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**The Generalized GDH Sum Rule: Measuring the Spin Structure of  $^3\text{He}$  and the Neutron using Nearly Real Photons** JAIDEEP SINGH, University of Virginia, JEFFERSON LAB HALL A COLLABORATION — The generalized Gerasimov-Drell-Hearn (GDH) sum rule is a versatile and important tool for studying nucleon spin structure over the entire  $Q^2$  range. Originally derived for real photon absorption ( $Q^2=0$ ), the GDH sum rule has been extended to non-zero  $Q^2$ . The goals of Jefferson Lab experiment E97-110 are to measure the  $Q^2$  dependence of the generalized GDH integral between 0.02 and 0.3  $(\text{GeV}/c)^2$ , to study its slope near  $Q^2 = 0$ , and to extrapolate to the real photon point for the neutron and  $^3\text{He}$ . In this low  $Q^2$  domain, such measurements serve to test Chiral Perturbation Theory and probe its limits of applicability. Our measurement will also provide new constraints on understanding the neutron and  $^3\text{He}$  spin structure and a better understanding of the effect of nucleon resonances. The experiment utilized the highly polarized electron beam and polarized  $^3\text{He}$  target at Jefferson Lab. Preliminary results will be presented.

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