Abstract #012345
Parallel sessions: 1,2,5
Plenary sessions: 1,2,3

Di-Jet Production in Diffractive Interactions at HERA

H1 Collaboration

An analysis is presented of events of the type $ep \to eXY$, in which the component X of the hadronic final state contains a di-jet system and is well separated in rapidity from a leading baryonic system Y. The invariant mass of Y is less than $1.6\,\mathrm{GeV}$ and the squared four-momentum t transferred at the photon vertex satisfies $|t| < 1\ \mathrm{GeV}^2$. Results are obtained both for electroproduction with photon virtualities in the range $7.5 < Q^2 < 80\ \mathrm{GeV}^2$ and for photoproduction. In both Q^2 domains, cross sections for dijets obtained in the rest frame of X are presented differentially in the fraction $\xi_{I\!P}$ of the momentum of the exchange between the photon and the proton that is transferred to the dijet system, and in the transverse momentum p_T of each jet. In the photoproduction case, the distribution in the fraction x_γ of the photon energy entering the hard sub-process is also presented. For electroproduction, the distribution in the azimuthal angle between the plane defined by the initial and final state lepton and that defined by the jets is studied. All measured differential cross sections are adequately described by a Monte Carlo model based on a partonic sub-structure for the exchange, with parton densities derived from a QCD analysis of the diffractive structure function $F_2^{D(3)}$. In this model, the parton densities of the exchange are dominated by a gluon distribution which is strongly peaked as $\xi_{I\!P} \to 1$ at low scales. Models in which the partonic content of the pomeron is quark dominated are incompatible with the data. There is no evidence for a significant non-evolving super-hard ($\xi_{I\!P} \to 1$) component in the kinematic region studied.