

Thomas Cridge – HEP seminar – October 25, 2022
DESY

Title: MSHT20 - Beyond NNLO in PDFs with Theoretical Uncertainties

Abstract: I will discuss our recent paper within the MSHT PDF collaboration on the inclusion of theoretical uncertainties and higher order (N3LO) terms into the MSHT PDFs, producing the MSHT20aN3LO (approximate N3LO) set. This represents the first global analysis of parton distribution functions (PDFs) at approximate N3LO as well as simultaneously the inclusion of theoretical uncertainties into the MSHT PDFs from missing higher order terms beyond NNLO. I will review the formalism, higher orders and theoretical uncertainties included, and their effects on both the fit quality and PDFs before examining indicative N3LO predictions.