Abstract Submitted
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Nuclear Resonance Fluorescence on ^{232}Th[1] ALEXANDER HILL, UNC-Chapel Hill — Nuclear resonance fluorescence (NRF) is a potent tool for isotope identification via γ-ray interrogation. NRF resonances at several energies were observed while irradiating ^{232}Th with a 2.95 MeV linearly-polarized, quasi-monoenergetic γ-ray beam at the High Intensity Gamma Source (HIγS) at Triangle Universities Nuclear Laboratory. In- and out-of-plane detectors recorded the emitted gamma rays. Statistical methods such as algorithmic background subtraction and signal variance analysis identified and isolated NRF peaks, revealing asymmetries in the emitted spatial distributions of γ-rays resulting from E1 and M1 transitions. In addition, a method of spectral unfolding for germanium gamma-ray detectors was developed to determine the energy distribution of the incident beam.

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