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The parity-violating spin asymmetry A_L for $W^{\pm}$ bosons with STAR at RHIC JAN BALEWSKI, MIT, STAR COLLABORATION — The STAR experiment has acquired its first set of W-boson events from collisions of longitudinally polarized protons at $\sqrt{s} = 500$ GeV. The STAR Electromagnetic Calorimeter triggered on electrons/positrons from the weak decay of the W and provided the energy of the lepton, while the STAR Time Projection Chamber allowed reconstruction of the lepton track and its charge sign. The QCD physics background was suppressed by isolation cuts around a candidate lepton track as well as vetoing on transverse energy opposite in azimuth. In the standard model leading-order $W^{\pm}$ production is through $u + \bar{d} \rightarrow W^+$ and $d + \bar{u} \rightarrow W^-$. These interactions are ideal tools to study the spin-flavor structure of the proton, because the spin-dependent W production cross section $\Delta\sigma = \sigma(\overrightarrow{p}p) - \sigma(\overleftarrow{p}p)$ depends strongly on the polarization of the quark and anti-quark in the proton, with $\overrightarrow{p}(\overleftarrow{p})$ representing a proton with its spin aligned with (against) its momentum. We will present the status of the STAR measurement of $A_L = \Delta\sigma/(\sigma(\overrightarrow{p}p) + \sigma(\overleftarrow{p}p))$ for mid-rapidity charge separated W^+ and W^-.

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