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Special Issue Reprint

Modified Gravity

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Testing general relativity in extremely strong gravity regimes and on cosmological scales is one of the most important areas in modern physics and cosmology. The observation of gravitational waves is strongly expected to reveal key clues for verifying general relativity. In one promising approach to explain the late-time accelerated expansion of the universe, some have proposed extending gravitational theory from general relativity without introducing any unknown dark energy component. The main aim of this Special Issue is to understand black hole physics, including thermodynamic and cosmological aspects of alternative theories to general relativity for explaining gravity, in order to obtain both theoretical and observational constraints on the possible deviation of a gravity theory from general relativity. We aim to include both phenomenological approaches and more fundamental physics, such as quantum aspects of black holes, evaporation, thermodynamics, black hole entropy, modified theories of gravity, dark energy, inflationary cosmology, observational cosmology, physics in the early universe, and the astrophysics of compact objects. We hope that this Special Issue on black holes and cosmology in modified gravity theories is useful for future research in the field.

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