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Measurement of the production of a W boson in association with a charm quark in pp collisions at sqrt(s) = 7 TeV with the ATLAS detector NEIL MCFADDEN, Univ of New Mexico, ATLAS COLLABORATION — The production of a W boson in association with a single charm quark is studied using 4.6 fb^{-1} of pp collision data at sqrt(s) = 7 TeV collected with the ATLAS detector at the Large Hadron Collider. In events in which a W boson decays to an electron or muon, the charm quark is tagged either by its semileptonic decay to a muon or by the presence of a charmed meson. The integrated and differential cross sections as a function of the pseudorapidity of the lepton from the W-boson decay are measured. Results are compared to the predictions of next-to-leading-order QCD calculations obtained from various parton distribution function parameterisations. The ratio of the strange-to-down sea-quark distributions is determined to be .96 $^{+0.26}_{-0.30}$ at $Q^2 = 1.9\ GeV^{\ 2}$, which supports the hypothesis of an SU(3)-symmetric composition of the light-quark sea. Additionally, the cross-section ratio σ(W$^+$+c-bar) / σ(W$^-$+c) is compared to the predictions obtained using parton distribution function parameterisations with different assumptions about the $s-$s-bar quark asymmetry.

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