

Abstract Submitted
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An Artificial Intelligence Based Analysis of Magnetic Spectrograph Data¹ SIERRA WEYHMILLER, UMESH GARG, JOE ARROYO, TIANYI WANG, University of Notre Dame — Prior to obtaining elastic and inelastic scattering cross sections from magnetic spectrograph data from the Research Center for Nuclear Physics (RCNP), one must first apply particle identification, shape correction, background subtraction, and state selection to several runs of data. Currently, these processes are completed sequentially by a researcher and verified independently by another researcher. This process is simple yet time-consuming, and the human judgement inherent in these processes has the potential to add non-negligible errors to the final results. We propose to improve the generalized speed and accuracy of these operations in RCNP data using artificial intelligence techniques. To do this, we will use established image processing methods to isolate potential regions of interest and then select the proper region through an exploration of their physical properties. In doing so, we will create a generalized cross section data reduction routine with greater speed, accuracy, and ease of use than the previous approach.

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