

Abstract Submitted  
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**Impact of Deformation on the Structure of Non-Rotating Neutron Stars**<sup>1</sup> OMAIR ZUBAIRI, FRIDOLIN WEBER, San Diego State University, EFRAIN FERRER, VIVIAN INCERA, University of Texas at El Paso — Conventional models of compact objects such as neutron stars assume they are perfect spheres. However, due to high magnetic fields, certain classes of neutron stars such as magnetars and neutron stars containing color-superconducting quark matter cores are expected to be deformed (non-spherical). In this work, we seek to examine the stellar structure of such objects in the framework of general relativity. We derive the stellar structures equations of non-spherical neutron stars and calculate stellar properties such as masses, radii, along with pressure and density profiles and investigate any changes from standard spherical models.

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