

Search for excited Ξ^* states and preliminary cross section for $\Xi^-(1530)$

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Constituent quark models (CQMs) and lattice calculations often predict many more states than have been observed, the so-called “missing resonance” problem. For example, the Particle Data Group (PDG) tables indicate evidence for ten states for the cascade baryon, five of which presently have only fair or poor ratings; yet, relativized quark model calculations predict 45 states with masses in the same range as those in the PDG. Thus, providing additional evidence for the known Ξ resonances and discovering new excited states will help greatly improve models, as well as identifying the most salient features necessary for predicting baryon resonances. Experimentally, utilizing Ξ in the hunt for missing resonances has the advantage that those final states have much narrow widths compared to N^* and Δ^* resonances, facilitating identification. To better elucidate the cascade resonance spectrum, the GlueX experiment continues to obtain data for reconstructing Ξ resonances. Utilizing GlueX data, invariant mass distributions for the $\Xi^-\pi^0$ system will be shown, along with preliminary cross section measurements for $\gamma p \rightarrow K^+K^+\Xi^-(1530)$.