

Abstract Submitted  
for the APR14 Meeting of  
The American Physical Society

**Single and double polarization asymmetries from deeply virtual  $\pi^0$  production with a longitudinally polarized proton target** ANDREY KIM, Univ of Connecticut - Storrs, CLAS COLLABORATION — Deeply virtual exclusive meson production probes both the chiral-even generalized parton distributions (GPDs) and the chiral-odd transversity GPDs. The GPDs encode correlations of parton longitudinal momentum with transverse impact parameter as a function of the  $x_B$  and  $t$ . The wide kinematic coverage of CLAS allowed measurements of exclusive  $\pi^0$  electroproduction over the full azimuthal range. The resulting target and double-spin asymmetries were measured for the first time in the deep inelastic region. The experiment was carried out in Hall B at Jefferson Lab using a 6 GeV longitudinally polarized electron beam and a solid longitudinally polarized  $\text{NH}_3$  target. All four final-state particles from the exclusive channel - electron, proton and two photons from  $\pi^0$  decay - were identified. The azimuthal asymmetries in the hadronic center-of-mass system were fit, and their moments extracted. The data were compared to handbag-based calculations involving the contribution from both chiral-even and chiral-odd GPDs. The applicability of the formalism based on generalized parton distributions within the framework of the modified perturbative approach is discussed.

Andrey Kim  
Univ of Connecticut - Storrs

Date submitted: 09 Jan 2014

Electronic form version 1.4