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Global QCD analysis of diffractive parton distribution function considering higher twist corrections within the xFitter framework

Friday 19 July 2024 20:40 (20 minutes)

We present SKMHS22, a new set of diffractive PDFs and their uncertainties at NLO and NNLO accuracy in pQCD within the xFitter
framework. We describe all diffractive DIS datasets from HERA and the most recent H1/ZEUS combined measurements Three scenarios are considered: standard twist-2, twist-4 (including longitudinal virtual photons), and Reggeon exchange. For the contribution of heavy flavors, we utilize the Thorne-Roberts general mass variable number scheme. We show that for those corrections, in particular, the twist-4 contribution
allows us to include the high-β region and leads to a better description of datasets. We find that the inclusion of the Reggeon exchange improves the description of the diffractive DIS. The resulting sets are in good agreement with all datasets, which cover a wider kinematical range than in previous fits. The SKMHS22 diffractive PDFs sets presented in this work are available via the LHAPDF interface.

Alternate track

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Yes

Authors: SALAJEGHEH, Maral (HISKP, University of Bonn); KHANPOUR, Hamzeh (AGH University of Science and Technology); HASHAMIPOUR, Hadi; Prof. MEISSNER, Ulf-G (HISKP, University of Bonn); SOLEYMANINIA, Maryam (School of Particles and Accelerators, Institute for Research in)

Presenter: SALAJEGHEH, Maral (HISKP, University of Bonn)

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