Abstract Submitted
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Search for excited states in ^{101}Sn[1] D. SEWERYNIAK, M.P. CARPENTER, S. GROS, R.V.F. JANSSENS, T.L. KHOO, T. LAURITSEN, C.J. LISTER, D. PETERSON, A. ROBINSON, X. WANG, S. ZHU, Argonne National Laboratory, G. LOTAY, P.J. WOODS, University of Edinburgh, A.A. HECHT, N. HOTELING, W.B. WALTERS, University of Maryland — Single-particle excitations near closed shells are critical in understanding nuclear structure. Single-particle energies in the doubly-magic self-conjugate ^{100}Sn nucleus are not known. Studies of nuclei around ^{100}Sn are at the current sensitivity limit. A search for gamma-ray transitions in ^{101}Sn, which contains only one neutron outside of the ^{100}Sn core, was carried out at the Argonne Tandem-Linac Accelarator System. ^{101}Sn nuclei were produced using the ^{46}Ti(^{50}Cr,3n)^{101}Sn reaction with a cross section of about 50 nb. Beta-delayed protons with energies and decay times consistent with previous ^{101}Sn decay studies were observed in a Double-Sided Si Strip Detector at the focal plane of the Argonne Fragment Mass Analyzer. In-beam gamma rays were detected in the GAMMASPHERE array of Ge detectors and were correlated with ^{101}Sn beta-delayed protons. Implications of the ^{101}Sn gamma-ray spectrum for the structure of ^{101}Sn, ^{100}Sn and neighboring nuclei will be discussed.

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