not necessarily limited to dressed photon studies. Therefore, the scope of this Special Issue covers, for instance, quantum probability theory, quantum walk model, quantum measurement theory, micro-macro duality, category theory, dynamics, vortex structure of spacetime, off the mass-shell property of quantum field and symmetry, and/or symmetry breaking of the quantum fields.

Guest Editor

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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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