

Diffractive open charm production from the dipole model analysis

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The most promising QCD based approach to DIS diffraction is formulated in terms of dipole models. In this analysis, we consider two important parameterisations of the dipole scattering amplitude, called GBW and CGC in which parton saturation results are built in. We present a precise comparison of the results of the dipole models using these two parameterisations with the newest data from HERA. The comparison we performed prompts us to discuss some subtle points of the dipole models, mostly related to the qqq component, and connect them to the approach based on the diffractive parton distributions evolved with the Dokshitzer-Gribov-Lipatov-Altarelli-Parisi (DGLAP) equations.

Within the latter approach, the diffractive open charm production, which is the main goal of this analysis, is particularly interesting since it is sensitive to a diffractive gluon distribution. Thus, we extracted the diffractive gluon distribution from the dipole model formulae to use it for the computation of the charm contribution to F_{2D}. We found good agreement with the HERA data on the diffractive open charm production both for the gluon distributions from the considered dipole models and the DGLAP fits to HERA data from our earlier analysis for diffractive parton distributions with higher twist.

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