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Effect of repulsive mean-field interactions among hadrons on susceptibilities of conserved charges

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We employ the repulsive mean-field interactions among the hadrons and investigate how the susceptibilities of conserved charges deviate from ideal Hadron Resonance Gas (HRG) description. The repulsive mean-field interactions are incorporated by modifying the single particle energies by a term proportional to the number density of hadrons. We assume different mean-field interactions for mesons and baryons. We find that the repulsive mean-field interaction influences the susceptibilities of conserved charges of hadron gas significantly. The effect of repulsive hadronic interactions on the ratios and differences of susceptibilities is also investigated at zero chemical potentials. We also show that the repulsive interaction modelled in this way, leads to good agreement with the results of lattice QCD for some of the ratios of baryon charge susceptibilities at non-zero baryon chemical potential.

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