

Abstract Submitted
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**Simulations for Light Collection Efficiency (Jlab Hall C 12 GeV
Kaon Aerogel Detector)**¹ LAURA ROTHGEB, Catholic University of America

— Studying the additional flavor degree of freedom in charged kaon production allows for an unexampled insight into the transition from hadronic to partonic degrees of freedom in exclusive processes and specifically the reaction mechanism underlying strangeness production. This unique opportunity has gone greatly unexplored, however, because of the challenges posed by the experimental factors. One of these challenges is determining a method of separation for kaons from pion and proton backgrounds at high momenta. The simplest and most cost-effective solution is the implementation of a kaon aerogel Cherenkov detector. At the Catholic University of America, we are building such a detector for use in the 12GeV Hall C Super High Momentum Spectrometer at Jefferson Lab. The detector will use photo multiplier tubes to collect the Cherenkov radiation given off by the aerogel and convert that signal into analyzable data that will be used to determine the form factor of the kaon, which will yield a greater understanding of the internal structure of the proton. In this presentation I will present the results from the simulations carried out to optimize the aerogel coverage and study the effect of light guides on the efficiency of the detector.

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