

Abstract Submitted
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JLab E05-115: hypernuclear spectroscopy in a wider mass region

LULIN YUAN, Hampton University — The ability of electroproduction in obtaining high resolution hypernuclear spectroscopy by using high precision electron beam has been demonstrated by recent results of hypernuclear spectra of ${}_{\Lambda}^{12}\text{B}$, ${}_{\Lambda}^{16}\text{N}$, ${}_{\Lambda}^{28}\text{Al}$, etc. from Jefferson Lab. JLAB E05-115, a newly approved and upgraded experiment currently under preparation in JLab Hall C, will expand hypernuclear spectroscopy to a wider mass region ($A=6\sim 52$). High resolution hypernuclear spectroscopy for medium heavy to heavy hypernuclei will enable us to extract the spin dependent Λ -N interaction beyond p-shell and help to understand the role of strangeness in dense nuclear matter. In the light mass region, hypernuclear spectroscopy by electroproduction can produce neutron rich and mirror hypernuclei that helps us to understand the effect of Charge Symmetry Breaking and reveal new nuclear structure aspects induced by strangeness. Experimental setup of E05-115 is optimized based on the experiences learned from two previous Hall C hypernuclear experiments. It will replace the electron spectrometer of the previous HKS experiment by a large acceptance, high resolution HES spectrometer. The physics motivation, experimental setup and current status of E05-115 will be presented.

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