

Forward-Backward Multiplicity Correlations for Identified Particles at STAR

Long-Range Forward-Backward multiplicity correlations(LRC) may be a signal for multiple partonic interactions in dense matter, whereas short-range correlations are due to independent sources [1,2]. Previously, strong LRC have been measured at STAR in 200 GeV central Au+Au collisions, and were shown to decrease with decreasing centrality [3]. The Color Glass Condensate model, which describes sources as longitudinal flux tubes, predicts that the correlation will grow with centrality [4,5]. Furthermore, fluctuations in the number of gluons at early times will produce a long range correlation significantly larger for pions than protons [5]. We present the forward-backward correlation of identified hadrons (pions, kaons, protons) as a function of rapidity for Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV. The particle identification is carried out by measuring their average energy loss in the STAR Time Projection Chamber. The centrality dependence of the correlation strength will also be discussed for each particle species.

References:

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Track Classification: Correlations and fluctuations