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Determination of proton parton distribution functions using ATLAS data

Wednesday, January 12, 2022 9:20 AM (20 minutes)

We present fits to determine parton distribution functions (PDFs) using inclusive W/Z-boson and W+jets measurements from the ATLAS experiment at the LHC. The ATLAS measurements are used in combination with deep-inelastic scattering data from HERA. We also present the results of PDF fits that use Z+jets measurements from ATLAS in addition to the measurements listed above. An improved determination of the sea-quark densities at high Bjorken, x , is seen, while confirming a strange-quark density similar in size to the up- and down-sea-quark densities in the range $x < 0.02$ found by previous ATLAS analyses. If available, PDF fits including inclusive W and Z boson production, $t\bar{t}$ production, W+jets and Z+jets production, inclusive jet production and direct photon production will also be presented.

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