

Photoproduction of vector mesons: from gamma proton to nucleus nucleus collisions

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Summary

Experiments on vector meson photoproduction have been a testbed of ideas on the production mechanism, the QCD Pomeron exchange. High energy protons or ions are the source of a flux of Weizsäcker-Williams photons, which can be utilized to study the photoproduction of vector mesons also at colliders. We discuss how information on the small- x gluon distribution in protons and nuclei can be obtained. We present our calculations based on a k_{\perp} -factorization approach which allows us to construct the unintegrated gluon distribution of a nucleus from the free-nucleon one. Saturation effects are incorporated by an explicit treatment of the qq̄-Fock state. We also discuss incoherent diffraction.

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