

Abstract Submitted
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Optical Calibration For Jefferson Lab HKS Spectrometer LULLIN

YUAN, Hampton University — Jefferson Lab HKS experiment aims at obtaining high resolution hypernuclear spectroscopy by $(e, e'K)$ reaction. The calibration of the HKS spectrometer is crucial in order to obtain the proposed missing mass resolution. This calibration procedure is complicated due to the use of a zero degree on-target splitter magnet. We have developed a high precision optical calibration method, making use of the known masses of Λ, Σ^0 hyperons produced from hydrogen in CH_2 target and the narrow width of ${}_{\Lambda}^{12}\text{B}$ hypernuclear ground state from ${}^{12}\text{C}$ target. To deal with the high accidental background, we have implemented the Expectation-Maximization parameter estimation method. In this talk, the procedure of the calibration will be described and the preliminary results of the calibration will be presented.

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