

Correlation observables in YD pair production at the LHC within the parton Reggeization approach

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We study angular correlations in associated hadroproduction of $Y(1S)$ with the D^\pm and D^0 mesons at the LHC in the Leading Order of the parton Reggeization approach. This approach is based on the k_T -factorisation and the gauge-invariant effective field theory of L. N. Lipatov. Hadronization of a $b\bar{b}$ -pair to $Y(1S)$ is described within the NRQCD-factorization framework. Production of D -mesons is described in the fragmentation model with scale-dependent fragmentation functions. We have found good agreement with LHCb data for various differential distributions, except for the case of spectra on azimuthal angle differences at the small values. The total cross-section in our Single Parton Scattering model, calculated under conservative assumptions, accounts for almost one half of observed cross-section, thus dramatically shrinking the room for Double Parton Scattering mechanism.

Summary

We found that Single Parton Scattering contribution, calculated in the Leading Order of the parton Reggeization approach, can account for approximately one half of experimental measured value of cross-section. Such a way the contribution of Double Parton Scattering production mechanism is not dominant in the associated $Y(1S)D$ production.

Primary authors: Mr KARPISHKOV, Anton (Samara National Research University); Mr NEFEDOV, Maxim (Samara National Research University); Prof. SALEEV, Vladimir (Samara National Research University)

Presenter: Mr KARPISHKOV, Anton (Samara National Research University)

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