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QCD phase diagrams combining QHD and MIT based models

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In the present work phase diagrams of QCD are obtained by means of two effective models. For the description of the quark matter we make use of the MIT bag model and a modification of this model, and for the description of the hadronic matter we make use of the non-linear Walecka model (NLWM). The Gibbs conditions are used to establish the crossing points of the pressures in function of the chemical potentials obtained in both phases. Some restrictions are imposed when choosing models. The MIT based models are used only with constant values satisfying the lower limit of the Bodmer-Witten conjuncture. The NLWM, in turn, is restricted to parameterizations that satisfy several nuclear and astrophysical properties. Two situations are considered for the description of the hadronic matter; in the first situation we consider symmetrical matter, and in the second one the conditions of matter of compact stars are imposed and the model is extrapolated to finite temperatures.

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