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Compatibility of Neutrino Deep Inelastic Scattering Data in a Global Nuclear Parton Density Determination.

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Neutrino deep inelastic scattering (DIS) data has been shown to exhibit tension with charge lepton DIS data in global analysis of nuclear parton distribution functions (nPDFs), nevertheless there is still no consensus about their compatibility. We re-analyze neutrino DIS data from NuTeV, Chorus and CDHSW, as well as dimuon data from CCFR and NuTeV, and the recent vector boson production data from LHC by fitting nPDFs using nCTEQ framework. Special emphasis is placed on the normalization uncertainty and corrections from target mass, deuteron and higher twist effect. To highlight the compatibility/incompatibility, different kinematic regions of the data are investigated and possible breakdown of twist two factorization is also discussed.

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