

Abstract Submitted  
for the DNP06 Meeting of  
The American Physical Society

**Characterization of Silicon Tetra-lateral PSDs** ZHON BUTCHER,  
University of Colorado — This research project characterized the tetra-lateral position sensitive detectors (PSDs) in terms of energy and position resolution as well as non-linearity in position reconstruction. Measurements were made of impinging positions of alpha particles on three different PSDs. One 200  $\mu\text{m}$  and one 400  $\mu\text{m}$  thick detector with a resistive strip and one 200  $\mu\text{m}$  thick detector without the strip were tested. The resistive strip was framed around the detector active area and was approximately 1/10th the resistance of the active area. The detector with no resistive strip produced a very pronounced “pin-cushion” effect when the position data was analyzed. The 200  $\mu\text{m}$  thick detector with the resistive strip produced much greater energy and position resolution. This resolution of both energy and position was found to be enhanced by the 400  $\mu\text{m}$  thick detector. Optimal energy and position resolution were obtained with the 400  $\mu\text{m}$  detector using Indiana University preamplifiers in conjunction with a CAEN amplifier using a 3 $\mu\text{s}$  shaping time. Energy and position resolution were found to be dependent on the type of preamplifier used as well as the shaping time of the amplifier. Further investigations of these dependencies are ongoing.

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Date submitted: 04 Aug 2006

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