Abstract Submitted for the DNP07 Meeting of The American Physical Society

Imaging Energetic Nuclear Particles CASSANDRA NIMAN, ROBERT TRIBBLE, Texas A&M Cyclotron Institute — This research project looks at two different kinds of silicon detectors used for imaging energetic nuclear particles. More specifically, we made a comparison of the performance of the 16 resistive strip silicon detector to that of the four corner readout position sensitive silicon detector designed for use in measuring heavy ions in space-based telescopes. We compared the two detector types in their use as target detectors at the end of the Momentum Achromat Recoil Separator (MARS) beam line. The target detectors were used in fine tuning the vertical and horizontal foci of radioactive nuclear beams of ${}^{46}V$ and 18 Ne. We have determined the position resolution capabilities and the response in terms of position linearity of the four corner detector by designing a mask with various hole spacings which was placed in front of the detector. We tested the detector when exposed to an alpha source as well as a radioactive nuclear beam using a variety of shaping times of the amplifier. In the future a smaller four corner readout detector will be used to tune beams at the end of MARS, which have a typical size of about 4mm x 4mm (FWHM). The smaller detector will leave more room in the chamber at the end of the MARS beam line for other equipment.

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Date submitted: 01 Aug 2007

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