

Abstract Submitted
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Next generation Λ -hypernuclear spectroscopy via the $(e, e'K^+)$ reaction at Jefferson Lab¹ TOMOFUMI MARUTA, Graduate School of Science, Tohoku University, JLAB E05-115 COLLABORATION — Spectroscopic study via the $(e, e'K^+)$ reaction is a very important technique to investigate Λ -hypernuclear structure; the reaction favorably excites spin-flip states and on light nuclei, compared to the meson-induced reactions, produces mirror hypernuclei. So far, it is the only technique that allows absolute mass determination with accuracies of a ≈ 100 keV or better. Two previous experiments that we performed, JLab E89-009 and E01-011, established the experimental technique, and the latter obtained hypernuclear mass spectra up to $A \approx 30$ with, for reaction spectroscopy, unprecedented energy resolution as good as 400 keV (FWHM). Our next experiment, E05-115, will investigate Λ -hypernuclei in wide mass region up to ${}^{52}_{\Lambda}\text{V}$. A newly constructed electron spectrometer (HES) and splitter magnet will increase the yield by almost one order of magnitude while preserving the achieved energy resolution. Together with the existing Kaon Spectrometer (HKS), they are scheduled for installation in Jefferson Lab's Hall C in 2009. The planned experimental program will explore Λ -hypernuclei beyond the p -shell for the first time in $(e, e'K^+)$ reaction spectroscopy. This presentation will give a preparation status report and outline of the experimental program and technique of the next experiment.

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