

Abstract Submitted
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Gamma-Gamma Angular Correlation Measurements With GRIFFIN¹ ANDREW MACLEAN, University of Guelph, THE GRIFFIN COLLABORATION — The assignment of spins and parities to excited nuclear states plays an important role in determining nuclear structure. There is a directional asymmetry in the emitted radiation from a $\gamma - \gamma$ cascade that depends on the sequence of spin values for the nuclear states, the multipolarities, and the mixing ratios of the emitted γ -rays. These γ -ray angular correlations are used for the assignment of spins and parities to the nuclear states, and thus provide a powerful means to elucidate the structure of nuclei away from stability. The first in-beam test of gamma-gamma angular correlation measurements with the GRIFFIN spectrometer at TRIUMF-ISAC were performed with a radioactive beam of ^{66}Ga . In the daughter nucleus ^{66}Zn , mixing ratios were measured for various cascades, and are in excellent agreement with literature. The sensitivity to a pronounced $0^+-2^+-0^+$ angular correlation was also measured. The ability to assign spins for a $0^+-2^+-0^+$ cascade is important for the case of ^{62}Ga superallowed Fermi β -decay where a recent measurement was made to clarify two conflicting measurements for the spin assignment of the 2.34 MeV excited state in the daughter.

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