

Abstract Submitted  
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**New program for decay pion spectroscopy of light hypernuclei at JLAB** LIGUANG TANG, Hampton University — The unique beam parameters (high intensity, small emittance, and fine beam bunch time structure) of the CW electron beam at Jefferson Laboratory and the well established HKS spectrometer system for hypernuclear spectroscopy opens new opportunity for a high precision decay pion spectroscopy program. The decay pion contains information that offers wide range of hypernuclear and nuclear physics, from precise determination of binding energy of the ground state of light hypernuclei to study YN interaction, investigation of highly exotic hypernuclei to study mechanism for exotic nuclei, to probing the detailed low lying nuclear structure with the nuclear “impurity” -insertion of a  $\Lambda$  into the nucleus. Combination of the CEBAF beam (electro-production of hypernuclei) and the HKS system makes the program capable to reach a high energy resolution of  $\sigma \sim 55$  keV thus rich physics can be learned from the decay pions from two body mesonic hypernuclear decay. The physics and experimental technique will be presented.

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