

Abstract Submitted
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Over-spinning a black hole with a test body¹ TED JACOBSON, University of Maryland, THOMAS SOTIRIOU, University of Cambridge — A black hole of a given mass has a maximum possible spin. For greater spin, the corresponding solution to the Einstein equation has a naked singularity. Thus the question: can one spin up a black hole and expose a naked singularity? It has long been known that a *maximally* spinning black hole can not be over-spun by tossing in a test body. However, we find that if instead the black hole starts out with below maximal spin, then over-spinning can be achieved. We find that the requirements on the size and internal structure of the test body can be met if the body carries in either orbital or spin angular momentum. Our analysis neglects radiative and self-force effects, which may of course prevent the over-spinning.

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