

g-mode oscillations in neutron stars with hyperons

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A common alternative to the standard assumption of nucleonic composition of matter in the interior of a neutron star is to include strange baryons, particularly hyperons. Any change in composition of the neutron star core has an effect on g -mode oscillations of neutron stars, through the compositional dependence of the equilibrium and adiabatic sound speeds. Using a variety of relativistic mean field models of dense matter that satisfy observational constraints on global properties of neutron stars, we predict a sharp rise in the g -mode frequencies upon the onset of strange baryons. Should g -modes be observed in the near future, their frequency could be used to test the presence of hyperonic matter in the core of neutron stars.

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