



## Geometry, Symmetry and Quantum Field Theory

Guest Editor:

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**closed (30 November 2022)**

### Message from the Guest Editor

Dear Colleagues,

Research in modern physics tries to unify, in a consistent context, both the guiding principles of physics and all of the fundamental interactions.

The study of problems in the frontiers of quantum field theory, like the quantization of spacetime; the issue of renormalization, algebraic, and topological quantum field theories; and the analysis of advanced quantum field theory, with reference to applications mainly of quantum gravity and quantum cosmology, to the physics beyond the standard model, and to noncommutative geometry, could open new scenarios towards the understanding of the fundamental laws of the universe.

Dark energy and dark matter conundrums, particle mixing,  $f(R)$  and scalar-tensor theories of gravity represent further systems of particular interest, both for their impact on cosmology and for their fundamental origin, which has been traced to the physics beyond general relativity and the standard model.





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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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