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Transverse Energy Production in Deep–Inelastic Scattering at HERA

H1 Collaboration, DESY

Measurements of transverse energy flow are presented for deep-inelastic scattering events produced in positron-proton collisions at HERA. The kinematic range covers squared momentum transfers (Q^2) from 2.5 GeV^2 to 40000 GeV^2 and Bjorken-x down to $3 \cdot 10^{-5}$. The transverse energy flow is measured in the hadronic centre-of-mass frame and is studied as a function of pseudorapidity (in the range $-3.5 < \eta < 5$), Q^2 and x. A comparison is made with QCD-based Monte Carlo calculations. The behaviour of the mean transverse energy in a central pseudorapidity range, $-0.5 < \eta < 0.5$, and the photon fragmentation region, defined to lie in the range $2.0 < \eta < 3.0$, is studied as a function of Q^2 and W.