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Deep inelastic scattering with leading protons or large rapidity gaps at HERA

Content :

The dissociation of virtual photons, $\gamma^* p \rightarrow X p$, in events with a large rapidity gap between X and the outgoing proton, as well as in events in which the leading proton was directly measured, has been studied with the ZEUS detector at HERA. The data cover photon virtualities $Q^2 > 2 \text{ GeV}^2$ and $\gamma^* p$ centre-of-mass energies $40 < W < 240 \text{ GeV}$, with $M_X > 2 \text{ GeV}$, where M_X is the mass of the hadronic final state, X . Leading protons were detected in the ZEUS leading proton spectrometer. The cross section is presented as a function of t , the squared four-momentum transfer at the proton vertex and Φ , the azimuthal angle between the positron scattering plane and the proton scattering plane. It is also shown as a function of Q^2 and x_{IP} , the fraction of the proton's momentum carried by the diffractive exchange, as well as β , the Bjorken variable defined with respect to the diffractive exchange.

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Comments :

These results will be presented on behalf of the ZEUS Collaboration