Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Nuclear Structure of ^{101}Pd N.S. BADGER, D.A. MEYER, Rhodes College, A. HEINZ, R.J. CAPERSON, B. HUBER, WNSL, Yale University, J.D. LEBLANC, Rhodes College, R. LUTTKE, WNSL, Yale University; TU Darmstadt, E.A. MCCUTCHAN, Argonne National Lab, J. QIAN, WNSL, Yale University, B. SHORAKA, WNSL, Yale University; University of Surrey, J.K. SMITH, Rhodes College, J.R. TERRY, H. AI, WNSL, Yale University, J.L. HUGON, Rhodes College, E. WILLIAMS, WNSL, Yale University — ^{101}Pd lies in a region of nuclei where A≈110 and structural changes from vibrational to rotational are significant. In order to examine the nuclear structure of ^{101}Pd, an experiment was performed at the Wright Nuclear Structure Laboratory at Yale University using the ESTU-1 Tandem Van de Graaff Accelerator. A beam of 70 MeV ^{12}C collided with ^{92}Zr target nuclei to produce ^{101}Pd via the ^{12}C + ^{92}Zr → ^{101}Pd + 3n reaction. Emitted γ-rays were detected by the SPEEDY array consisting of eight Compton-suppressed HPGe clover detectors. Then, $\gamma - \gamma$ coincidence measurements were made using RadWare to analyze the data. We were able to confirm many energy levels and observe several new ones. Also, new inter-band connections have been discovered. The structure of ^{101}Pd was then interpreted using the strictly empirical E-GOS (E-Gamma Over Spin) method. The E-GOS plot, created by graphing energies of γ-rays over spin versus spin, revealed a clear transition from vibrational structure to rotational structure.

Nick Badger
Rhodes College

Date submitted: 24 Aug 2009 Electronic form version 1.4