Contribution ID: **544** Type: **Contributed Talk**

MSHT 2020 PDFs

Tuesday, 13 April 2021 10:45 (20 minutes)

We present the new MSHT2020 set of parton distribution functions (PDFs) of the proton, determined from global analyses of the available hard scattering data. The PDFs are obtained using the same basic framework as MMHT2014, but supersede these. The parameterisation is now adapted and extended and we include a large number of new data sets: from the final HERA combined data on total and heavy flavour structure functions, to final Tevatron data, and in particular a significant number of new LHC 7 and 8 TeV data sets on vector boson production, inclusive jets and top quark distributions. We include up to NNLO QCD corrections for all data sets that play a major role in the fit, and NLO EW corrections where relevant. There are some changes to central values and a significant reduction in the uncertainties of the PDFs in many cases, but the PDFs and the resulting predictions are generally within one standard deviation of the MMHT14 results. The major changes arevalence quark difference, the anti-up anti-down difference at small x, and the strange quark PDF We discuss the phenomenological impact of our results, e.g. predictions for processes such as Higgs, top quark pair and vector bosonproduction. We briefly discuss the
variation of PDFs and the fit with changes in the strong coupling and heavy quark masses.

Primary authors: Prof. THORNE, Robert (University College London); Dr HARLAND-LANG, Lucian (University of Oxford); CRIDGE, Thomas (University College London); Prof. MARTIN , Alan (Univ. of Durham); Mr BAILEY, Shaun (University of Oxford)

Presenters: Prof. THORNE, Robert (University College London); Dr HARLAND-LANG, Lucian (University of Oxford); CRIDGE, Thomas (University College London)

Session Classification: Structure function and parton densities

Track Classification: Structure Functions and Parton Densities