

Abstract Submitted
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Compton scattering from nuclear targets at HI γ S¹ B.A. PERDUE, M.A. AHMED, M.A. BLACKSTON, Y. PARPOTTAS, A.P. TONCHEV, H.R. WELLER, Duke U./TUNL, V.N. LITVINENKO, I.V. PINAYEV, Y. WU, Duke U./DFELL, R.M. PRIOR, M.C. SPRAKER, NGCSU/TUNL, G. FELDMAN, GWU, B.D. SAWATZKY, B. NORUM, UVA, J.R. CALARCO, UNH — A Compton scattering program is presently being developed at HI γ S utilizing the nearly-monoenergetic beams of 100% polarized γ -rays produced by intra-cavity Compton backscattering of FEL photons. Polarization asymmetries of Compton scattering on ¹⁶O have been measured between 25-40 MeV to search for a narrow iso-vector giant quadrupole resonance (IVGQR). A beam with $\Delta E/E \sim 10\%$ was incident on a H₂O target. The scattered γ -rays were detected by four 10" \times 10" NaI detectors located between $\theta=90-150^\circ$ and $\phi=0, 90, 180,$ and 270° . The data indicate that significant, narrow concentrations of E2 strength are not present below 40 MeV. Another measurement of the Compton scattering cross section of ³He between $E_\gamma=3-11$ MeV is proposed to extract the electric polarizability, α_E , of the ³He nucleus. A preliminary run has been performed to study the backgrounds, and a high pressure gas target system has been tested.

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