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Measurement of D^{*\pm} Meson Production and Determination of F_2^{ccbar} at low Q2 in Deep-Inelastic Scattering at HERA

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Inclusive production of D*mesons in deep-inelastic ep scattering at HERA is studied in the range 5 < Q^2 <100 GeV^2 of the photon virtuality and 0.02 < y < 0.7 of the inelasticity of the scattering process. The observed phase space for the D* meson is p_T(D*) > 1.25 GeV and |eta(D*)| < 1.8. The data sample corresponds to an integrated luminosity of 348 pb^{-1} collected with the H1 detector. Single and double differential cross sections are measured and the charm contribution F_2^{ccbar} to the proton structure function F_2 is determined. The results are compared to perturbative QCD predictions at next-to-leading order implementing different schemes for the charm mass treatment and with Monte Carlo models based on leading order matrix elements with parton showers.

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