Abstract Submitted
for the DNP12 Meeting of
The American Physical Society

Recent STAR results on W boson production in polarized $p+p$ collisions at $\sqrt{s} = 500$ GeV JAN BALEWSKI, Massachusetts Institute of Technology, STAR COLLABORATION — The production of $W^{\pm}$ bosons in longitudinally polarized p+p collisions is an ideal tool to study the spin-flavor structure of the proton, because the spin-dependent W production cross section $\Delta\sigma = \sigma(\overrightarrow{p}p) - \sigma(\overleftarrow{p}p)$ is directly sensitive to the polarization of the quarks and anti-quarks in the proton. At leading order in the standard model, $W^{\pm}$ production proceeds through $u + \bar{d} \rightarrow W^{+}$ and $d + \bar{u} \rightarrow W^{-}$. The STAR Electromagnetic Calorimeter is used to trigger on electrons and positrons from the weak decay of the W boson and to provide a measure of the lepton energy, while the STAR Time Projection Chamber allowes for reconstruction of the lepton track and its charge sign. Background events from QCD processes were suppressed by isolation cuts around a candidate lepton track as well as vetoing on transverse energy opposite in azimuth of the candidate. The STAR experiment has collected about 100 pb^{-1} of W boson events from collisions of protons at $\sqrt{s} = 500$ GeV, longitudinally polarized at 50%, during 2009-2012 running periods. We will present progress on determination of the single-spin asymmetry, $A_L = \Delta\sigma/(\sigma(\overrightarrow{p}p)+$

Renee Fatemi
University of Kentucky

Date submitted: 02 Jul 2012 Electronic form version 1.4