## XXI International Workshop on Deep-Inelastic Scattering and Related Subjects



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## Charm quark mass dependence in CTEQ NNLO global analysis

Thursday 25 April 2013 11:25 (25 minutes)

We determine the mass of the charm quark and study its effect

in the next-to-next-to-leading order  $calO(\alpha_s^2)$ 

CTEQ global analysis of parton distribution functions (PDFs) of the proton. Fits are based on the generalmass variable flavor number scheme S-ACOT- $\chi$  for the treatment of heavy-quark contributions and include the recently published measurements of open charm production cross sections in deep-inelastic *ep* scattering at HERA.

%The prefered charm quark  $\overline{MS}$  mass and the experimental errors are determined. We examine the systematic uncertainty related to the theoretical inputs of the fits

and investigate the correlations between charm quark mass and PDFs

as well as the impact on W/Z vector boson production cross sections at the LHC. We find that the value of the charm quark mass is in agreement with the world average value and with the estimates obtained by other groups.

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