

Abstract Submitted
for the APR12 Meeting of
The American Physical Society

Constraining ΔG at Low- x with Double Longitudinal Spin Asymmetries of Hadrons at Forward Rapidity in PHENIX SCOTT WOLIN, University of Illinois at Urbana-Champaign, PHENIX COLLABORATION — At low Bjorken- x , $x < 0.05$, the proton structure is heavily gluon dominated. However, in this kinematic region, the gluon polarization, ΔG , and hence its contribution to the net proton spin, remains weakly constrained. To map out the gluon polarization at low- x and distinguish between various theoretical models with the best sensitivity, it is necessary to measure the asymmetry, A_{LL} , in high p_T hadrons in the forward direction ($3.1 < |\eta| < 3.9$) from longitudinally polarized protons. We will report the current status of the single π^0 measurements. In addition, we have upgraded the electronics and triggering of our forward calorimeter to be able to trigger on di-hadron events as well. The new trigger will be used first during the 2012 RHIC run. This measurement is particularly interesting because it provides the best sensitivity to low- x gluons, with $x \sim \text{few} \times 10^{-3}$, that participate in highly asymmetric interactions. We will report on the performance of our new trigger as the run in progress continues. Both the single and di-hadron measurements will provide valuable low- x input for future global analyses of ΔG .

Scott Wolin
University of Illinois at Urbana-Champaign

Date submitted: 06 Jan 2012

Electronic form version 1.4