

# Study of radiative hyperon decays in the reaction $\gamma p \rightarrow K^+ \Lambda \gamma$ at GlueX

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January 2021

Radiative decays of hyperons are sensitive to their internal structure and a clean probe of their underlying SU(3) wave function. So far only a few measurements of radiative decays of excited hyperons have been published. In this study we focus on the radiative decay of  $\Sigma^0(1385) \rightarrow \Lambda \gamma$ , where the excited hyperon is produced in photoproduction at GlueX. The branching ratio of this particular decay has first been measured in [1]. The GlueX experiment at Jefferson National Laboratory provides excellent opportunities to study excited state hyperons in general and the reaction above in particular in photoproduction with a photon beam of 6.0 – 11.6 GeV incident on a liquid hydrogen target with high statistics. In this talk, we will discuss the ongoing analysis effort for the reaction  $\gamma p \rightarrow K^+ \Sigma^0(1385) \rightarrow K^+ \Lambda \gamma$ , emphasizing the reduction of background. This data sample is expected to have up to almost an order of magnitude more statistics than previously available.

## References

- [1] Electromagnetic Decay of  $\Sigma^0(1385)$  to  $\Lambda \gamma$ , D. Keller et. al (The CLAS collaboration), Phys. Rev. D 83, 072004, 2011