

Abstract Submitted
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Search for Tetrahedral Symmetry in ^{70}Ge ¹ KHANH LE, R.A. HARING-KAYE, R.M. ELDER, K.D. JONES, Ohio Wesleyan University, S.I. MORROW, Houghton College, S.L. TABOR, V. TRIPATHI, P.C. BENDER, Florida State University, P.R.P. ALLEGRO, N.H. MEDINA, J.R.B. OLIVEIRA, University of Sao Paulo, J. DORING, Bundesamt fur Strahlenschutz — The even-even Ge isotopes have recently become an active testing ground for a variety of exotic structural characteristics, including the existence of tetrahedral symmetry (pyramid-like shapes). Although theoretical shape calculations predict the onset of tetrahedral symmetry near ^{72}Ge , the experimental signatures (including vanishing quadrupole moments within high-spin bands) remain elusive. This study searched for possible experimental evidence of tetrahedral symmetry in ^{70}Ge . Excited states in ^{70}Ge were populated at Florida State University using the $^{55}\text{Mn}(^{18}\text{O},\text{p}2\text{n})$ fusion-evaporation reaction at 50 MeV. Prompt γ - γ coincidences were measured with a Compton-suppressed Ge array consisting of three Clover detectors and seven single-crystal detectors. The existing level scheme was enhanced through the addition of 20 new transitions and the rearrangement of five others based on the measured coincidence relations and relative intensities. Lifetimes of 24 states were measured using the Doppler-shift attenuation method, from which transition quadrupole moments were inferred. These results will be compared with those obtained from cranked Woods-Saxon calculations.

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