

Studies of Diffractive Events with H1 and ZEUS Detectors at HERA

Monday 11 December 2017 11:35 (15 minutes)

Studies of diffractive events at H1 and ZEUS detectors at HERA are presented. These studies include: Production of exclusive dijets in diffractive deep inelastic scattering (DIS); Exclusive ρ^0 meson photoproduction with a leading neutron; Measurement of D^* meson production in diffractive deep inelastic scattering; Diffractive photoproduction of isolated photons; Measurement of the cross-sections and their ratios for electroproduction of $\psi(2S)$ and $J/\psi(1S)$. The data used for first three studies are taken from HERA-II, however those used for last two are taken from both HERA-I and HERA-II running periods. The overall kinematic range covered with these measurements is $2 < Q^2 < 180 \text{ GeV}^2$ (photon virtuality) for diffractive DIS and $Q^2 < 1 \text{ GeV}^2$ for diffractive photoproduction. The total energy of the photon proton system (W) covered in the presented studies extends from 30 GeV to 250 GeV and with an electron-proton centre of mass energy, $\sqrt{s} = \sqrt{319} \text{ GeV}$. The results are compared to predictions from models based on different assumptions about the nature of the diffractive exchange.

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Session Classification: WG4: Small- x and Diffraction