

Exclusive vector meson photo-production as a tool to probe QCD low x evolution

Content

We investigate photo-production of vector mesons J/Psi and Upsilon measured both at HERA and LHC. We are interested in using this observable to distinguish between linear and non-linear QCD evolution at low x. The employed fits are based on non-linear Balitsky-Kovchegov evolution (Kutak-Sapeta gluon; KS) and next-to-leading order Balitsky-Fadin-Kuraev-Lipatov evolution (Hentschinski-Sabio Vera-Salas gluon; HSS). We find that linear next-to-leading order evolution can only describe production at highest energies, if perturbative corrections are increased to unnaturally large values; rendering this corrections to a perturbative size, the growth with energy is too strong and the description fails. At the same time, the KS gluon, which we explore both with and without non-linear corrections, requires the latter to achieve an accurate description of the energy dependence of data. We interpret this observation as a signal for the onset of gluon saturation.

Summary

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