

Abstract Submitted
for the DNP06 Meeting of
The American Physical Society

Fine structure in proton emission from $^{141}\text{gsHo}$ and ^{141}mHo K. RYKACZEWSKI, ORNL, M. KARNY, Warsaw U., R. GRZYWACZ, U. Tennessee, J. BATCHELDER, UNIRIB, C. BINGHAM, U. Tennessee, C. GOODIN, Vanderbilt U., C. GROSS, ORNL, J. HAMILTON, J. HWANG, Vanderbilt U., A. KORGUL, Warsaw U., W. KROLAS, INP Krakow, S. LIDDICK, UNIRIB, K. LI, K. MAIER, JIHIR, C. MAZZOCCHI, U. Tennessee, A. PIECHACZEK, LSU, A. RAMAYYA, Vanderbilt U., D. SHAPIRA, ORNL, D. SIMPSON, M. TANTAWY, U. Tennessee, J. WINGER, Mississippi State U., C. YU, ORNL, E. ZGANJAR, LSU — Fine structure in proton emission from the $7/2$ -[523] ground state and from $1/2$ + [411] isomeric state in the deformed nucleus ^{141}Ho was discovered at the HRIBF, Oak Ridge. Proton transitions to the 0^+ ground state and to the 202 keV 2^+ state in ^{140}Dy were observed. The branching ratios of $I_{gs}^{2^+} = 0.9(1)\%$ and $I_m^{2^{gs}2^+} = 1.7(4)\%$ were measured by means of fusion-evaporation reactions, Recoil Mass Separator and digital processing of the Double-sided Silicon Strip Detector recoil implantation and decay signals. The structure of the deformed wave functions of the $7/2$ -[523] and $1/2$ + [411] states will be discussed. The decay properties of $^{141}\text{gsHo}$ can be explained by postulating a small triaxial deformation, while the same model fails to explain observed decay properties of ^{141}mHo . The measured isomeric half-life and $I_m^{2^+}$ value suggest that the contribution of the $\pi s_{1/2} \otimes 0^+$ component in the $1/2$ + [411] wave function is reduced to about 3% only.

K. Rykaczewski
ORNL

Date submitted: 28 Jul 2006

Electronic form version 1.4