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Medium modification of hadron masses and the thermodynamics of hadron resonance gas model

We study the effect of temperature (T) and baryon density (μ) dependent hadron masses on the thermodynamics of hadronic matter. We use linear scaling rule in terms of constituent quark masses for all hadrons except for light mesons. T and μ dependent constituent quark masses and the light mesons masses are computed using 2+1 flavor Nambu-Jona-Lasinio (NJL) model. We compute the thermodynamical quantities of hadronic matter within excluded volume hadron resonance gas model (EHRG) with these T and μ dependent hadron masses. We confront the thermodynamical quantities with the lattice quantum chromodynamics (LQCD) at $\mu = 0$ GeV. Further, we comment on the effect T and μ dependent hadron masses on the transport properties near transition temperature.

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