

Abstract Submitted
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A Measurement of Proton Structure Function g_2 at Low Q^2 CHAO GU, University of Virginia, JEFFERSON LAB HALL A E08-027 COLLABORATION — Measurements of the nucleon spin-dependent structure functions at low Q^2 have been proven to be powerful tools in testing the validity of effective theories of Quantum Chromodynamics. The neutron spin structure functions, g_1^n and g_2^n , and the proton spin structure function, g_1^p , have been measured over a wide kinematic range. However, the proton spin structure function, g_2^p , remains largely unmeasured. The recent Jefferson Lab Hall A experiment E08-027 is an inclusive measurement of the proton g_2 structure function in the low momentum transfer region of $0.02 < Q^2 < 0.20$ GeV². This experiment will allow us to extract the generalized longitudinal-transverse spin polarizability δ_{LT} and test the Burkhardt-Cottingham sum rule at low Q^2 . Chiral Perturbation Theory (χPT) is expected to work in this kinematic region and this measurement of δ_{LT} will give a benchmark test to χPT calculations. The details of the experiment will be presented in this talk, along with the preliminary results and an overview of the analysis progress.

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