

Abstract Submitted
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Measurement of Longitudinal Single-Spin Asymmetry for W Boson Production in Polarized p+p Collisions at STAR AMANI KRAISHAN, Temple University, STAR COLLABORATION — The production of W-bosons in longitudinally polarized p+p collisions at RHIC is an ideal tool to study the spin-flavor structure of the proton at a high momentum scale, $Q \sim M_W$. $W^{-(+)}$ bosons are produced in $\bar{u} + d(\bar{d} + u)$ collisions and can be detected through their leptonic decays, $e^- + \bar{\nu}_e(e^+ + \nu_e)$. The charged lepton can be detected by the Time Projection Chamber $|\eta| < 1.3$ and the Electromagnetic Calorimeters (Barrel $|\eta| < 1.0$ and EndCap $1 < \eta < 2$). The parity-violating nature of the weak production process gives rise to large longitudinal single-spin asymmetries, A_L . The measurement of A_L of W-bosons as a function of lepton pseudorapidity η_e at STAR provides a unique probe to the valence and sea quark helicity distribution for the fractional momentum range of $0.05 < x < 0.2$.

In 2013 the STAR experiment collected an integrated luminosity about 250 pb^{-1} at $\sqrt{s} = 510$ GeV with an average beam polarization of 53%. The preliminary results of W-bosons A_L from 2013 data sample will be presented.

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