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Nuclear Uncertainties in the Determination of Proton PDFs

Tuesday, April 9, 2019 2:20 PM (20 minutes)

We show how theoretical uncertainties due to nuclear effects may be incorporated into global fits of proton parton distribution functions (PDFs) that include deep-inelastic scattering and Drell-Yan data on nuclear targets. We specifically consider the CHORUS, NuTeV and E605 data included in the NNPDF3.1 fit, which used Pb, Fe and Cu targets, respectively. We show that the additional uncertainty in the proton PDFs due to nuclear effects is small, as expected, and in particular that the effect on the $\bar{d}/\bar{u}$ ratio, the total strangeness $s+\bar{s}$, and the strange valence distribution $s-\bar{s}$ is negligible.

Primary authors: BALL, Richard David (Edinburgh University); NOCERA, Emanuele Roberto (The University of Edinburgh); PEARSON, Rosalyn (Edinburgh University)

Presenter: PEARSON, Rosalyn (Edinburgh University)

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