

Non-Equilibrium Signals of the $SU(3)$ Deconfining Phase Transition

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Abstract: In $SU(3)$ simulations with the model A (Glauber) dynamics we find unambiguous signal for the transition when the (driving) temperature T_f is larger than T_c , but there is insufficient time to equilibrate. A dynamical growth of Polyakov loop structure factors, reaching maxima which scale approximately with the volume of the system, precedes equilibration. We study their influence on various observables, using different lattice sizes to illustrate an approach to a finite volume continuum limit. Strong correlations are found during the dynamical process, but not in the deconfined phase at equilibrium. Debye screening masses $m_D(T_f)$ are estimated from initial response to the temperature change.