

Abstract Submitted  
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**Measurements of  $C_x$ ,  $C_z$  and  $d\sigma/d\Omega$  for  $K^+\Lambda$  and  $K^+\Sigma^0$  Photoproduction** REINHARD SCHUMACHER, ROBERT BRADFORD, Carnegie Mellon University, CLAS COLLABORATION — The photoproduction reactions  $\gamma + p \rightarrow K^+ + \Lambda$  and  $\gamma + p \rightarrow K^+ + \Sigma^0$  have been measured from threshold to 2.9 GeV photon energy using the CLAS spectrometer at Jefferson Lab. Using a circularly polarized real photon beam, we have obtained first-ever data for the double polarization observables  $C_x$  and  $C_z$ . These correspond to the transfer of polarization from the photon to the produced hyperon. Results for both hyperons span a wide range of kaon production angles.  $C_z$  for the  $K^+\Lambda$  reaction shows a striking trend toward complete polarization transfer to the hyperon over a wide range of kaon production angles, while  $C_x$  tends towards zero. Several effective Lagrangian reaction models utterly fail to predict these newly-measured observables. We have extended our previous measurements<sup>1</sup> of the differential cross sections,  $d\sigma/d\Omega$ , to cover the nearly complete angular range  $-0.85 \leq \cos\theta(K_{c.m.}^+) \leq +0.95$  and the extended photon energy range from 2.4 to 2.9 GeV. The results support our previous conclusions that multiple resonance-like contributions are present in  $K^+\Lambda$  production between  $W$  of 1.8 and 2.0 GeV.  $t$ -channel scaling is found to be significant in  $K^+\Lambda$  production, but is much less significant in  $K^+\Sigma^0$  production.

<sup>1</sup>J. W. C. McNabb (CLAS Collaboration), *et al.*, Phys. Rev. C **69** 042201(R) (2004).

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