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Recent results from PHENIX on double helicity asymmetry ($A_{LL}^{\pi^0}$) measurement at center of mass energy ($\sqrt{s}$) = 510 GeV HARI GURAGAIN, Georgia State University — One of the major objectives of the Relativistic Heavy Ion Collider (RHIC) spin program at Brookhaven National Laboratory is the measurement of the gluon helicity contribution to the proton spin via measuring the double longitudinal spin asymmetry (A_{LL}) in various channels. In PHENIX (Pioneering High Energy Nuclear Interaction eXperiment) we measure A_{LL} in π^0 production. The π^0 is reconstructed through its diphoton decay channel. The photons are detected by the PHENIX Electromagnetic calorimeter, which consists of lead glass and lead scintillator detectors and covers rapidity of $|\eta| < 0.35$ and azimuthal angle of $180\,^\circ$. We present a preliminary results for A_{LL} in π^0 production from the data collected in the year 2013 at center of mass energy ($\sqrt{s}$) = 510 GeV. In year 2013, the total integrated luminosity was 150 pb^{-1} which is almost ten times the total luminosity recorded in the year 2009 at $\sqrt{s} = 200$ GeV. Due to increase in the center of mass energy and integrated luminosity, the new measurements can cover the Bjorken x range down to 0.01. We found a non-zero A_{LL} result which is consistent with positive gluon polarization at the probed kinematics.

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