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The effects of a minimal length on the Kerr metric

The effects of a minimal length on the Kerr metric are studied within a generalized metric theory, called the pseudo-complex General Relativity (pcGR), allowing for accumulation of dark energy around a star. The relevant parameters are the rotational Kerr parameter a and the mass of a black hole, a parameter measuring the amount of dark energy accumulated. It is found that the metric is modified by a function factor, depending on r and the minimal length l, implying a maximal acceleration. This factor shows several singularities. The corresponding effective potentials exhibit potential barriers, avoiding the increase of the black hole's mass.

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