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RESEARCH PROPOSAL

ELECTROPRODUCTION OF KAONS AND LIGHT HYPERNUCLEI

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ABSTRACT

The study of the structure of nuclei containing strange baryons is one of the frontier areas of nuclear research which may provide critical information concerning modifications of simple degrees of freedom in the many body nuclear medium. Electroproduction of light hypernuclei on targets in the 1s-shell is a relatively distortion free method of investigating the fundamental Λ -nucleon interactions that are critical for understanding complex hypernuclei since both the electron and K^+ are weakly interacting particles. The projected program requires coincident detection of the emergent e and k^+ in moderate resolution magnetic spectrometers that are able to provide suitable angular resolution over reasonably large solid angles, i.e. HMS and SOS in Hall C. In addition to elucidating the kaon-nucleon-hyperon coupling constants, the study will investigate a theoretically predicted cusp near the sigma threshold.