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New limits on intrinsic charm from a QCD global analysis[1] TIMOTHY HOBBS, University of Washington, PEDRO JIMENEZ-DELGADO, Jefferson Lab, TIMOTHY LONDERGAN, Indiana University, WALLY MELNITCHOUK, Jefferson Lab — We present a new global QCD analysis of parton distribution functions, allowing for possible intrinsic charm (IC) contributions in the nucleon inspired by recent model calculations on the light-front. The analysis makes use of the full range of available high-energy scattering data for $Q^2 \geq 1$ GeV^2 and $W^2 \geq 3.5$ GeV^2, including fixed-target proton and deuteron cross sections at lower energies that were excluded in previous global analyses. The expanded data set places more stringent constraints on the momentum carried by IC, with $\langle x \rangle_{\rm IC}$ at most 0.5% (corresponding to an IC normalization of $\sim 1\%$) at the 4σ level for $\Delta\chi^2 = 1$. We also critically assess the impact of older EMC measurements of F_2^c at large x, which favor a nonzero IC, but with very large χ^2 values.

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