

Abstract Submitted  
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**Performance study of a Vertex Drift Chamber (VDC) for the measurement of strangeness photoproduction in the  $d(\gamma, K^0) \Lambda p$  reaction**

BRIAN BECKFORD, Tohoku University, NKS2 COLLABORATION — Kaon photoproduction has been used extensively to study the strangeness production mechanism. However, relatively little is known about strangeness production on the neutron, particularly for the production of neutral hyperons ( $\Lambda$  or  $\Sigma^0$ ). An experiment has been designed at the Laboratory of Nuclear Science of Tohoku University (LNS-Tohoku) which employs the recently upgraded Neutral Kaon Spectrometer 2 (NKS2), to study the  $d(\gamma, K^0) \Lambda p$  reaction. Recent beam time at the LNS was used to commission the latest version of the NKS2 detector system. The VDC is included in order to measure the invariant mass of the  $K_s^0$  and  $\Lambda$ , in coincidence. Thus, avoiding the Fermi motion effect in the cross-section calculation; a determination of both invariant masses requires the four-track reconstruction of the reaction vertex. It is composed of 8 layers with wires placed only at stereo angles, resulting in an approximately 4 mm half-cell size. Preliminary tests have yielded a layer efficiency of 99% in the HV operating range of 2100-2150 V, and for a threshold range of 2.0-6.0 V for all layers. The motivation for the upgrade, experimental technique and preliminary results will be presented.

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