

Higher twist and saturation effects in the proton structure at small x

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The DIS data from HERA are analyzed in a framework of the leading twist contributions described by the standard DGLAP formalism (NLO and NNLO) complemented by twist 4 corrections inspired by the saturation model. We fit the data down to $Q^2 = 1 \text{ GeV}^2$ and find an evidence for the higher twist effects at small x and moderate Q^2 . We also study parton saturation effects in the input for the parton density functions and find that inclusion of parton saturation improves the description of data. We discuss in detail the influence of the higher twist corrections in the cross sections on the emerging parton density functions.

Relevant topics

proton structure, small x , parton saturation, multiple scattering, higher twist effects

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