



## Black Holes, Cosmology, Quantum Gravity, and Their Symmetries

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### Message from the Guest Editors

Dear colleagues,

A fascinating lesson that follows from our current understanding of gravitational physics and quantum theory is that the large-scale structure of the universe cannot be fully understood without a clear description of its microscopic properties. This ultimately requires a consistent combination of gravity and the quantum, a challenging open question.

The exploration of the early universe, the observation of gravitational waves, the study of analog models in the lab, the thermodynamics of black holes, and many other research lines and innovative approaches to longstanding questions are contributing to a growing body of knowledge that will open new avenues to find a successful theory that describes the dynamics of gravity in the strongest regimes.

This Special Issue is aimed at bringing together novel results on classical and quantum aspects of black holes and compact objects, gravitational waves, early- and late-time cosmology, and different approaches to quantum gravity. Review articles, which play a very important role for the dissemination of well-established results in emerging and recently consolidated topics, and short communications are also encouraged.





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## Editor-in-Chief

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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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