

Abstract Submitted
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Observational effects of nuclear pasta in neutron stars MICHAEL GEARHEART, Texas A&M University - Commerce — Neutron stars (NSs) provide us with an excellent laboratory for examining nuclear theory under conditions not obtainable here on Earth. In the solid inner crust of the NS near the transition to the liquid core, nuclei can form cylindrical, slab and bubble structures (so-called pasta phases). Some NSs are observed to undergo gamma ray flares which have oscillations in the X-ray tail of their lightcurve. These oscillations are thought to be caused by torsional oscillations in the crust which depends on the shear modulus (rigidity) of the crust. We present a study of the lower and upper bound observational effects of the pasta regime on the frequency of the torsional modes and the maximum quadrupole ellipticity sustainable by the crust.

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