

Forward and Backward to Mid-Rapidity Correlations Measured in d+Au Collisions at $\sqrt{S_{NN}} = 200$ GeV with the PHENIX Detector

Deuteron-gold collisions offer insights into the nuclear structure function and a valuable baseline for Au+Au collisions. The d+Au system provides the opportunity to probe the gluonic structure of the Au nucleus. There are strong theoretical and experimental interests in the possibility of gluon saturation effects influencing parton distributions at very low x in the nucleon. This effect would be even stronger in a nucleus and can be investigated via d+Au collisions by measuring forward rapidity, d-going side, particles. By contrast the higher x region of Au nucleus may be examined through measurements of the backward rapidity, Au-going side, particles. Comparison of the mid-rapidity yield and widths correlated with jets triggered on the d going side and those correlated with jets triggered on the Au going side, allows the exploration of gluon saturation and other x dependent effects.

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