

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



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## Parton distributions, nuclear deeply inelastic scattering, and electroweak precision measurements at the LHC

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Parton distribution functions (PDFs) for quarks and gluons inside the proton are needed for predicting a variety of processes at the LHC, including Higgs boson production and searches for new physics beyond the Standard Model. PDF parametrizations are obtained by fitting a large number of cross-sections from many experiments at different  $(x, Q^2)$ . In the global analyses of PDFs by CTEQ collaboration, we find that deeply inelastic scattering experiments on nuclear targets provide important constraints on combinations of PDFs relevant to the LHC electroweak precision measurements. What is the role of these experiments in the LHC era, and how influenced are they by nuclear effects? I explore this complex question using a new statistical indicator called “PDF sensitivity” for analyzing the impact and compatibility of experiments in a PDF fit.

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