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Physics of Primordial Black Holes

Guest Editor:

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Deadline for manuscript submissions:
closed (30 June 2025)

Message from the Guest Editor

Dear Colleagues,

Primordial black holes (PBHs) are a class of black holes that can form in the early universe. In the recent few years, there has appeared to be increasing interest in the investigation of PBHs since they may either explain the origin of dark matter or the origin of gravitational waves detected by LIGO/Virgo/KAGRA or pulsar timing array (PTA) observations. Moreover, they involve rich physical phenomenology such as the investigation of the late-time behavior of inflation, symmetry breaking and phase transitions in the early universe, the formation of galaxies and structures, the evolution of primordial curvature perturbations on small scales, etc.

Given the intensive interest in PBHs, we plan to open a new Special Issue that encourages the publication of research papers on any topic related to PBHs, either on the theoretical or observational side. We aim for a deeper understanding of the fundamental physics through the investigation of PBHs.

- primordial black hole
- inflation
- gravitational wave
- symmetry breaking
- dark matter

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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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