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W^\pm Boson Production Measurement at Mid-rapidity in the PHENIX Experiment MIKHAIL STEPANOV, University of Massachusetts, Amherst, PHENIX COLLABORATION — The measurement of W^\pm production provides an important probe of the flavor-separated quark and antiquark helicity distributions in the proton. At mid-rapidity, $|\eta| \leq 0.35$, using the PHENIX central arm detectors we observe W^\pm boson decays through e^\pm channels in polarized $p + p$ collisions at RHIC. In 2011, in 500 GeV $p + p$ collisions, PHENIX recorded data with an improved beam polarization and increased integrated luminosity in comparison with the previous 2009 data set: the beam polarization was 48% and the integrated luminosity was 16.7 pb^{-1} . After the silicon VTX detector was installed in 2011, which led to an increased background from conversion in additional material, a supplementary analysis technique was developed to extract the signal. In 2012, PHENIX collected approximately 30 pb^{-1} of polarized $p + p$ collisions at $\sqrt{s} = 510 \text{ GeV}$ with the beam polarization of 52%; the silicon VTX detector was fully operational in 2012 and is ready to be used in the data analysis. The progress on extracting W -decay e^\pm single spin asymmetries using the 2011 and 2012 data sets will be presented.

- Prefer Oral Session
 Prefer Poster Session

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