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Transverse energy flow in deep-inelastic ep scattering at HERA

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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 40 000 GeV^2, and x, the Bjorken scaling variable, 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 Q^2, x, and pseudo-rapidity (in the range $-3 < \eta^* < 5.5$). A comparison is made with QCD-based Monte Carlo models. The behaviour of the mean transverse energy in a central pseudo-rapidity range, $-0.5 < \eta^* < 0.5$, and a photon fragmentation interval, defined to lie in the range $2 < \eta^* < 3.0$, is studied as a function of x, as a function of Q^2 and as a function of the invariant mass, W, of the hadronic final state.