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Measurement of 1-jettiness in deep-inelastic scattering at HERA

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A first measurement of the 1-jettiness event shape observable in neutral-current deep-inelastic electron-proton scattering is presented. The 1-jettiness observable 1 is defined such that it is equivalent to the thrust observable in the Breit frame, following momentum conservation. The data were taken with the H1 detector at the HERA ep collider at a center-of-mass energy of 319 GeV in the years 2003 to 2007 and correspond to an integrated luminosity of about 351pb^{-1}. The triple-differential cross sections are presented as a function of the 1-jettiness τ_1, the event virtuality Q^2 and the Bjorken-variable x_{Bj} in the kinematic region $Q^2 > 150$ GeV^2. The data have high 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.

Preferred track

Jets & QCD at High Scales

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