First Results on Two-Particle Correlations Determined by the PHENIX Experiment at RHIC

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Abstract

Two particle correlation measurements are utilized to provide insight into the spatial and temporal extent of the collision region created in heavy ion collisions. The PHENIX experiment has excellent momentum resolution about mid-rapidity ($|\eta| < .35$) combined with a time-of-flight wall that provides pi-K separation up to 1.5 GeV/c. As a result, PHENIX provides a generous environment for correlation studies. We present results on multi-dimensional, identical-particle correlations as a function of transverse momentum of the pair and centrality as measured by the PHENIX detector for the first year's run at RHIC energies. We discuss the interpretation of these results in light of previous correlation measurements.

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