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Non-extensive statistical effects on the thermodynamic properties of quark matter

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In the present work, we apply Tsallis non-extensive statistics to study the thermodynamic properties of quark matter in the chiral SU(3) mean field model. Within this model, the quark matter properties are modified through the scalar fields σ , ζ , δ , χ and the vector fields ω , ρ at finite temperature and chemical potential. Non-extensive effects have been introduced through a dimensionless parameter q and the results are compared to the extensive case ($q \rightarrow 1$). In the non-extensive case, the exponential in the Fermi-Dirac (FD) function is modified to a q -exponential form. The influence of the parameter q on various thermodynamic properties such as energy density, entropy density and trace anomaly is investigated.

Session

Heavy Ions and QCD

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