Astrophysics > High Energy Astrophysical Phenomena

QHD equation of state for strongly magnetized neutron stars

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We investigate the quantum hadrodynamic 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.

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