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Hypernuclear spectroscopy at JLab

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Lambda hypernuclei have been extensively studied by using the meson-induced reactions, such as (π^+, K^+) and (K^-, π^-) at KEK and BNL. The $(e, e'K^+)$ reaction is a new method for hypernuclear spectroscopy, and it has unique advantages over those meson-induced reactions. For example, the $(e, e'K^+)$ reaction excites spin-flip as well as spin-non-flip Λ hypernuclear states and produces neutron rich Λ hypernuclei by converting a proton to a Λ hyperon. From the experimental point of view, it is a great advantage that a high-quality electron beam available at JLab allows us to improve the energy resolution down to sub-MeV levels. Encouraged by the success of the first hypernuclear spectroscopy through the $(e, e'K^+)$ reaction (JLab E89-009), a new improved experiment with a newly developed High resolution Kaon Spectrometer (HKS) and a new configuration of the electron spectrometer is going to start at JLab Hall C (JLab E01-011/E02-017) from June, 2005. Overview of the JLab Hall-C hypernuclear experiments and current analysis status will be presented. If time allows, an upgrade plan of the electron spectrometer will be also explained.

¹on behalf of JLab E01-011 Collaboration