

Impact of the Cosmological constant on neutron star mass-radius in a modified quark meson coupling model

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Abstract. The Tolman-Oppenheimer-Volkoff equations are solved taking into account the cosmological constant. The equation of state (EOS) developed in a Modified Quark Meson Coupling Model (MQMC) is given as the input for solving the TOV equations. Under such a model the confining interaction for quarks inside a baryon is represented by a phenomenological average potential in an equally mixed scalar-vector harmonic form. The hadron-hadron interaction in nuclear matter is then realized by introducing additional quark couplings to s , ω , and ρ mesons through mean-field approximations. Our results satisfy the maximum mass constraint of $2M_e$ for neutron stars, as determined in recent measurements of the pulsar PSR J0348+0432.

Keywords: Neutron stars, cosmological constant, Modified quark meson coupling model.

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