Contribution ID: **164** Type: **Parallel session talk**

Measurement of the 1-jettiness event shape observable in deep-inelastic electron-proton scattering at HERA

Friday 25 August 2023 08:45 (12 minutes)

A first measurement of the 1-jettiness event shape observable in neutral-current deep-inelastic electron-proton scattering is presented. The 1-jettiness observable τ_{1b} is defined such that it is equivalent to the thrust observable defined in the Breit frame. The data were taken in the years 2003 to 2007 with the H1 detector at the HERA ep collider at a center-of-mass energy of 319 GeV and correspond to an integrated luminosity of 351.6 pb^{-1}. The triple-differential cross sections are presented as a function of the 1-jettiness τ_{1b}, the event virtuality Q^2 and the inelasticity y in the kinematic region $Q^2 > 150$ GeV^2. The data have sensitivity to the parton distribution functions of the proton, the strong coupling constant and to resummation and hadronisation effects. The data are compared to selected predictions.

Paper in preparation, will be ready for EPS2023

Collaboration / Activity

H1 collaboration

Primary authors: BRITZGER, Daniel (Max-Planck-Institut für Physik, München); SCHMITT, Stefan (ATLAS (ATLAS Scientific Computing)); ZHANG, Zhiqing

Presenter: KLEST, Henry Thornton (Stony Brook University)

Session Classification: T06 QCD and Hadronic Physics

Track Classification: QCD and Hadronic Physics