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Evolution of critical fluctuations in Bjorken expansion and its effects on two-particle rapidity correlations[1] CHANDRODOY CHATTOPADHYAY, LIPEI DU, ULRICH HEINZ, The Ohio State University — A novel way of locating the QCD critical point is to look for correlations in certain final state observables of heavy ion collisions which may be potential signatures of long-range correlations and large fluctuations taking place in the hot and dense systems as they transit the critical domain. In this work, we study two-particle rapidity correlations induced from fluctuations of hydrodynamic variables in a system undergoing Bjorken expansion which passes close to the QCD critical point. The dynamics of fluctuations are described by deterministic hydro-kinetic equations for out-of-equilibrium two-point functions, and the effects of critical behaviour of transport coefficients and correlation length, and of the medium expansion are systematically investigated. Differences of our findings from those obtained using a straightforward extrapolation of the traditional theory of hydrodynamic fluctuations to the critical regime are discussed. Comparisons with results for two-particle correlations stemming from fluctuations away from the critical point are presented to distinguish the effects of criticality.

Chandrodoy Chattopadhyay
The Ohio State University

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