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Exploring 3D Distributions at HERMES: Latest Results on Sivers Asymmetries and DVCS Amplitudes¹

EDWARD R. KINNEY², University of Colorado

The HERMES experiment is able to study two different types of “3D” observables that are related to different aspects of the Wigner distribution describing the partonic structure of the proton: transverse momentum dependent distributions (TMDs), such as the Sivers distribution, and Generalized Parton Distributions (GPDs). The former is accessed by measurement of single-spin asymmetries in semi-inclusive production of charged hadrons on a transversely polarized hydrogen target, whereas the latter are accessed, *e.g.*, via the measurement of single-spin beam asymmetries in hard exclusive photon production. In both cases, interference between amplitudes results in an azimuthal dependence. For the case of TMDs, final results for the Sivers asymmetries for identified pions and charged kaons will be presented as well as that of the charged pion yield difference. For the exclusive case, new preliminary measurements of the charge asymmetry, beam spin asymmetry and the charge/beam spin interference asymmetry from hard exclusive photon production will be presented. The results are obtained from a combined analysis of polarized e^+ and e^- beam spin asymmetries, arising from the interference of the Bethe-Heitler process with the Deeply Virtual Compton Scattering (DVCS) process.

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