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Parton saturation scaling function for exclusive production of vector mesons and deeply virtual Compton scattering

Thursday 11 January 2018 17:00 (20 minutes)

We provide a universal expression of cross sections for the exclusive vector meson production and deeply virtual Compton scattering (DVCS) in photon-proton and photon-nucleus interactions based on the geometric scaling phenomenon. The theoretical parametrization based on the scaling property depends only on the single variable $\tau_A = \frac{Q^2}{Q_{sat}^2}$, where the saturation scale, Q_{sat}, drives the energy dependence and the corresponding nuclear effects. This phenomenological result describes all available data from DESY-HERA for ρ, ϕ and J/ψ production and DVCS measurements. A discussion is also carried out on the size of nuclear shadowing corrections on photon-nucleus interaction.

This work has been published in the following paper https://journals.aps.org/prd/abstract/10.1103/PhysRevD.96.054015

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