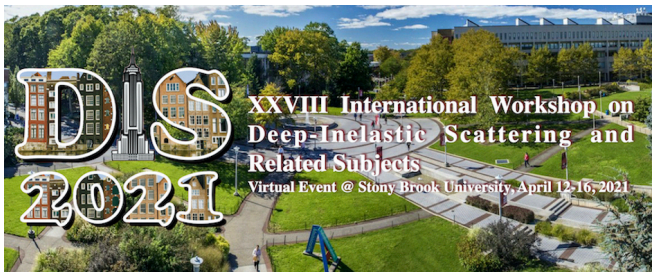

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Measurement of differential cross sections of weak boson production in unpolarized p+p collisions at STAR

We present the status for the measurement of cross sections of weak boson production as a function of the boson's kinematics, by the STAR experiment at RHIC. Results combine data from unpolarized p+p collisions at $\sqrt{s}$ = 500 and 510 GeV collected during the 2011, 2012, 2013, and 2017 runs, corresponding to an integrated luminosity of 700 pb^{-1}. The differential Z^0 cross section, measured as a function of the boson's p_T, provides important constraints on the energy scale dependence of transverse momentum distributions of partons inside the proton. The W^+/W^- cross-section ratio as a function of the boson's rapidity is sensitive to the non-pertubative $\bar{d}/\bar{u}$ distribution. The momentum fraction range ($0.1 < x < 0.3$) covered by these measurements naturally complements the phase space accessed at the LHC, providing critical inputs to global fits.

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