

# XXVIII International Workshop on Deep Inelastic Scattering and Related Subjects



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## Extracting the Neutron Structure Function from Global DIS Data with CJ15

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The CJ (CTEQ-Jefferson Lab) Collaboration provides a global fit of parton distribution functions (PDFs) with a special emphasis on the large  $x$  region. The latest fit (CJ15) implemented deuteron nuclear corrections at the parton level, and included data that were sensitive specifically to the neutron. These nuclear corrections allow for a calculation of the  $F_2$  structure functions of the proton, deuteron, and neutron from PDFs. In this work we re-estimated the uncertainties in the DIS  $F_2$  data utilized in CJ15, and collected an extended set of existing high-precision, small  $Q^2$ , large  $x$  DIS data from JLab 6 GeV experiments. We employed the CJ15 calculation to remove nuclear effects from deuteron data where the proton was available from the same experiment, and thereby constructed a global data set for the  $F_2$  neutron structure function. In this talk, we will present the extracted  $F_2$  neutron data sets, as well as applications such as new neutron excess (isoscalar) corrections and a comparison to lattice QCD.

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