Contribution ID: **989** Type: **not specified**

Determination of the proton parton density functions at HERA

Thursday, July 16, 2009 5:25 PM (20 minutes)

Jet cross sections in deep inelastic ep scattering and photoproduction were measured with the ZEUS detector at HERA using an integrated luminosity of up to 500 pb-1. Measurements of differential cross sections are presented for dijet production and compared with perturbative QCD predictions. Regions of phase space where the cross sections are sensitive to the gluon content of the proton with small uncertainties were identified. These measurements have the potential to constrain
the gluon density in the proton when included as input to global QCD fits.

A NLO QCD analysis on ZEUS jet-production data and inclusive cross-section data, including data with polarised lepton beams, is presented. The analysis includes the most recent results on neutral current and charged current inclusive cross sections in e+p and e-p collisions extracted from the HERAII data, together with the NC cross sections measured at lower proton beam energy. The analysis is used to assess the impact of the most recent data on the parton distribution functions and their uncertainties.

A measurement of the inclusive deep-inelastic neutral current e+p scattering cross section is reported in the region of four-momentum transfer squared, 12 < Q^2 < 50 GeV^2, and Bjorken x, 2x10^-4 < x< =0.1. The results are based on data collected by the H1 Collaboration at the ep collider HERA at positron and proton beam energies of E_e=27.6 GeV and
E_p=920 GeV, respectively. The data are combined with previously published data, taken at E_p=820 GeV. The accuracy of the combined measurement is typically in the range of 1.3-2%. A QCD analysis at next-to-leading order is performed to determine the parton distributions in the proton based on H1 data.

Primary authors: TERRON, Juan (Univer. Autonoma De Madrid); ZEUS COLLABORATION, Monica Turcato (Hamburg University)

Presenter: TERRON, Juan (Univer. Autonoma De Madrid)

Session Classification: V. QCD at Colliders

Track Classification: QCD at Colliders