

Abstract Submitted  
for the DNP06 Meeting of  
The American Physical Society

Sorting Category: 10. (E)

**Measuring the Neutron and  $^3\text{He}$  Spin Structure at Low  $Q^2$**  VINCENT SULKOSKY, The College of William and Mary, E97-110 COLLABORATION, HALL A COLLABORATION — Originally derived for real photon absorption, the Gerasimov-Drell-Hearn (GDH) sum rule was first extended to non-zero  $Q^2$  in 1989. The extension of the sum rule provides a unique relation, valid at any  $Q^2$ , that can be used to study the nucleon spin structure. The goal of Jefferson Lab experiment E97-110 is to perform a precise measurement of the  $Q^2$  dependence of the generalized GDH integral and of the moments of the neutron and  $^3\text{He}$  spin structure functions between 0.02 and 0.3  $\text{GeV}^2$ . This  $Q^2$  range will allow us to test predictions of Chiral Perturbation Theory, and verify the GDH sum rule by extrapolating the integral to the real photon point. This measurement also provides a better understanding of the nucleon resonances. The data have been taken in Hall A using the Jefferson Lab high polarization continuous electron beam and a polarized  $^3\text{He}$  target. The status and perspectives of the data analysis will be discussed, and preliminary results will be shown.

- Prefer Oral Session  
 Prefer Poster Session

Vincent Sulkosky  
vasulk@jlab.org  
The College of William and Mary

Date submitted: 05 Jul 2006

Electronic form version 1.4