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J/Psi and Psi(2s) production as a probe of low x evolution

We investigate photo-production of vector mesons J/Psi and Psi(2s), based on both HERA and LHC data, using 2 fits of unintegrated gluon distributions. The latter are subject to non-linear Balitsky-Kovchegov evolution (Kutak-Sapeta gluon; KS) and linear next-to-leading order Balitsky-Kuraev-Fadin-Lipatov evolution (Hentschinski-Sabio Vera-Salas; HSS gluon) respectively. Apart from extending previous studies to the case of radially excited charmonium Psi(2s), we further use an improved set of charmonium wave functions and provide an estimate of the uncertainties associated with the HSS gluon. While we observe that the difference between linear and non-linear evolution somehow diminishes and a clear distinction between both HSS and KS gluon is no longer possible using the currently available data-set, we find that the differences between both gluon distributions are enhanced for the ratio of the photo-production cross-sections of Psi(2s) and J/Psi vector mesons.

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