

# DIS2023: XXX International Workshop on Deep-Inelastic Scattering and Related Subjects



Contribution ID: 155

Type: **Parallel talk**

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

*Tuesday, 28 March 2023 16:30 (20 minutes)*

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 2 at a center of mass energy of 318 GeV and correspond to an integrated luminosity of 347 pb<sup>-1</sup>. Massless jets, reconstructed using the kT-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  $p_{T,Breit}$ . The measured jet cross sections are compared to previous measurements as well as NNLO QCD theory predictions. The measurement is used in a QCD analysis at NNLO accuracy to perform a simultaneous determination of parton distribution functions of the proton and the strong coupling constant. A significantly improved accuracy is observed compared to similar measurements of the strong coupling constant.

### Submitted on behalf of a Collaboration?

Yes

### Participate in poster competition?

**Primary author:** WICHMANN, Katarzyna (Deutsches Elektronen-Synchrotron (DE))

**Presenter:** WICHMANN, Katarzyna (Deutsches Elektronen-Synchrotron (DE))

**Session Classification:** WG 1

**Track Classification:** WG1: Structure Functions and Parton Densities