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DVCS with polarized targets and CLAS12

Generalized Parton Distributions (GPDs) are nowadays the object of an intense effort of research, in the perspective of understanding nucleon structure. They describe the correlations between the longitudinal momentum and the transverse spatial position of the partons inside the nucleon and they can give access to the contribution of the orbital momentum of the quarks and gluons to the nucleon spin.

Deeply Virtual Compton scattering (DVCS), the electroproduction on the nucleon, at the partonic level, of a real photon, is the process more directly interpretable in terms of GPDs of the nucleon. Depending on the target nucleon (proton or neutron) and on the DVCS observable extracted (cross sections, target- or beam-spin asymmetries, ⋯), different sensitivity to the various GPDs for each quark flavor can be exploited.

This talk will provide an overview on new, promising, DVCS-related experimental results, obtained at in Hall B at Jefferson Lab on longitudinally polarized hydrogenated and deuterated ammonia targets, with a 10.5-GeV electron beam, using the CLAS12 spectrometer. The future CLAS12 experiment to measure DVCS with a transversally polarized ammonia target will also be presented.

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