

K-Long facility for JLab and its scientific potential

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Collaboration

GlueX

Abstract content

Our main interest in creating a secondary high-quality KL beam is to investigate hyperon spectroscopy through both formation and production processes. We propose to study two-body and quasi-two-body reactions induced by the KL beam on the proton target. The experiment should measure both differential cross sections and self-analyzed polarizations of the produced Lambda-, Sigma-, and Xi-hyperons using the GlueX detector at the Jefferson Lab Hall D. New data will greatly constrain partial-wave analysis and reduce model-dependent uncertainties in the extraction of strange resonance properties, providing a new benchmark for comparisons with QCD-inspired models and LQCD calculations. The measurements will span $\cos\theta$ from -0.95 to 0.95 in CM range above $W = 1490$ MeV and up to 4000 MeV.

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