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Effects of Quantum Gravity in the Kerr Black Hole Paradigm

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Black Hole is a region of space time where the gravity is strong enough that, there is no predictable connection between the interior and the exterior region. A Kerr black hole can be explained only in terms of mass, spin and angular momentum. LQG is completely non-perturbative, explicit background independent approach to quantum gravity theories. Generally, the application of LQG on cosmology for the study of our universe is called as Loop Quantum Cosmology. In the present work, we try to describe the evolution of Kerr black holes by considering accretion of dark energy in the framework of loop quantum cosmology. Our investigation focuses on the impact of angular momentum and accretion efficiency on the evolution of Kerr black holes. Here we found that black holes formed in the early radiation dominated era evaporated quickly than the black holes formed in the later time period. Also we successfully found that Supermassive black hole having mass greater than equal to 10^48 gm. they all would be evaporated by the present time.

Track type

Dark Energy and Modified Gravity

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