



Astroparticle Physics as Probes of the Symmetries and Asymmetries in the Fundamental Physics

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Message from the Guest Editors

Dear Colleagues,

We like to think that nature is symmetrically exact, although it has experimentally proven to us that it is usually just approximately symmetrical or even asymmetric. The study of these symmetries and anti-symmetries belongs to the field of fundamental physics, whose objective is to reveal the properties of matter and the nature of space–time at its most fundamental level. The very origin of the universe, its content of matter and antimatter, the true nature of space–time, and clues to theories beyond the Standard Model of particles can lie in the search for a deep understanding of the symmetries and anti-symmetries of nature.

Today, astroparticle laboratories are evolving to the next generation, leading to unprecedented opportunities to test fundamental physics; every step of each experiment shows a new path for fundamental studies. In this Special Issue, we call for a thorough overview of the role of astroparticle physics in fundamental physics, probes of fundamental symmetries with astroparticles, and scientific proposals for current and next astroparticle physics experiments in the years to come in the field.





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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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