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PHENIX Measurements of the Double Longitudinal Helicity Asymmetry in Neutral Pion Production in Polarized p+p Collisions at $\sqrt{s}$ = 200 and 500 GeV ANDREW MANION, Stony Brook University, PHENIX COLLABORATION — Measurement of the gluon spin contribution to the proton spin, ΔG, is an important component of the RHIC spin program. One particular focus is measuring the π^0 double longitudinal helicity asymmetry, A_{LL}, which is proportional to ΔG. The large $p+p \to \pi^0$ cross section coupled with the high resolution of the PHENIX EM-Calorimeter make this an attractive avenue for constraining ΔG. Significant constraints have already come from 2005 and 2006 PHENIX measurements of $\sqrt{s} = 200$ GeV polarized proton collisions. In 2009, $\sqrt{s} = 200$ GeV running saw a more than 60% increase in the figure of merit (P^4L) due a large increase in luminosity (L) with ∼55% polarization (P). Also, the first data at $\sqrt{s} = 500$ GeV were recorded and will push the constraints to lower momentum fraction x. After a brief review of past results, the status of the 2009 analysis will be presented.

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