

Abstract Submitted  
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**Stability bounds on compact astrophysical objects from information-entropic measure**<sup>1</sup> NAN JIANG, MARCELO GLEISER, Dartmouth College — We obtain bounds on the stability of various self-gravitating astrophysical objects using a new measure of shape complexity known as configurational entropy. We apply the method to Newtonian polytropes, neutron stars with an Oppenheimer-Volkoff equation of state, and to self-gravitating configurations of complex scalar field (boson stars) with different self couplings, showing that the critical stability region of these stellar configurations obtained from traditional perturbation methods correlates well with critical points of the configurational entropy with accuracy of a few percent or better.

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