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A canonical formulation of lattice QCD with physical quark masses

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QCD at finite temperature and density is usually studied in the lattice formalism with a grand canonical approach, where the properties of the system are defined in terms of the baryochemical potential μ . Studies in the canonical formulation are less common. Here we present first canonical results computed with physical quark masses. The simulations have been performed on $16^3 \times 8$ lattices using 2 + 1 4HEX improved staggered fermions.

We also present first results with both the strangeness (n_S) and baryon (n_B) densities as parameters. Specifically, we compute the QCD pressure and chemical potentials as functions of n_B and n_S and we are able to compare our results with Hadron Resonance Gas model.

Special requests

I would need to leave on Friday the 5th, would it be possible to speak before?

Authors: ADAM, Alexander (University of Wuppertal); BORSANYI, Szabolcs (University of Wuppertal); FODOR, Zoltan (Pennsylvania State University); GUENTHER, Jana (University of Wuppertal); PAROTTO, Paolo (University of Torino); PÁSZTOR, Attila (Eötvös Loránd University); PIRELLI, Ludovica (University of Wuppertal); WONG, Chik Him (University of Wuppertal)

Presenter: PIRELLI, Ludovica (University of Wuppertal)

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