Absorption of massless scalar fields by Johannsen-Psaltis black holes

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Black holes are among the most intriguing objects in Nature. They are generally believed to be fully described by General Relativity (GR), and the astrophysical black holes are expected to belong to the Kerr family, obeying the no-hair theorem. Alternative theories of gravity or parameterized deviations of GR allow more general black hole solutions, that have additional parameters beyond mass and angular momentum. In this work, we analyze a Schwarzschild-like metric, proposed by Johannsen and Psaltis, characterized by its mass and a deformation parameter. We compute the absorption cross section of massless scalar waves for different values of the perturbative parameter and compare it with the corresponding scalar absorption cross section in Schwarzschild space-time.