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Breaking black-hole uniqueness at supermassive scales

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In general relativity, all vacuum black holes are described by the Kerr metric. However, beyond general relativity, there is a prevailing expectation that deviations from the Kerr solution are more likely to manifest with increasing horizon curvature, making solar-mass black holes more promising grounds to test general relativity. In this talk I will challenge this expectation and discuss a model where black holes differ from Kerr only in a finite mass range, bounded from above and below. In particular, black-hole uniqueness can be broken at supermassive black-hole scales, while solar-mass black holes remain well-described by the Kerr solution.

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