Compton Cross Section in PrimEx II Experiment at Jefferson Lab [1]

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The PrimEx II experiment[2] measured neutral pion lifetime using the small angle coherent photoproduction of π^o's in the Coulomb field of a nucleus, *i.e.* the Primakoff effect. This experiment aims to measure the lifetime with a precision of less than 1.5%, which is commensurate with the theoretical uncertainty. The π^o photoproduction cross section for two nuclei (^{12}C,^{116}Sn)was measured at photon energies from 4.6 GeV to 5.7 GeV. A new level of experimental precision has been achieved by using the high intensity and high resolution photon tagging facility in Hall B of Jefferson Lab, and by developing and constructing a state-of-the-art, high resolution electromagnetic calorimeter. Meanwhile, the Compton scattering cross section for the same targets (^{12}C,^{116}Sn) was also measured at same photon beam energies with same experimental settings. This talk will focus on Compton data analysis process and show some preliminary results of Compton scattering cross section.

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