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D* (+jets) in Deep Inelastic Scattering and Photoproduction

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Measurement of the D*Meson Production Cross Section and F_2^ccbar, at High Q^2, in ep Scattering at HERA*
The inclusive production of D(2010) mesons in deep-inelastic ep scattering is measured in the kinematic region of photon virtuality 100 < Q^2 < 1000 GeV^2 and inelasticity 0.02 < y < 0.7. Single and double differential cross sections for inclusive D*meson production are measured in the visible range defined by |eta(D)|* < 1.5 and p_T(D*) > 1.5 GeV. The data were collected by the H1 experiment during the period from 2004 to 2007 and correspond to an integrated luminosity of 351 pb^{-1}. The charm contribution, F_2^{ccbar}, to the proton structure function F_2 is determined. The measurements are compared with QCD predictions.

Combination of F_2^{ccbar} from D^{+-} *Measurement in DIS and inclusive measurement of displaced tracks at H1*
Recent measurements by the H1 experiment of the inclusive charm and beauty cross sections in deep inelastic ep scattering at HERA are presented. The data were collected in the years 2006 and 2007 corresponding to an integrated luminosity of 189 pb^-1. The numbers of charm and beauty events are determined using variables reconstructed by the H1 vertex detector. The measurement of the inclusive charm cross section is combined with the result obtained using the reconstruction of D^{+-} mesons in order to obtain a more precise measurement of the charm contribution F_2^{ccbar} the proton structure function F_2. The measurements are compared with QCD predictions.

D*with jets in photoproduction*
Photoproduction of events containing a D meson and two jets are investigated with the H1 detector using the HERA-II data sample. The D*mesons are reconstructed in the golden decay channel D* -> K pi pi_s. Photoproduction events are selected in the kinematic range Q^2 < 2 GeV^2 and 0.1 < y < 0.8 corresponding to 100 < W_gammap < 285 GeV. The jets are reconstructed with the inclusive k_T algorithm in the laboratory frame and are selected if they have p_T > 3.5 GeV. Differential cross section sensitive to the kinematics of the incoming gluon are measured and compared to QCD calculations.

D*production in deep inelastic ep scattering at HERA*
Inclusive production of D(2010) mesons in deep inelastic ep scattering was studied in the D^0 pi_s decay channel with the ZEUS detector at HERA using an integrated luminosity of 360 pb-1. Differential D*cross sections are presented as functions of the D* transverse momentum, Pt(D*), and pseudorapidity, eta(D)*, for 1.5 < Pt(D*) < 15 GeV and |eta(D)|* < 1.5 in the kinematic region of photon virtuality 5 < Q2 < 1000 GeV2 and inelasticity 0.02 < y < 0.7. In addition, differential cross sections for D*production as functions of Q2 and Bjorken x are presented. Next-to-leading-order (NLO) QCD predictions give an adequate description of the data. The measured cross section was extrapolated using these predictions to the full kinematic region in y, Pt(D)* and eta(D*) to determine the open charm contribution to the proton structure function, F2cc. Predictions from NLO QCD fits to inclusive data describe well the extracted F2cc from D* production.

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