

Abstract Submitted
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Strangeness-Neutral Equation of State with an Ising-model Critical Point¹ ANGEL NAVA, University of Houston, DBORA MROCZEK, JACQUELYN NORONHA-HOSTLER, University of Illinois Urbana-Champaign, PAOLO PAROTTO, University of Wuppertal, DAMIEN PRICE, CLAUDIA RATTI, JAMIE STAFFORD, University of Houston, BEAM ENERGY SCAN THEORY (BEST) COLLABORATION — We develop a family of strangeness-neutral Equations of State (EoS) for QCD, exhibiting critical behavior, matching the results on Taylor expansion coefficients from Lattice QCD, compatible with the SMASH hadronic transport approach, and in a range of temperature and baryonic chemical potential which is pertinent for phase II of the Beam Energy Scan at RHIC². With our implementation of strangeness neutrality conditions, the BES-EoS now serves to better reproduce the system in a heavy-ion collision, in which there is zero global strangeness density and a fixed ratio of electric charge to baryon number. In addition to the thermodynamic quantities that comprise the equation of state, we also show the isentropic trajectories and their transformations in a strangeness-neutral system, as well as the critical contribution to the correlation length. Finally, we compare our results with an earlier, non-strangeness-neutral version of the EoS³.

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²D. Mroczek, A. R. Nava Acuna, J. Noronha-Hostler, P. Parotto, D. R. P. Price, C. Ratti, and J. M. Stafford, **Forthcoming publication**.

³P. Parotto, M. Bluhm, D. Mroczek, M. Nahrgang, J. Noronha-Hostler, K. Rajagopal, C. Ratti, T. Schaefer, M. Stephanov, **Phys. Rev. C**101 (2020) 034901.

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