

Preliminary Results on Multiple Parton Interactions from HERA and TEVATRON

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Photoproduction data of HERA are analyzed by requiring dijets with transverse momenta of at least 5 GeV. The two jets define in azimuth a towards region (leading jet) and an away region (2nd jet) and transverse regions between them. The charged particle multiplicity is measured in these regions as a function of the variables x_{γ} and $pT_{\text{leading jet}}$. Models which include contributions of multiparton interactions are able to describe the measurement, whereas predictions without them lie below the measurements, especially at low x_{γ} , the region of enhanced contributions from the resolved photon.

Double parton (DP) interactions in “ $\gamma + 3 \text{ jet}$ ” events in p-pbar collisions at $\sqrt{s}=1.96\text{TeV}$ are studied basing on the sample of “ $\gamma + 3\text{jet}$ ” events collected in the D0 experiment with an integrated luminosity of 1fb^{-1} . The fraction $f\{\text{DP}\}$ of the events with double parton scattering is determined. The events are selected with photon candidate transverse momentum $60 < pT^{\{\gamma\}} < 80 \text{ GeV}$. The leading jet $pT^{\{\text{jet}\}} > 25 \text{ GeV}$ and two additional jets with $pT > 15 \text{ GeV}$. The values of $f\{\text{DP}\}$ are measured in three intervals of the transverse momentum $pT^{\{\text{jet}2\}}$ of the second jet which spans the range of 15 - 30 GeV. It is found that the $f\{\text{DP}\}$ fractions drop with increasing of $pT^{\{\text{jet}2\}}$. The effective cross section σ_{eff} (a process-independent parameter which contains an information about the parton density inside the proton and about the parton correlations) is calculated in the same three $pT^{\{\text{jet}2\}}$ intervals. The average value over these three $pT^{\{\text{jet}2\}}$ intervals is $\sigma_{\text{eff}}^{\text{aver}} = 15.1 \pm 1.9 \text{ mb}$.

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