

Determination of diffractive PDFs from a global QCD analysis of inclusive diffractive DIS and dijet cross-section measurements at HERA

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We present an updated set of SKMHS diffractive parton distribution functions (PDFs). In addition to the diffractive deep-inelastic scattering (diffractive DIS) datasets, the recent diffractive dijet cross-section measurement by the H1 experiment from the HERA collider are added to the data sample. The new set of diffractive PDFs, entitled SKMHS23 and SKMHS23-dijet, are presented at NLO and NNLO accuracy in pQCD. Since the gluons directly contribute to jet production through the boson-gluon fusion process, the data on diffractive dijet production in inclusive DIS help constrain the gluon density, allowing for the determination of both the quark and gluon densities with better accuracy. The NLO and NNLO theory predictions are compared to the analyzed data showing excellent agreement. The effect arising from the inclusion of diffractive dijet data and higher-order QCD corrections on the extracted diffractive PDFs and data/theory agreements are clearly examined and discussed.

Alternate track

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