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## Proton parton distribution functions using ATLAS data

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Precise knowledge of proton parton distribution functions is a crucial element of accurate predictions of both Standard Model and Beyond Standard Model physics at hadron colliders such as the LHC. We present a PDF fit at next-to-next-to-leading order in QCD demonstrating the constraining power of a diverse range of ATLAS measurements, in combination with deep-inelastic scattering data from HERA, on the parton distributions within the proton. Careful consideration is made of the correlation of systematic uncertainties within and between the ATLAS datasets. The resulting set of parton distribution functions, named ATLASpdf21, is evaluated for two choices of chi2 tolerance and compared to a range of global PDF fits.

### In-person participation

Yes

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