Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

One-Neutron Transfer Study of ^{133}Sn and ^{209}Pb by Particle-γ Coincidence Spectroscopy[1] J.M. ALLMOND, A. GALINDO-URIBARRI, A.E. STUCHBERY, J.R. BEENE, R.L. VARNER, E. PADILLA-RODAL, D.C. RADFORD, A. AYRES, A. BEY, J.C. BATCHELDER, C.R. BINGHAM, M.E. HOWARD, K.L. JONES, J.F. LIANG, B. MANNING, P.E. MUELLER, S.D. PAIN, W.A. PETERS, A. RATKIEWICZ, K.T. SCHMITT, D. SHAPIRA, M.S. SMITH, N.J. STONE, C.-H. YU, ORNL, CLARION-BAREBALL COLLABORATION — A one-neutron transfer study of ^{133}Sn and ^{209}Pb by particle-γ coincidence spectroscopy is presented. The selectivity of one-neutron transfer is employed to probe single-neutron states outside of the radioactive ^{132}Sn and stable ^{208}Pb double-magic nuclei, which are analogous to single electrons outside of closed atomic shells (i.e., alkali metals). These recent experiments were conducted at HRIBF-ORNL using a CsI-HPGe detector array (BareBall-CLARION) to detect scattered particles and emitted γ rays from the ^{9}Be(^{132}Sn,^{8}Be)^{133}Sn and ^{9}Be(^{208}Pb,^{8}Be)^{209}Pb direct reactions. Decay paths, level energies, cross sections, and excited-state lifetimes are determined and compared to shell-model expectations.

[1]Research sponsored by the Office of Nuclear Physics, U.S. Department of Energy.

J.M. Allmond
ORNL

Date submitted: 01 Jul 2013 Electronic form version 1.4