

Abstract Submitted
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Strangeness photoproduction near the threshold at ELPH-Tohoku MASASHI KANETA, Dept. of Phys. Tohoku Univ., NKS2 COLLABORATION — Strangeness photoproduction processes near the threshold offers invaluable opportunity for the investigation of hadron structure and coupling constants that involve strangeness in hadron physics. The process had been intensively studied by measuring K^+ such as $\gamma + p \rightarrow K^+ + \Lambda(\Sigma^0)$. However, there had been no reliable data on the neutron and the theoretical investigation suffered seriously from the lack of the data. We have been making an effort to measure the $\gamma + d \rightarrow K^0(\Lambda)+X$ reaction in the $\pi^+\pi^-$ ($p\pi^-$) decay channel of $K_S^0(\Lambda)$, using a liquid D_2 target and internally-tagged photon beams ($E_\gamma = 0.8-1.1$ GeV) at Research Center for Electron Photon Science (ELPH), Tohoku University. Having succeeded to collect exploratory data of K^0 with the original NKS spectrometer [1], we have renewed the spectrometer (NKS2) and taken data in 2005-2007, obtaining the differential and total cross-section of K_S^0 and Λ . The results are compared with recent theoretical studies (Isobar models and a Regge-plus-resonance model). The comparison suggests a backward angular distribution of K_S^0 in CM. Further upgrade of the NKS2 spectrometer specifically in the vertex region has been completed and the data taking is under way.

[1] K. Tsukada et al., Phys.Rev.C78 (2008) 014001, and Erratum 2011

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