

Abstract Submitted  
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**Neutron Stars are Follicly Challenged<sup>1</sup>** NICOLAS YUNES, KENT YAGI, Montana State University, LEO STEIN, Einstein Fellow – Cornell University, GEORGE PAPPAS, University of Nottingham, THEOCHARIS APOSTOLATOS, University of Athens, KOUTAROU KYUTOKU, University of Wisconsin-Milwaukee — Black holes satisfy certain no-hair relations through which all multipole moments of the spacetime can be specified in terms of just a few quantities, like their mass and spin angular momentum. I will describe how neutron stars and quark stars also satisfy similar no-hair relations that are approximately independent of their equation of state. I will show how these results hold for both slowly- and rapidly-rotating stars in full General Relativity, provided the stars are uniformly rotating and uncharged. I will then explain why such relations may be relevant to observations of the pulse profile of hot spots on rotating neutron stars with NICER, as well as how they could be used to test General Relativity with binary pulsar and gravitational wave observations.

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