Spin observables used in determination of spin-parity of cascade baryon resonances BENJAMIN JACKSON, KANZO NAKAYAMA, University of Georgia — In preparation for the forthcoming experiments on multi-strangeness baryon production at JLab and JPARC, we analyze the general features of cascade production in both the anti-kaon- and photon-induced reactions. Particular attention is paid to the spin structure of the reaction amplitude for producing cascade resonances with the emphasis on identifying the spin observables required to determine the production amplitude as well as the spin-parity of the resonance. For the production of cascade resonances with spin higher than $1/2$, the spin-density-matrix formalism is proven to be particularly useful. The $\gamma N \to K K \Xi$ and $\bar{K} N \to K \Xi$ reactions are investigated within a simple model.

Benjamin Jackson
University of Georgia

Date submitted: 11 Jan 2013   Electronic form version 1.4