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Recent results on W $\mathbf{A}_L$ in longitudinally polarized $p+p$ collisions at STAR JINLONG ZHANG, Shandong University, STAR COLLABORATION — The production of $W^{\pm}$ bosons in longitudinally polarized $p+p$ collisions is a powerful tool to study the spin-flavor structure of the proton, because the spin-dependent W roduction 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. This contribution will report on the recent W measurements performed at the STAR experiment at RHIC. The STAR Electromagnetic Calorimeters are 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 allows for reconstruction of the lepton track and its charge sign. During 2012 running period, the STAR experiment had collected an integrated luminosity of $\sim$80 pb^{-1} at $\sqrt{s} = 510$ GeV with an average beam polarization of $\sim$55%. Preliminary results for the single-spin asymmetry, $A_L = \Delta\sigma / \left(\sigma(\overrightarrow{p}\,p) + \sigma(\overleftarrow{p}\,p)\right)$, from the 2012 dataset will be presented, as well as projections for the recently completed 2013 running period.

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