

Magnetized color superconducting quark matter under compact star conditions: Phase structure within the SU(2)_f NJL model

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The properties of magnetized color superconducting cold dense quark matter under compact star conditions are investigated using an SU(2) Nambu Jona-Lasinio (NJL)-type model in which the divergences are treated using a magnetic field independent regularization scheme in order to avoid unphysical oscillations. We study the phase diagram for several model parametrizations. The features of each phase are analyzed through the behavior of the chiral and superconducting condensates together with the different particle densities for increasing chemical potential or magnetic field. While confirming previous results derived for the zero magnetic field or isospin symmetric matter case, we show how the phases are modified in the presence of β -equilibrium as well as color and electric charge neutrality conditions.

Summary

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