Contribution ID: **275** Type: **Poster**

Measurement and QCD analysis of inclusive jet production in deep inelastic scattering at ZEUS

Friday, 8 July 2022 20:10 (20 minutes)

The cross sections of deep inelastic scattering processes at the electron-proton collider HERA are a well established tool to test perturbative QCD predictions. Additionally, they can be used to determine the non-perturbative parton distribution functions of the proton. Measurements of jet production cross sections are particularly well suited to also constrain the strong coupling constant. A new measurement of inclusive jet cross sections in neutral current deep inelastic scattering using the ZEUS detector at the HERA collider is obtained. The data were taken at HERA II at a center of mass energy of 318GeV and correspond to an integrated luminosity of 344 pb^{-1}. Massless jets, reconstructed using the k_T-algorithm in the Breit reference frame, are measured as a function of the squared momentum transfer Q^2 and the transverse momentum of the jets in the Breit frame $p_{\mathrm{T,Breit}}$. The measured jet cross sections are compared to previous measurements as well as NNLO theory predictions. The consistency of the measurement is confirmed by a simultaneous determination of parton distribution functions and the strong coupling constant in a QCD analysis.

In-person participation

Yes

Primary authors: WING, Matthew (UCL); LORKOWSKI, Florian (Deutsches Elektronen-Synchrotron DESY)

Presenter: LORKOWSKI, Florian (Deutsches Elektronen-Synchrotron DESY)

Session Classification: Poster Session

Track Classification: Strong interactions and Hadron Physics