

Exclusive photoproduction of J/ψ and ψ' mesons in proton-proton collisions

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Collaboration

Abstract content

We present results based on our new paper [1]. The amplitude for $\gamma p \rightarrow Vp$ is calculated in a pQCD k_T -factorization approach. The corresponding total cross section for different unintegrated gluon distributions is calculated and compared with new HERA data for photon-proton collisions. We also compare the total cross section for $\gamma p \rightarrow Vp$ reaction with recent data extracted by of the LHCb collaboration. The amplitude for $\gamma p \rightarrow Vp$ is used to predict cross section for exclusive photoproduction of J/ψ and ψ' mesons in proton-proton collisions. Both Dirac and Pauli electromagnetic form factors are included in the calculation and results are compared with old results (only Dirac form factor). The effect of Pauli form factor is quantified. Absorption effects are included and their uncertainties are discussed. Different differential distributions e.g. in J/ψ (ψ') rapidity and transverse momentum are presented and compared with existing experimental data for Tevatron and LHC energy.

[1] A.Cisek, W. Sch\"afer and A. Szczurek, a paper in preparation.

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