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Constraining the Gluon Contribution to the Proton's Spin by Measuring the Double Longitudinal Spin Asymmetry in Neutral Pion Production in Polarized p+p Collisions KIERAN BOYLE, Stony Brook University, PHENIX COLLABORATION — The quark contribution to the proton's spin measured with polarized DIS fixed target experiments was found to be only 20-30 %. This has raised interest in measuring the gluon contribution, Δg , directly. Using the PHENIX Detector at the Relativistic Heavy Ion Collider (RHIC), we study longitudinally polarized proton collisions. The double longitudinal spin asymmetry in π^0 production, $A_{LL}^{\pi^0}$, is related to Δg . RHIC has recently completed its second long polarized proton run. In 2005, 46% average polarization and 2.7 pb^{-1} integrated luminosity was achieved while in 2006, 60% average polarization and 7.5 pb^{-1} was achieved. The current status of our analysis of $A_{LL}^{\pi^0}$ will be presented.

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