Abstract Submitted
for the DNP12 Meeting of
The American Physical Society

St. George Recoil Mass Separator Time of Flight and Position Sensitive Detector[1] LUIS MORALES, SUNIL KALKAL, JERRY HINNEFELD, Indiana University South Bend, MANOEL COUDER, University of Notre Dame — The St. George recoil mass separator at the University of Notre Dame will be used to study (α, γ) reactions of astrophysical interest. A detection system being developed for St. George at Indiana University South Bend and Notre Dame will utilize energy, time-of-flight and position to separate reaction products from residual unreacted beam particles. Two designs for the timing detectors have been investigated – an electrostatic mirror design and a combination of electrostatic plates with magnetic deflection. Both designs deflect secondary electrons produced by the passage of an ion through a thin carbon foil onto a microchannel plate (MCP) detector, which registers timing and position measurements. A detailed analysis of position and timing resolution for the two designs was conducted using the ion optics simulation software SIMION, in order to identify the configuration best suited for the challenges presented by these low energy and low count rate experiments.

[1]This work was supported in part by the National Science Foundation (Grant No. PHY-1062819 and PHY-0959816)

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Date submitted: 03 Aug 2012 Electronic form version 1.4