Abstract Submitted
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Precision Measurements of Low Energy Deuteron Photodisintegration Using Linearly Polarized Beams[1] M.A. BLACKSTON, M.A. AHMED, Duke U/TUNL, B. BEWER, U Saskatchewan, R. IGARASHI, Canadian Light Source, B. NORUM, U Virginia, Y. PARPOTTAS, U Cyprus, R. PYWELL, U Saskatchewan, B.A. PERDUE, Duke U/TUNL, B.D. SAWATZKY, Temple U/JLAB, H.R. WELLER, Duke U/TUNL — Data from a deuteron photodisintegration experiment performed at the High Intensity $\vec{\gamma}$-ray Source (HI$\vec{\gamma}$S) are being analyzed to extract the amplitudes of the Transition Matrix Elements (TMEs) that contribute to the reaction at 14 and 16 MeV. The results are compared to potential model and effective field theory (EFT) calculations. Linearly polarized γ-rays were used to extract the shape of the polarized differential cross section for the $d(\vec{\gamma}, n)p$ reaction using the 88 neutron detectors of the Blowfish array. The coefficients of a Legendre polynomial expansion of the data were written in terms of the amplitudes and phases of the TMEs. The data were fit to determine the amplitudes of the TMEs, using the phase shifts obtained from n-p scattering data to fix the relative phases. This talk will provide a brief overview of the experiment, describe how the amplitudes were extracted, and compare the results to theory. The relationship of these results to the GDH integrand of the deuteron will also be discussed.

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M.A. Blackston
Duke U/TUNL

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