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A study of neutron star property based on the PDM-NJL crossover model

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I will summarize our works in Refs. [1]-[3] in which we studied neutron star property based on the PDM-NJL crossover model. In the low-density region, we construct an EoS using a hadronic model based on the parity doublet structure with the chiral invariant mass of nucleons. In the high density region, an EoS is obtained in an NJL-type quark model. By interpolating two EoSs with assuming the quark-hadron crossover, we construct a unified EoS for dense matter. We then derive the M-R relation of neutron stars from the unified EoS and compare the result with the observational constraints to obtain an allowed range for the chiral invariant mass.

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