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Constraining the Sea Quark Distributions Through $W^{\pm}$ Cross Section Ratio Measurements at STAR MATTHEW POSIK, Temple Univ, STAR COLLABORATION — Over the past several years parton distribution functions (PDFs) have become more precise, however there are still regions where more data are needed to help constrain global PDF extractions. One such distribution is the sea quark distribution near the valence region (Bjorken-x $\approx$ 0.1 - 0.3), in particular the $\bar{d}/\bar{u}$ distribution which seems to suggest possible non-perturbative effects playing a role in this region. The charged W cross section ratio (W^+/W^-) is sensitive to the unpolarized u, d, $\bar{u}$, and $\bar{d}$ quark distributions at large Q^2 (set by the W mass). Through proton+proton collisions, the STAR experiment at RHIC, is well equipped to measure the $e^{\pm}$ leptonic decays of $W^{\pm}$ bosons in the mid-rapidity range ($|\eta| \leq 1$) at $\sqrt{s}$ = 500/510 GeV. At these kinematics STAR is sensitive to quark distributions near Bjorken-x of 0.16. RHIC runs from 2011 through 2013 have collected about 350 pb^{-1} of integrated luminosity, and a 2017 run is expected to provide an additional 400 pb^{-1}. Presented here are preliminary results for the 2011-2012 W charged cross section ratios ($\sim$100pb^{-1}), and an update on the 2013 charged W cross section analysis ($\sim$250 pb^{-1}).

Matthew Posik
Temple Univ

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