

**Measurement of longitudinal single-spin asymmetries for W^\pm boson production
in polarized $p + p$ collisions at $\sqrt{s} = 510$ GeV at RHIC**

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W^\pm boson production in longitudinally polarized $p + p$ collisions provides unique and clean access to the individual helicity polarizations of quarks and antiquarks in the colliding protons. Due to maximal violation of parity in the production, W^\pm bosons couple to left-handed quarks and right-handed anti quarks and hence offer direct probes of their respective helicity distributions in the nucleon. These can be observed in measured large parity-violating longitudinal single-spin asymmetries, A_L for W boson production at STAR experiment at Relativistic Heavy Ion Collider (RHIC).

The results of A_L , from the dataset with an integrated luminosity of 86 pb^{-1} which was collected during 2011 and 2012 RHIC $\sqrt{s} = 510$ GeV running period will be presented. The status for the analysis of W A_L from the dataset collected during the 2013 running period which is more than 3 times larger than the 2012 sample will be reported.