

Measurement of charm and beauty in DIS using the H1 Vertex Detector and Combination of F_2^{cc}

Friday, July 17, 2009 9:20 AM (20 minutes)

The inclusive charm and beauty cross sections as well as the charm and beauty jet cross sections are measured in e^-p and e^+p collisions at HERA II in deep inelastic scattering. The data were collected with the H1 detector in 2006 and 2007 corresponding to an integrated luminosity of 189 pb^{-1} . The amount of charm and beauty events is determined using variables reconstructed by the H1 vertex detector including the impact parameter of tracks to the primary vertex and the position of the secondary vertex. The measurements are compared with QCD predictions.

A combination of recent results from HERA on the charm contribution, F_2^{cc} , to the inclusive proton structure function F_2 is presented. The charm quarks are identified by reconstructed D mesons, by muons from semi-leptonic charm decays, or by the long lifetime and large mass of charmed hadrons. The combination procedure accounts for correlations of the experimental systematic uncertainties of the measurements as well as theory uncertainties which leads to an improved precision.

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Session Classification: V. QCD at Colliders

Track Classification: QCD at Colliders