

Analysis of anti-Kaon-induced Cascade baryon production

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Collaboration

Abstract content

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 $\gamma N \rightarrow KK\Xi$ and $\bar{K}N \rightarrow K\Xi$ reactions are investigated within a simple model. Emphasis will be placed on the results of the model calculations.

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