



QHD equation of state for strongly magnetized neutron stars

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(Submitted on 22 Jun 2011)

We investigate the quantum hydrodynamic equation of state for neutron stars (with and without including hyperons) in the presence of strong magnetic fields. The deduced masses and radii are consistent with recent observations of high mass neutron stars even in the case of hyperonic nuclei for sufficiently strong magnetic fields. The calculated adiabatic index and the moments of inertia for magnetized neutron stars exhibit rapid changes with density. This may provide some insight into the mechanism of star-quakes and flares in magnetars.

Subjects: **High Energy Astrophysical Phenomena (astro-ph.HE);**
Nuclear Theory (nucl-th)

DOI: [10.1016/j.astropartphys.2012.09.005](https://doi.org/10.1016/j.astropartphys.2012.09.005)

Cite as: **arXiv:1106.4381 [astro-ph.HE]**
(or **arXiv:1106.4381v1 [astro-ph.HE]** for this version)

Submission history

From: ChungYeol Ryu [[view email](#)]

[v1] Wed, 22 Jun 2011 06:56:54 GMT (36kb)

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