

Abstract Submitted
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Latest HERMES Measurements of Hard Exclusive Processes

STEVE GLISKE, University of Michigan, HERMES COLLABORATION — Hard exclusive processes provide access to the unknown generalized parton distributions (GPDs) which extend our description of the nucleon structure beyond the standard parton distributions. Azimuthal asymmetries in Deeply Virtual Compton Scattering from a transversely-polarized target have been measured for the first time by HERMES. These asymmetries are sensitive to the GPD E which is related via the Ji sum rule to the total angular momentum of quarks within the proton. By comparing these asymmetries with model calculations, model dependent constraints are obtained on J_u and J_d . Second, the first measurement of the transverse-target spin asymmetry for exclusive ρ^0 production will be shown. This observable provides further access to the GPD E , but a factorization theorem for exclusive meson production has only been proven for longitudinally polarized photons. Fortunately s -channel helicity conservation (SCHC) has been shown to hold well in exclusive ρ^0 production. The asymmetry for the production of longitudinally polarized ρ^0 mesons was isolated through the angular distribution of the decay products, and assuming SCHC this is equal to the longitudinal-photon asymmetry. The results will be compared with theoretical calculations.

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