



Contribution ID: 190

Type: **Parallel Session Talk**

## New CTEQ global analysis with high precision data from the LHC

*Tuesday 9 April 2019 09:10 (20 minutes)*

We present the new CTEQ-TEA global analysis of Quantum Chromodynamics (QCD). In this analysis, parton distribution functions (PDFs) of the nucleon are determined within the Hessian method at the next-to-next-to-leading order (NNLO) in perturbative QCD, based on the most recent measurements from the Large Hadron Collider (LHC) and a variety of world experimental collider data. Next-to-leading order (NLO) and leading order (LO) PDFs are also determined. Because of difficulties in fitting both the ATLAS 7 and 8 TeV  $W$  and  $Z$  vector boson production cross section data, we present two families of PDFs, named CT18 and CT18Z PDFs respectively, without and with the ATLAS 7 TeV  $W$  and  $Z$  measurements. We study the impact of the CT18 family of PDFs on the theoretical predictions of standard candle cross sections at the LHC and the role of PDF uncertainties.

**Authors:** HOU, Tie-Jiun (Northeastern University, China); DULAT, Sayipjamal (Xinjiang University, China); HUSTON, Joey (Michigan State University); GAO, Jun (Shanghai Jiao Tong University); GUZZI, Marco (Kennesaw State University); HOBBS, Tim (Southern Methodist University); NADOLSKY, Pavel (Southern Methodist University); PUMPLIN, Jon (Michigan State University); SCHMIDT, Carl (Michigan State University); SITIWALDI, Ibrahim (Xinjiang University, China); STUMP, Dan (Michigan State University); XIE, Keping (Southern Methodist University); YUAN, C.-P. (Michigan State University)

**Presenter:** YUAN, C.-P. (Michigan State University)

**Session Classification:** WG1: Structure Functions and Parton Densities

**Track Classification:** WG1: Structure Functions and Parton Densities