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Optimizing Position Sensitivity of the Detection System for the St. George Recoil Mass Separator¹ LUIS MORALES, JERRY HINNEFELD, Indiana Univ. South Bend, MANOEL COUDER, Univ. of Notre Dame, SUNIL KALKAL, Indiana Univ. South Bend — The St. George recoil mass separator at the University of Notre Dame will be used to study (p,γ) reactions of astrophysical interest. A detection system for use with St. George, which utilizes energy and time-of-flight to identify detected particles, is being developed at Indiana University South Bend. An electrostatic mirror assembly is used to deflect secondary electrons produced by the passage of an ion through a thin foil onto a microchannel plate (MCP) detector, which registers the start time for the time-of-flight measurement. Simulations of the transport of the secondary electrons from the foil to the MCP detector have been carried out using SIMION, in order to determine how well the position of the ion at the foil is preserved by the electrostatic mirror. The effective position resolution of the electrostatic mirror assembly has been found to be sensitive to the pitch of a wire grid that accelerates the secondary electrons away from the foil. Position sensitivity for both the start detector and the stop detectors of the time-of-flight system will allow corrections based on the ion trajectory.

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