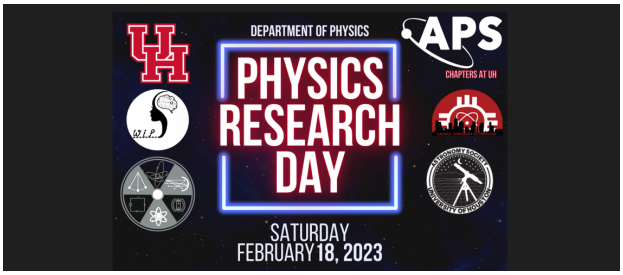

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Contribution of Hadron Families to the QCD Equation of State

Saturday 18 February 2023 13:15 (15 minutes)

Currently Lattice QCD simulations provide the best method of deriving the pressure of QCD as a function of the temperature. In the low-temperature regime, the thermodynamics can be understood in terms of a gas of non-interacting hadrons and resonances, but the contribution of the single hadronic species cannot be easily isolated. In this work we propose linear combinations of susceptibilities of conserved charges, that isolate the contribution of hadrons to the pressure of QCD according to their baryon number B, electric charge Q and strangeness S content. We build these partial pressures such that they vanish in the Stefan-Boltzmann limit. This generates a non-monotonic behavior which can be used to identify the melting temperature of each hadron family. We test the validity of these linear combinations in the Hadron Resonance Gas (HRG) model and compare them to available lattice QCD results.

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