

Abstract Submitted
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Measuring gamma-ray linear polarization with Gretina?¹

SAMUEL TABOR, Florida State University, EXPERIMENT 1495 COLLABORATION COLLABORATION — Determining the parity of nuclear states is critical to understanding of the shell or band structure but difficult to determine with confidence for states with higher spin or complex structure. Tracking arrays such as GRETA/GRETINA or AGATA offer the highest sensitivity and efficiency for measuring gamma-ray linear polarization from Compton scattering, which indicates whether the transition involves a parity change. The polarization sensitivity of GRETINA has been demonstrated in an ideal case with one only one gamma line in the spectrum coming from the first excited state in ^{24}Mg aligned to 97%. It is another matter to learn how well GRETINA works in a typical fusion-evaporation reaction with many nuclei formed, many gamma lines emitted, and limited nuclear alignment. The present experiment ($^{18}\text{O} + ^{18}\text{O}$ at $E_{\text{lab}} = 28.7$ MeV) at ANL-ATLAS was the first to combine GRETINA with the PhoswichWall for reaction channel selection. Results for transitions in ^{30}Si as a test case will be presented.

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