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Jets and alpha_s measurements in DIS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The production of jets is studied in neutral current deep-inelastic electron/positron proton
scattering (NC DIS) at negative four momentum transfer squared 5 < Q2 < 100 GeV2 (low
Q2) and 150 < Q2 < 15000 GeV2 (high Q2). The jet production at low Q2 has been analysed using HERA data taken in 1999-2000
corresponding to an integrated luminosity of 43.5 pb-1, and at high Q2 - using HERA data
taken in 1999-2007 with an integrated luminosity of 395 pb-1. The jet finding is performed in
the Breit frame in which jet transverse momentum stems mainly from QCD process and jets
are well separated from the proton remnant. Inclusive jet cross sections at low Q2 and the inclusive jet, 2-jet and 3-jet cross sections normalised to the NC DIS cross sections at high Q2 are measured as function of Q2 and jet
transverse momentum. The measurements are well described by perturbative NLO QCD calculations, corrected for
hadronization effects, and the strong coupling constant is extracted. The theoretical uncertainties of about 4% are dominating the systematic uncertainty, while the the experimental accuracy reaches 0.6% at high Q2 and 1.3% at low Q2.

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