

Abstract Submitted
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Deuteron Spin Structure function g_1 at low Q^2 ¹ KRISHNA ADHIKARI, SEBASTIAN KUHN, Old Dominion University — The spin structure function $g_1(x, Q^2)$ and its moments provide crucial information on the internal structure of the nucleon. At low momentum transfer Q^2 , one can study the transition from partonic (quark-gluon) to hadronic (nucleonic) degrees of freedom and test effective theories based on QCD, such as Chiral Perturbation Theory (χ PT). As Q^2 goes to zero, the first moment of g_1 is constrained by the GDH sum rule and its χ PT extensions, which makes measurements of g_1 in this region uniquely interesting. As part of a large program of spin structure function measurements with CLAS at Jefferson Lab, the EG4 experiment measured the polarized cross section difference (between the cases of longitudinally polarized electron beam and proton/deuteron target having parallel and antiparallel spins) down to about 7 degrees in the scattering angles. From these differences, g_1 can be extracted, with minimal model uncertainties, down to Q^2 as low as 0.01 GeV². We will discuss the experiment and the status of its analysis and present preliminary results.

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