

Abstract Submitted
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Determining the Unknown $\Lambda - n$ Interaction by Investigating the Λnn Resonance BISHNU PANDEY, Hampton University — The newly approved Jlab experiment E12-17-003 is to search and measure the Λ binding energy (B_Λ) and natural width (Γ_Λ) of a possible Λnn three-body resonance, using the ${}^3H(e, e', K^+)\Lambda nn$ reaction with the high quality CEBAF electron beam and the Hall A high resolution spectrometers. This resonance, if exists as indicated by the result of HypHI experiment [1] and predicted by theory [2], should be a pure isospin $T = 1$ state. With the highest possible precision achievable by electro-production from the jlab experiment, the measured B_Λ and Γ_Λ can be used to investigate and determine the unknown Λn interaction, experimentally for the first time, relative to Λp interaction fitted from limited Λp scattering data. The measurement may provide important clues to the long stand puzzle of charge-symmetry-breaking(CSB) in ΛN interactions and it may impact on your understanding on hypernuclei and EOS of neutron stars.

[1] C. Rappold et al., Phys. Rev. C88, 041001(R) (2013) [2] Iraj R. Afnan and Benjamin F. Gibson, Phys. Rev. C92, 054608 (2015)

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