



Contribution ID: 13

Type: **not specified**

Determination of proton parton distribution functions using ATLAS data

Thursday, November 21, 2019 11:55 AM (25 minutes)

We present fits to determine parton distribution functions (PDFs) using top-antitop, inclusive W/Z-boson, as well as W⁺ and W⁻ boson production measurements in association with jets from ATLAS, in combination with deep-inelastic scattering data from HERA. The ATLAS W and Z boson data exhibit sensitivity to the valence quark distributions and the light quark sea composition, whereas the top-quark pair production data have sensitivity to the gluon distribution. The impact of the top-antitop production data is increased by fitting several distributions simultaneously, with the full information on the systematic and statistical correlations between data points. The parton distribution functions extracted using W+jets data show an improved determination of the high-x sea-quark densities, while confirming the unsuppressed strange-quark density at lower $x < 0.02$ found by previous ATLAS analyses.

ATL-PHYS-PUB-2019-016

ATL-PHYS-PUB-2018-017

Presenter: PACALT FOR THE ATLAS COLLABORATION, Josef (Palacky University (CZ))

Session Classification: MPI & Small-x & diffraction

Track Classification: MPI & Small-x & diffraction