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F2cc and F2bb using the H1 vertex detector at HERA and the combination with the D* method

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The inclusive charm and beauty cross sections are measured in e-p and e+p collisions at HERA II in the kinematic region of photon virtuality 5 < Q2 < 650 GeVˆ2 and Bjorken scaling variable 0.0002 < x < 0.032. The data were collected with the H1 detector in 2006 and 2007 corresponding to an integrated luminosity of 189 pbˆ-1. The charm and beauty fractions are determined using a neural network which includes inputs, as measured by the H1 vertex detector, of the impact parameter of tracks to the primary vertex and the position of the secondary vertex. The measurements are compared with previous data, NLO and NNLO QCD predictions. The combination of recent results on the charm contribution, F2ˆc, to the inclusive proton structure function F2 in deep inelastic scattering at HERA is presented. At the H1 experiment F2ˆc(x,Q2) is determined either from the measured production cross section of D*+-(2010) mesons or by making use of the long lifetime of heavy quarks. The combination of both charm tag methods accounts for correlations of the systematic uncertainties of the measurements and leads to significant improvements of precision.

Author: THOMPSON, Paul Daniel (Birmingham)

Presenter: THOMPSON, Paul Daniel (Birmingham)

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