

Projections for a future SIDIS measurement on transversely polarized deuterons by the COMPASS Collaboration.

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Since 2005, measurements of Collins and Sivers asymmetries from the HERMES and COMPASS experiments have allowed to assess that the transversity and the Sivers PDF are different from zero and measurable in semi-inclusive DIS on transversely polarized targets. Most of the data were collected on proton targets, only few data were collected in the early phase of the COMPASS experiment on a deuteron (${}^6\text{LiD}$) target and more recently at JLab, on ${}^3\text{He}$, so that the d-quark and the sea-quarks PDFs are much more poorly known than the u-quark PDFs. This constitutes an important limitation to the knowledge of the transverse spin structure of the nucleon.

For this reason the COMPASS Collaboration has proposed to measure semi-inclusive DIS on transversely polarized deuterons with good accuracy, comparable with that of the existing transverse spin asymmetry data on protons. The proposal has been accepted by CERN and the experiment will run in 2021, as soon as the Long Shut-down 2 is over, providing measurements which will stay unique for many years to come. Projections will be given for the extraction of the transversity PDFs, and for the evaluation of the vector tensor charge of the nucleon.

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