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ASSOCIATED PRODUCTION OF J/ψ WITH HADRON JET WITHIN THE PARTON REGGEIZATION APPROACH

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In our work, we consider the process of associated charmonium and jet production. One of the reasons why it is difficult to study charmonium hadronization process is the non-perturbative nature of this state, which can only be described within the framework of phenomenological models. Moreover, a double parton scattering (DPS) contribution can be dominating in certain kinematic regions of associated charmonium and jet production. Nevertheless, in order to estimate a potential contribution of DPS we have to calculate a single parton scattering (SPS) contribution.
The purpose of our work is theoretical prediction of the charmonium production cross section together with a single hard hadron jet in proton-proton collisions in a parton Reggeization approach (PRA). An improved color evaporation model (ICEM) was chosen as a hadronization model. Our theoretical predictions (transverse momenta, rapidity, invariant mass and azimuthal distributions) is calculated at Large Hadron Collider (LHC) energies in the KaTie – parton-level event generator for hadron scattering processes with off-mass-shell partons.

Authors: Mr KARPISHKOV, Anton (Ph.D.); MALOLETNEV, George

Presenter: MALOLETNEV, George

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