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Axion effects on the nonradial oscillations of neutron stars

We investigate the effects of including strong charge parity violating effects through axion field on the structure and the oscillation modes of the neutron stars with the possibility of a quark matter core. The effects of axions in quark matter is described through a t Hooft determinant interaction in the flavor space within the ambit of a three flavor Nambu–Jona-Lasinio model. The presence of axions seem softens the equation of state with having a larger core of quark matter compared to the case when their absence. This leads an enhancement of the f mode oscillation frequencies in hybrid stars.

Category

Theory

Collaboration (if applicable)

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