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Investigating the exclusive vector meson photoproduction in nuclear collisions at Run 2 LHC energies

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The advent of the high-energy colliders has motivated the study of the hadron structure at high energies. In such scenario, a hadron becomes a dense system and the nonlinear effects inherent to the QCD dynamics may become visible. Recent studies show that vector meson exclusive photoproduction has the potential to probe the QCD dynamics at high energies. In this work we present an analysis of exclusive vector meson photoproduction in nuclear collisions at Run 2 LHC energies using the color dipole formalism. The rapidity distributions are estimated considering the more recent phenomenological models for the dipole-proton scattering amplitude, which are based on the color glass condensate formalism and are able to describe the inclusive and exclusive ep HERA data.
The current theoretical uncertainty in the color dipole predictions is estimated and a comparison with the experimental results is performed.

Summary

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