

Special Issue

Black Holes in String Theory and Field Theory: Symmetry and Topics

Message from the Guest Editors

The physics of black holes has been a fascinating topic in the scientific community since their theoretical formulation about a century ago. Since then, we have learned many characteristics that make them some of the most intriguing objects in the universe. However, even after all this time, there are still many issues we need to address. At the classical level, there are astrophysical predictions regarding the bounds on their masses, as well as the processes that give rise to supermassive black holes at very early stages in the evolution of the universe, which we do not yet fully understand. At the semiclassical level, the ongoing debate about resolving the information paradox implied by the Hawking radiation process continues, although the fundamental reason likely lies at the quantum level. Indeed, black holes are objects from which we can gather profound insights into quantum gravity. The aim of this Special Issue is to collect some reviews and original research articles showing the advance of our knowledge about the physics of black holes at the quantum and semiclassical level within the framework of string and field theory.

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Deadline for manuscript submissions

30 September 2025



Symmetry

an Open Access Journal
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Impact Factor 2.2
CiteScore 5.3



mdpi.com/si/230461

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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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