

Abstract Submitted
for the DNP11 Meeting of
The American Physical Society

Compton Scattering on ${}^6\text{Li}$ at 60 MeV L. MYERS, M.W. AHMED, S.S. HENSHAW, J.M. MUELLER, H.R. WELLER, Duke University and TUNL, G. FELDMAN, T. BALINT, K. SYKORA, George Washington University, M.A. KOVASH, University of Kentucky — We have measured the Compton scattering cross section from ${}^6\text{Li}$ for the first time using the High Intensity Gamma Source (HI γ S) at the Triangle Universities Nuclear Laboratory (TUNL). This measurement is intended to provide a new method for obtaining the electric and magnetic polarizabilities (α and β) of the nucleon. The $Z = 3$ target gives a higher Compton cross section compared to a proton or deuteron target, and as long as nuclear effects can be theoretically modeled, it should be feasible to extract information about α and β . The experiment was conducted using a 60 MeV γ -ray beam with an intensity of 10^7 Hz and the eight-element HI γ S NaI Detector Array (HINDA) covering an angular range of 55° - 159° . A phenomenological Compton scattering model has been developed [1] which utilizes known photoabsorption data to infer the Compton scattering amplitudes – with these fixed inputs, α and β are free parameters that can be fit to the angular distribution of the scattering data. Our preliminary data will be presented and compared to initial calculations using the phenomenological model which includes nucleon electric and magnetic polarizabilities. Partially supported by the USDOE under grant numbers DG-FG02-97ER41033 and DE-FG02-06ER41422. [1] D.H. Wright et al., Phys. Rev. C 32, 1174 (1985).

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Date submitted: 01 Jul 2011

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