Abstract Submitted
for the DNP12 Meeting of
The American Physical Society

Forward di-hadron correlation study at STAR XUAN LI, Temple University, STAR COLLABORATION — Quarks and Gluons, known generically as partons, are the current known fundamental constituents of the proton. The gluon density increases as the longitudinal momentum faction (x) of the gluon decreases, but it cannot increase without bound and saturation is expected at a certain low x value. The dynamics of quarks and gluons at low x is an open question. Studies of correlations between pairs of particles emitted in the forward direction at STAR aim to probe the small-x gluons in protons and in denser nuclear targets like gold. Suppression of back-to-back forward π^0 - forward π^0 azimuthal correlations which is consistent with Color Glass Condensate (CGC) prediction has been observed in central d+Au collisions at STAR. By studying the rapidity dependence of the forward triggered di-hadron correlations in p+p and d+Au collisions at $\sqrt{s} = 200GeV$, we aim to address the question of how sharp the transition is in going from a dilute parton gas to the dense parton state. STAR has nearly continuous electromagnetic calorimeter coverage in pseudo-rapidity $-1 < \eta < 4$ range. The forward π^0+near-forward jet-like cluster azimuthal correlations suggests a smooth transition. Newer results extend previous studies to a low p_t region.

Xuan Li
Temple University

Date submitted: 01 Jul 2012 Electronic form version 1.4