

## Search for Excited $\Xi^*$ States

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### **Abstract**

Constituent quark models and lattice calculations often predict many more states than have been observed, the so-called missing resonance problem. 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  $\Xi$  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, using  $\Xi$  in the hunt for missing resonances has the advantage that those final states are expected to have much narrower widths compared to  $N^*$  and  $\Delta^*$  resonances, facilitating identification. To better elucidate the cascade resonance spectrum, the GlueX experiment continues to obtain data for reconstructing  $\Xi$  resonances. Utilizing GlueX data, invariant mass distributions for the  $\Xi^*$  from different decay channels will be shown.