

Abstract Submitted
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Testing HECTOR's Efficiency Post-Collimator Addition JOSEPH ARROYO, Illinois Institute of Technology, Notre Dame University, ANNA SIMON¹, Notre Dame University, ORLANDO GOMEZ TEAM², CRAIG REINGOLD TEAM³, FARHEEN NAQVI TEAM⁴ — To better refine models of stellar nucleosynthesis, various characteristics of nuclides must be well studied. This information is crucial for models to correctly predict observed abundances. Here, proton capture reaction cross sections for ^{102}Pd , ^{108}Cd , and ^{110}Cd , important for the astrophysical p-process, were studied using Notre Dame's FN 10MV. The High Efficiency Total absorption spectrometeR (HECTOR) was used to measure the gamma ray spectra of each source for different beam energies. Part way through the experiment, a collimator was added to HECTOR to provide a better beam tune. As this affects the efficiency of HECTOR by an unknown amount, it must be quantified before much of the desired target data is to be analyzed for cross sections. This was done by examining ^{27}Al resonance and ^{60}Co calibration runs with and without the collimator and comparing the calculated efficiency with Geant4 simulations of HECTOR with the same collimator configuration. The results of the data analysis will be compared with the Geant4 simulation which provides a strong agreement with the data.

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