

Abstract Submitted
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A Study of the Two-Photon Emission of ^{90}Zr Using the GRIFFIN Spectrometer¹ C. R. NATZKE, Colorado School of Mines, A. B. GARNSWORTHY, TRIUMF, K. G. LEACH, Colorado School of Mines — Theoretical models predicting neutron star properties require rigorous bench-marking of calculated properties which are experimentally observable; for example the electric polarizability of nuclear matter and the difference in electric polarizability for excited nuclear matter. One possible way of extracting this quantity is through the Compton polarimetry of the second order electromagnetic process of nuclear two-photon decay between low-lying 0^+ states where single photon emission is forbidden. The first excited state of ^{90}Zr satisfies these conditions and has been observed to undergo two-photon emission. The GRIFFIN spectrometer at TRIUMF-ISAC is a powerful set-up for decay studies that has the angular sensitivity, energy resolution, and data acquisition system required to make a precision measurement of ^{90}Zr decay using a high-activity ^{90}Sr source. Source data has been collected using a ^{90}Sr source to test GRIFFIN's sensitivity to 2γ emission and the progress on these investigations will be discussed.

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