Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Beta-delayed neutron spectroscopy using ion traps BARBARA WANG, Lawrence Livermore National Laboratory, A. CZESZUMSKA, University of California, Berkeley, K. SIEGL, University of Notre Dame, S. CALDWELL, University of Chicago, A. APRAHAMIAN, University of Notre Dame, M. BURKEY, University of Chicago, J. CLARK, A. LEVAND, Argonne National Laboratory, S. MARLEY, Louisiana State University, G. MORGAN, University of Manitoba, E. NORMAN, University of California, Berkeley, A. NYSTROM, University of Notre Dame, R. ORFORD, McGill University, S. PADGETT, Lawrence Livermore National Laboratory, A. PEREZ GALVAN, G. SAVARD, Argonne National Laboratory, N. SCIELZO, Lawrence Livermore National Laboratory, K. SHARMA, University of Manitoba, S. STRAUSS, University of Notre Dame — Trapped radioactive ions suspended in vacuum allow for a new way to perform beta-delayed neutron spectroscopy. Decay branching ratios and energy spectra of the emitted neutrons are inferred from a measurement of the nuclear recoil, thereby circumventing the many limitations associated with direct neutron detection. Beta-delayed neutron measurements were carried out for $^{137-138,140}$I, $^{134-136}$Sb, and $^{144-145}$Cs at the Californium Rare Isotope Breeder Upgrade (CARIBU) facility at Argonne National Laboratory. The data collected are needed in many fields of basic and applied science such as nuclear energy, nuclear astrophysics, and stockpile stewardship. Results for the isotopes $^{135-136}$Sb and ^{140}I will be presented. Supported by NSF under PHY-1419765, and U.S. DOE under NEUP 13-5485, DE-AC02- 06CH11357 (ANL), DE-AC52-07NA27344 (LLNL), and DE-NA0000979 (NNSA).

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Date submitted: 30 Sep 2016 Electronic form version 1.4