

Abstract Submitted  
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**Spin Structure Functions of the Deuteron in the Region of the Nucleon Resonances** SHIGEYUKI TAJIMA, University of Virginia, JEFFERSON LAB E01-006 COLLABORATION — The Jefferson Lab (JLab) E01-006 collaboration performed precise measurement of the spin structure functions of the proton and deuteron in the region of nucleon resonances (final state invariant mass  $W < 2$ ) at the four-momentum transfer squared of  $Q^2 \sim 1.3(\text{GeV}/c)^2$ . The  $W$  dependence of  $A_1$  and  $A_2$  has been measured with high resolution, allowing for clear identification of individual resonance regions. The spin structure measurements in the resonance region allow us to study the local duality for the polarized spin structure functions. In this experiment, the longitudinally-polarized electron beam of 5.755 GeV energy was scattered from a polarized solid ammonia target in Hall C at JLab. The scattered electrons were then detected in High Momentum Spectrometer (HMS), which allows us to measure inclusive scattering asymmetries. Ordinary ( $\text{NH}_3$ ) and deuterated ( $\text{ND}_3$ ) ammonia were used as polarized proton and deuteron targets. High precision measurements of the beam-target asymmetries ( $A_{\parallel}$  and  $A_{\perp}$ ) with polarization of the target material being parallel or perpendicular to the beam direction allow us to determine the spin asymmetries ( $A_1(W, Q^2)$  and  $A_2(W, Q^2)$ ) and the spin structure functions ( $g_1(x, Q^2)$  and  $g_2(x, Q^2)$ ) in a model independent way. In this talk, preliminary results for the deuteron spin asymmetries and structure functions as well as very preliminary results for the neutron will be presented.

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