

Abstract Submitted
for the DNP07 Meeting of
The American Physical Society

Measuring the Neutron and ^3He Spin Structure at Low Q^2 VINCENT SULKOSKY, Jefferson Lab, JEFFERSON LAB HALL A COLLABORATION — The study of the nucleon spin structure has been an active field for the past few decades. The ultimate goal is to understand the structure and interactions of protons and neutrons in terms of quarks and gluons. The Gerasimov-Drell-Hearn (GDH) sum rule is an important tool available to study nucleon spin structure. Originally derived for real photon absorption, the sum rule was first extended to non-zero Q^2 in 1989. The extension of the sum rule provides a Q^2 -dependent relation that can be used to study the nucleon spin structure and make comparisons between theoretical predictions and the experimental data. Jefferson Lab experiment E97-110 performed a precise measurement of the Q^2 dependence of the extended GDH integral and of other moments of the neutron and ^3He spin structure functions between 0.02 and 0.3 GeV^2 . These data allow us to test chiral perturbation theory calculations and check the GDH sum rule by extrapolating to the real photon point. The data were taken in Hall A using the Jefferson Lab highly polarized continuous electron beam and a polarized ^3He target. The experimental details will be discussed, and preliminary results will be presented.

Vincent Sulkosky
Jefferson Lab

Date submitted: 02 Jul 2007

Electronic form version 1.4