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Elastic Compton Scattering from Carbon JOHN CAPONE, GERALD FELDMAN, George Washington University, COMPTON@MAX-LAB COLLABORATION — A Compton scattering experiment was conducted at MAX-Lab in Lund, Sweden, in which tagged photons of energy $E_\gamma = 81.5 - 115.7$ MeV were incident on a carbon target. Photons were produced via bremsstrahlung by an electron beam's interaction with an aluminum radiator. The electrons were then deflected by a magnetic field into plastic scintillator paddles along the focal plane, allowing the energies of the corresponding photons to be tagged. Photons scattered from the carbon target were then detected by three large-volume (50 cm $\times$ 50 cm) NaI scintillator detectors located at 60°, 120° and 150° from the photon beam axis. The elastic Compton scattering peak was identified by setting a time window on "true" coincidences between the NaI detectors and the tagger focal plane array. The data required a background subtraction to remove unwanted contributions to the energy spectra from "random" events such as cosmic rays and untagged photons. After this subtraction, the residual background was fit in order to determine the integral of the elastic scattering peak. With this experimental yield, normalization factors such as the target thickness, photon flux and NaI detector solid angles were applied to determine the absolute cross section. The results for the differential cross section will be presented as a function of angle and energy and will be compared to published values from the literature.

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