Abstract Submitted
for the DNP16 Meeting of
The American Physical Society

Double-Spin Asymmetry in Neutral Pion (π^0) Production in Longitudinally Polarized p+p Collisions[1] TAEGYUN KIM, Valparaiso Univ, STAR COLLABORATION — Beyond the valence quarks' spin contribution to the total spin of a proton, gluon and sea quark contributions are becoming clear as well. For proton+proton collisions at a center of mass energy of 510 GeV, neutral pion production is dominated by gluon-gluon and gluon-quark scattering. An avenue to constrain the gluon polarization is the asymmetry, A_{LL}, in the production of neutral pions from collisions of longitudinally spin-polarized proton beams. Our experiment was performed with the STAR detector at the Relativistic Heavy Ion Collider (RHIC), unique for its ability to collide spin-polarized proton beams.The Endcap Electromagnetic Calorimeter (EEMC) of the STAR detector with its pseudorapidity (η) range between 1.09 and 2.00 and full azimuthal coverage measures energies of photons from π^0 decays. We consider the invariant mass of all photon pairs in the EEMC as we identify π^0 candidates. We will present the current status of the analysis of the π^0 A_{LL} as measured by the EEMC at STAR in 2012 data with center-of-mass energy of 510 GeV.

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Date submitted: 22 Jul 2016 Electronic form version 1.4