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How to include exclusive J/psi production data in global PDF analyses

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We compare the cross section for exclusive J/ψ photoproduction calculated in the NLO collinear factorization approach with HERA and LHCb data. We use the optimum scale formalism together with the subtraction of the low $k_t < Q_0$ contribution from the NLO coefficient function to avoid a crucial double counting and show that the existing global parton distribution functions (PDFs) are consistent with the data within their uncertainties. However, at low x the uncertainties of the present global PDFs are huge while the accuracy of the LHCb data is rather good. Therefore, for the first time, these data provide the possibility to directly measure the gluon PDF over the very large interval of x, $10^{-6} < x < 10^{-2}$, at a fixed low scale.

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