Contribution ID: **61** Type: **not specified**

Anisotropic pressure induced by finite-size effects at nonzero temperature in SU(3) Yang-Mills theory

Tuesday, 4 August 2020 16:40 (20 minutes)

We study the pressure anisotropy in anisotropic finite-size systems in SU(3) Yang-Mills theory at nonzero temperature. Lattice simulations are performed on lattices with anisotropic spatial volumes with periodic boundary conditions. The energy-momentum tensor defined through the gradient flow is used for the analysis of the stress tensor on the lattice. We find that a clear finite-size effect in the pressure anisotropy is observed only at a significantly shorter spatial extent compared with the free scalar theory, even when accounting for a rather large mass in the latter.

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Session Classification: QCD at nonzero Temperature and Density

Track Classification: QCD at nonzero Temperature and Density