Baryon Antibaryon Photoproduction using CLAS at Jefferson Lab

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Abstract

There is little known about the baryon antibaryon production mechanism. The following reactions were looked at, $\gamma p \to pp\bar{p}$, $\gamma p \to pp\pi^- \bar{n}$, and $\gamma p \to p\bar{p}\pi^+ n$. For these reactions the photon energies that were selected were from 4.4-5.45 GeV. The data were from the g12 experiment taken with the CLAS detector using a liquid hydrogen target at Thomas Jefferson National Accelerator Facility. This experiment had high statistics, with a luminosity of 68 pb^{-1}. Features of the data such as invariant mass spectra, missing mass spectra, and angular distributions necessary for the analysis will be shown. In addition, a first observation of an antineutron in photoproduction in the missing mass spectra of $\gamma p \to pp\pi^- \bar{n}$ will also be shown.