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The High Efficiency Total Absorption Spectrometer (HECTOR) and Correcting for Inconsistencies in ^{27}Al(p,γ)^{28}Si[1] SEAN KELLY, ANNA SIMON, REBEKA KELMAR, ORLANDO OLIVAS-GOMEZ, CRAIG REINGOLD, ALEX DOMBOS, PATRICK MILLICAN, JACK WURZER, TESSA KLEIN, Nuclear Science Lab, University of Notre Dame — The processes responsible for producing heavy nuclei in stellar environments, such as the p-process and s-process, are studied by measuring radiative capture reaction cross sections. The High Efficiency Total Absorption Spectrometer (HECTOR) is a tool for measuring these small cross sections using the γ-summing technique. In order to study the efficiency of HECTOR, resonance strengths of the ^{27}Al(p,γ)^{28}Si reaction measured with HECTOR were compared to results from previous literature. HECTOR's results yield higher resonance strengths than previous works indicate, which may be due to incomplete cascade and branching information used in their calculations. Using a simulation of HECTOR in Geant4, it is possible to quickly calculate and edit cascades for ^{28}Si at different resonances. By editing the cascade inputs of the simulation to agree with HECTOR's experimental data, it may become clear where and why previous literature underestimates ^{27}Al(p,γ)^{28}Si resonance strengths.

[1]University of Notre Dame, Nuclear Science Laboratory and College of Science

Sean Kelly
Nuclear Science Lab, University of Notre Dame

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