



# The mass-radius relations of neutron stars in an pion mean-field approach

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We investigate the masses and radii of neutron stars within the framework of the in-medium modified chiral soliton model, considering the effects of surrounding baryonic environment on the properties of in-medium baryons. The equation of state describing an infinite and asymmetric nuclear matter are obtained by introducing the density-dependent functions. To extrapolate the high density and highly isospin asymmetric region, we study the masses and radii of neutron stars. The results predict the masses and radii to be  $\sim 1.4M_{\odot}$  and  $\sim 2M_{\odot}$ , respectively. We discuss the physical meaning of the equation of state obtained from the chiral solitonic approach, based on the present results.

## Present via

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