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Analysis of Neutral Pion Helicity Asymmetry with the STAR Detector ALEC HAUCK, NOAH STRAND, Valparaiso University, STAR COLLABORATION — The gluon contribution to the proton spin is poorly constrained compared to the quark contribution. To further constrain the gluon contribution, the STAR collaboration at RHIC analyzes the asymmetry in neutral pion (π^0) production as a function of spin alignment in longitudinally polarized proton beam collisions. These π^0s mostly decay into photon pairs, some of which are identified in the Endcap Electromagnetic Calorimeter (EEMC) within the STAR detector. The EEMC has a pseudorapidity range of $1 < \eta < 2$ with full azimuthal coverage. The EEMC's Shower Max Detector (SMD) determines the positions of photon showers. A first step in identifying photons is reconstructing clusters of energy in each layer of the SMD. Knowing the position and energy of these photons allows us to reconstruct the π^0s they decayed from. From these reconstructed π^0s, a corrected count is determined by fitting signal and background templates from Monte Carlo simulation to the π^0 candidate invariant mass distributions. We will describe the state of our analysis on the $\sqrt{s} = 510$ GeV dataset from 2012 (integrated luminosity 82 pb^{-1}) including cluster identification, Monte Carlo simulation, and data. We will also give a first glimpse of the 2013 dataset (300 pb^{-1}).

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