

Effect of color superconductivity on the mass of neutron stars

Thursday, 1 December 2022 19:00 (20 minutes)

Diquark gap calculated within the framework of a micro-physical (non-local Nambu-Jona Lasinio) model coupled to color and electric neutrality constraints and fit to a μ -dependent ansatz, is employed to an algebraic quark EoS (equation of state) [1]. The effect of this μ -dependent diquark gap is investigated against that of a constant (diquark) gap in the same (algebraic) EoS.

Additional parameters of the EoS, namely, gluon-mediated QCD interactions amongst quarks (in the Fermi sea) and the bag constant are constrained further within the framework of the above ansatz.

Within the framework of hybrid equations of state with transitions to stiff or soft equations of state, the averaged μ in context of neutron star properties is found to produce comparable results if all other parameters are fixed.

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Session Classification: Neutron Stars and very high $m_{\mu B} - 2$