

The equation of state with non-equilibrium methods

Thursday, 14 December 2017 12:50 (20 minutes)

Jarzynski's equality provides an elegant and powerful tool to compute directly ratios of partition functions in Monte Carlo simulations and it can be easily extended to lattice gauge theories in order to compute several physically interesting quantities. In this talk we present a novel technique to compute the equation of state of strongly-interacting theories based on this relation, which allows for a direct and efficient determination of the pressure using out-of-equilibrium Monte Carlo simulations on the lattice. We present recent results obtained with this method for the thermodynamics of the SU(3) Yang-Mills theory in the confined and deconfined phases.

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Session Classification: Session 6