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Mass-independent PWA of $K^+\Lambda$ Photoproduction: Data, Scope, and Techniques MICHAEL MCCRACKEN, Washington & Jefferson, CLAS COLLABORATION — The photoproduced $K^+\Lambda$ system presents a unique opportunity to study the excited nucleon spectrum for several reasons. The $K^+\Lambda$ final state couples only to iso-spin- $\frac{1}{2}$ intermediate states, allowing for a simpler interpretation of resonant contributions. Furthermore, the self-analyzing nature of the $\Lambda \to p\pi^-$ decay allows for measurement of the Λ polarization. Several recent experiments have exploited this feature to produce measurements of both single- and double-polarization observables for the reaction. As such, this $K^+\Lambda$ photoproduction is a strong candidate for a so-called *complete* set of observables from which the transition amplitudes can be determined. Recent large-statistics measurements of the differential cross section, Λ recoil polarization, and beam- Λ polarization transfer made by the CLAS Collaboration, warrant new partial-wave techniques. We present our method for and preliminary results of the mass-independent partial-wave analysis of the $\gamma p \to K^+ \Lambda$ reaction. Methods for constraining fits to other observables, including beam and target asymmetries and polarization transfer observables, are described. We discuss the differences in methodology between this and previous mass-dependent analyses, as well as techniques for applying the mass-independent technique to resolve ambiguities in previous analyses of the reaction.

> Michael McCracken Washington & Jefferson College

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