

Title: Deformed Kerr Spacetimes

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Abstract: The Kerr black hole hypothesis can be tested by using two approaches namely the top-bottom approach and bottom-up approach. The first one involves introducing the deviations in the Kerr metric through a theoretical model. The second approach involves introducing the deviations in terms of parameters. The metric proposed by Johannsen and Psaltis is one such parametrically deformed Kerr space-time. It reduces to the Kerr metric when one sets the deviation parameters to zero. Construction of the charged generalization of Johannsen-Psaltis spacetime, constraints on the parameters and its horizon structure are discussed.