



Recent Advances of Symmetry in Cosmic Rays

Guest Editor:

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Message from the Guest Editor

Since their discovery by the Austrian physicist Victor Hess in 1912, cosmic rays have opened a new window on matter in the Universe, with a brand-new world of unknown particles unveiled. The positron, discovered in 1932, was the first antimatter particle. New particles followed such as the muon, the pion, the kaon and several more. Until the appearance of the first high-energy particle accelerators in the early 1950s, utilizing cosmic rays was the only means of probing these highly energetic particles. Nowadays, even with the development of powerful accelerators on Earth, cosmic rays remain a unique observatory from which to probe new areas of physics, whether looking for the missing antimatter in the Universe, understanding the dark matter quest, or unpicking fundamental interactions at ultra-high energies. In addition, the measurements of cosmic rays allows researchers to perform tests to assess possible violations of the Lorentz symmetry and the related CPT symmetry, and also...





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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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