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Forward J/ψ production in pA collisions at the LHC

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Inclusive production of J/ψ mesons, especially at forward rapidities, is an important probe of small- x gluons in protons and nuclei. In this work we re-evaluate the production cross sections in the Color Glass Condensate framework, where the process is described by a large x gluon from the probe splitting into a quark pair and eikonal interacting with the target proton or nucleus. Using a standard collinear gluon distribution for the probe and an up to date dipole cross section fitted to HERA data to describe the target we achieve a rather good description of the cross section in proton-proton collisions, although with a rather large normalization uncertainty. More importantly, we show that generalizing the dipole cross section to nuclei in the Glauber approach results in a nuclear suppression of J/ψ production that is much closer to the experimental data than claimed in previous literature.

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