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OAM measurements from DVCS at JLab

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Deeply-Virtual Compton scattering provides the cleanest access to the 3D imaging of the nucleon structure encoded in the Generalized Parton Distributions, that correlate the fraction of the total nucleon momentum carried by a constituent to its position in the transverse plane. Besides the information on the spatial imaging of the nucleon, GPDs provide an access, through the Ji relation, to the quark contribution to the nucleon total angular momentum. An accurate estimate of such a contribution will lead to a better understanding of the origin of the proton spin. Jefferson Lab has been an ideal environment for the study of exclusive processes, thanks to the combination of the high-intensity and high-polarization electron beam provided by the CEBAF, with the complementary equipments of the three experimental halls. This has allowed high-precision measurements of the DVCS observables in a wide kinematic region, with focus on those observables that provide access to the GPDs entering the Ji relation. These studies will be further widened by the projected data from the 12-GeV era, which will improve the existing measurements both in terms of precision and phase-space coverage. The important results on the proton DVCS obtained during the 6-GeV era will be discussed, together with the upcoming experiments approved for the 12-GeV upgrade, that foresees measurements with both proton and neutron targets and that, when combined, will lead to the extraction of the GPDs for separate quark flavors.

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