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## Neutrino oscillations effects on the thermodynamic properties of hot electrically neutral quark matter in beta-equilibrium

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In our study, we analyzed how neutrino oscillations impact the thermodynamic properties of three-flavor hot electrically neutral beta-stable quark matter that cannot be penetrated by neutrinos. Through the use of the local SU(3) Nambu-Jona-Lasinio (NJL) model, we were able to determine the thermodynamic characteristics of quark matter for two different temperatures, specifically at T = 60 and 100 MeV, while taking into consideration neutrino oscillations. We then compared these results to those obtained without considering neutrino oscillations. Our calculations revealed that the energy released per unit of baryon charge during the cooling of quark matter that is opaque to neutrinos ranged from 150 to 350 MeV.

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