Photoproduction of Baryon-anti-Baryon Pairs at GlueX.

Friday, 7 June 2019 09:15 (30 minutes)

Baryon-anti-baryon photoproduction has not been extensively studied at Jefferson Lab energies. At the GlueX Experiment, we observe $pp$ and, for the first time, $\Lambda\bar{\Lambda}$ photoproduction (with $\Lambda \rightarrow \pi^- p$, $\bar{\Lambda} \rightarrow \pi^+ p$) from threshold up to $E_{\gamma} = 11.4$ GeV. Preliminary spectra from data accumulated during the GlueX Phase-I period will be presented. Angular distributions of the photoproduced hyperons indicate that more than one production mechanism exists in the reaction channel $\gamma p \rightarrow p\Lambda\bar{\Lambda}$. A tree-level Monte Carlo model with four mechanisms, tested through comparison between simulation and experimental data, will also be presented. The further goal of the study is to investigate the angular momentum structure of strangeness production through the study of spin correlations between the $\Lambda$ hyperons. Using linearly polarized photons peaking near 9.0 GeV, observables such as the beam spin asymmetry can be studied. The status of beam spin asymmetry spectra for this channel will be discussed.

Early Consideration

Yes

Graduate Student

Yes

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