# Measurement of the $\gamma n \to K^+\Sigma^-$ at Jefferson Lab

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An important key in the study of the structure of the nucleon is to understand its spectrum of excited states. Recent symmetric quark model calculations predict more states than have been seen experimentally. Because most of our present knowledge of baryon resonances comes from reactions involving pions in the initial and/or final states, this suggests a search for these "missing" hadronic states in strangeness production reactions.

A comprehensive study of the electromagnetic strangeness production has been undertaken at Jefferson Lab. There are six elementary strangeness photoproduction reactions on the nucleon: $\gamma n \to K^0\Lambda$, $\gamma n \to K^0\Sigma^0$, $\gamma n \to K^+\Sigma^-$, $\gamma p \to K^+\Lambda$, $\gamma p \to K^+\Sigma^0$, $\gamma p \to K^0\Sigma^+$. While there are cross section data for all $\gamma p$ reactions, for $\gamma n$ reactions there is only data for the $\gamma n \to K^+\Sigma^-$ channel, and in a limited energy and angular range.

The analysis results of the measurement of the $\gamma n(p) \to K^+\Sigma^-(p)$ will be reported. These data were collected with CLAS detector with incident photon beam energy in the range from 0.8 to 3.6 GeV and a liquid-deuterium target.

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