

Abstract Submitted  
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**Polarization sensitivity measurements in SeGA detectors** DAVID MILLER, KRZYSZTOF STAROSTA, PRZEMEK ADRICH, AARON CHESTER, CONSTANTIN VAMAN, DIRK WEISSHAAR, National Superconducting Cyclotron Laboratory/Michigan State University — For isotopes far from stability, the nuclear shell structure is modified influencing the location of intruder states within major shells. Parity is a key observable in nuclear spectroscopy to identify the intruder states for example in the “island of inversion” around  $^{32}\text{Mg}$  where the  $f_{7/2}$  neutron orbital is expected to play a key role. Linear polarization measurements of  $\gamma$ -rays are a probe to access the parities of energy levels. Utilizing the segmentation of detectors in the Segmented Germanium Array (SeGA) at the NSCL and analyzing the hitpatterns thereof allows the detectors to be used as Compton polarimeters. The linear polarization sensitivity of SeGA has been measured using  $\alpha$ - $\gamma$  correlations from a  $^{249}\text{Cf}$  source. Existing analog electronics for data acquisition worked in parallel to the first phase of a new digital data acquisition system being implemented at the NSCL. The results and future improvements that could have substantial impact to the detector sensitivity are discussed.

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