

# Measurements of $W^+/W^-$ cross-section ratio in $pp$ collisions at STAR

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While the unpolarized valence quark ( $d$  and  $u$ ) distributions are well determined from DIS and  $pp/p\bar{p}$  experiments, their sea quark counterparts,  $\bar{d}$  and  $\bar{u}$ , are much less constrained, in particular, near the valence region. Measurements of  $W^+/W^-$  production ratio in  $pp$  collider experiments, such as the STAR experiment at RHIC, are sensitive to the  $\bar{d}/\bar{u}$  ratio at a large  $Q^2$  set by the  $W$  mass. Presented in this talk are the latest updates of  $W^+$  and  $W^-$  cross-section ratio measurement via lepton-decay tagging, using the STAR  $pp$  collision data at a center-of-mass energy of  $\sqrt{s} = 510$  GeV collected in 2017, corresponding to an integrated luminosity of  $350 \text{ pb}^{-1}$ . The measurements cover the mid ( $|\eta| < 1$ ) and intermediate rapidities ( $1 < \eta < 2$ ), probing the  $\bar{d}/\bar{u}$  ratio within the proton momentum fraction range of  $0.06 < x < 0.4$ .