

Photoproduction of the $\Lambda(1520)$ hyperon with a 9 GeV photon beam at GlueX

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The GlueX experiment is located at the Thomas Jefferson National Accelerator Facility (JLab) in Newport News, VA, USA. It features a hermetic 4π detector with excellent tracking and calorimetry capabilities. Its linearly polarized photon beam is produced from the 12 GeV electron beam, delivered by JLab's Continuous Electron Beam Accelerator Facility (CEBAF), via bremsstrahlung on a thin diamond and is incident on a LH_2 target. GlueX recently finished its first data taking period and published first results [1].

The main goal of GlueX is to measure gluonic excitations of mesons. These so-called hybrid or exotic mesons are predicted by Quantum Chromodynamics (QCD) but haven't been experimentally confirmed yet. They can have quantum numbers not accessible by ordinary quark-antiquark pairs which helps in identifying them using partial wave analysis techniques. The search for exotic mesons requires a very good understanding of photoproduction processes in a wide range of final states, one of them being pK^*K which contains many meson and baryon reactions. The $\Lambda(1520)$ is a prominent hyperon resonance in this final state and is the subject of this presentation.

This talk will give an introduction to the GlueX experiment and show preliminary results for the photoproduction of the $\Lambda(1520)$ hyperon. The measurement of important observables like the photon beam asymmetry will be discussed and an outlook to possible measurements of further hyperon states in the pK^*K final state will be given.

[1] H. Al Ghoul *et al.* (GlueX Collaboration), Phys. Rev. C **95**, 042201 (2017)