

HERA jet data in NNLO fits of HERAPDF and diffractive PDFs

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NNLO predictions for jet production in Deep Inelastic Scattering have recently become available. These are used to extend the QCD HERAPDF2.0 Jets fits, that were made to extract PDFs from inclusive HERA data and HERA jet data, from NLO to NNLO. In addition new jet data sets have become available since the publication of HERAPDF2.0 and these are also considered. A simultaneous fit to these data to extract PDFs and α_s results in a new NNLO determination of $\alpha_s(z)$.

A new combined fit of diffractive parton distribution functions (DPDFs) to the H1 inclusive neutral-current and dijet production data in diffractive deep-inelastic scattering (DDIS) at next-to-next-to-leading order accuracy (NNLO) is presented. Compared to the previous HERA fits, the presented study includes the high-precision H1 HERA-II data, which represents 40 times higher luminosity for inclusive DDIS data sample and 6 times higher luminosity for the jet data, than previous studies by H1. In addition to the inclusive DDIS data at the nominal centre-of-mass energy $\sqrt{s} = 319$ GeV, also the inclusive data at 252 and 225 GeV are included into the fit. The inclusion of the most comprehensive dijet cross section data, together with their NNLO predictions, provide enhanced constraints to the gluon component of the DPDF. The extracted DPDFs are compared to the alternative existing DPDFs at NLO accuracy, and are used to predict cross sections for a large number of the available dijet measurements.

Secondary track (number)

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