

Abstract Submitted
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Next generation Λ -hypernuclear spectroscopy via the $(e,e'K^+)$ reaction at Jefferson Lab¹ TOMOFUMI MARUTA, Tohoku University, JEFFERSON LAB E05-115 COLLABORATION — Spectroscopic studies via the $(e,e'K^+)$ reaction are a very important complementary 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 ≈ 100 keV or better. Two previous experiments that we performed, E89-009 & 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 down to 400 keV (FWHM). Our next experiments will investigate Λ hypernuclei up to ${}_{\Lambda}^{89}\text{Sr}$. 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 for the first time in $(e,e'K^+)$ reaction spectroscopy also explore Λ -hypernuclei beyond the p-shell. This presentation will give a status report and outline the experimental program and technique of the E05-115 experiment.

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