

Proton-nucleus collisions at the LHC: a tool to test factorization

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The factorization of long-range phenomena into process-independent parton distributions, which underlies global PDF extractions for the proton, is assumed to extend to nuclear effects in the extraction of nuclear PDFs. As a consequence, assessing the reliability of nPDFs for benchmark calculations goes beyond testing the numerical accuracy of their extraction and requires phenomenological tests of the factorization assumption. We argue that a proton-nucleus collision program at the LHC would provide a set of measurements allowing for unprecedented tests of the factorization assumption underlying global nPDF fits.

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