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Nuclear Effects in Deuterium and Global PDF fits

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We present a detailed study of nuclear corrections in the deuteron (D) from an analysis of existing data from Deep Inelastic Scattering (DIS) off proton and D, Drell-Yan production in pp and pD interactions, W^\pm and Z boson production in pp and $p\bar{p}$ collisions. In particular, we discuss the determination of the off-shell correction describing the modification of parton distributions (PDF) in bound nucleons in the context of global PDF fits. Results are compared with the ones obtained from the study of DIS data from heavy nuclei. We also discuss the sensitivity to various models for the deuteron wave function. As an important application we discuss the impact of nuclear corrections to the deuteron on the determination of the d quark distribution.

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