

The recent results of strangeness photoproduction in the threshold region at ELPH-Tohoku

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We have been investigating the kaon photoproductions on the deuteron in the photon energy region from 0.78 to 1.08 GeV at Research Center for Electron Photon Science, Tohoku University. We performed inclusive measurements of $\gamma d \rightarrow K^0 X$ and $\gamma d \rightarrow \Lambda X$ reactions on the deuterium target with the Neutral Kaon Spectrometer 2. We obtained differential cross sections and recoil polarization of Λ from these measurements. We currently attempt the exclusive measurement of $\gamma d \rightarrow K^0 \Lambda p$ reaction. The current status of the analysis of $\gamma d \rightarrow K^+ \Lambda n$ for a test of an analysis method is reported.

KEYWORDS: Photoproduction, Strangeness, Deuteron

1. Introduction

Recent innovation of the high resolution and high intensity electron beams enabled the high resolution mass spectroscopy of hypernuclei [1]. And thus precise knowledge of the electromagnetic hyperon production is the key for the precise understanding of the hypernuclear formation with the electron. The electromagnetic strangeness production also serves for understanding properties of a hadron structure and meson-baryon couplings. Cross sections and polarization observables of the strangeness photoproduction were mainly measured with the hydrogen target with large acceptance spectrometers [2, 3]. The obtained data were theoretically analyzed for investigation of a reaction mechanism and a hadron structure with isobar models [4, 5]. The Regge-plus-Resonance (RPR) calculation is currently developed with an exchange of Regge trajectory in a high energy region and a

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