Special Issue

Advances in Theoretical Physics, Quantum Gravity and Spacetime Symmetries

Message from the Guest Editors

In the search for a theory of quantum gravity, a pressing question is, 'what is the structure of spacetime at the Planck scale?' Spacetime symmetries, and violations thereof, are promising probes for testing Planck-scale departures from known physics, and some of the most precise tests of Lorentz/CPT symmetry have Planck reach. Several approaches to Planck-scale physics can lead to the spontaneous breaking of spacetime symmetries in the gravitational sector, which could lead to observational signatures in current and future experiments. Therefore, it is of interest to study the theoretical mechanisms of spacetime-symmetry breaking in order to be able to identify any such observational hints of new physics.

Guest Editors

Dr. Nils Albin Nilsson
Dr. Christophe Poncin-Lafitte
Dr. Quentin G. Bailey

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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.

Editor-in-Chief

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