Abstract Submitted
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Beta-Delayed Neutron Spectroscopy with Trapped Fission Products[1] A. CZESZUMSKA, UC Berkeley/LLNL, N.D. SCIELZO, LLNL, E.B. NORMAN, UC Berkeley, G. SAVARD, ANL/U. Chicago, A. APRAHAMIAN, U. Notre Dame, M. BURKEY, U. Chicago, S.A. CALDWELL, ANL/U. Chicago, C.J. CHIARA, ANL/U. Maryland, College Park, J.A. CLARK, ANL, J. HARKER, ANL/U. Maryland, College Park, S.T. MARLEY, U. Notre Dame, G. MORGAN, U. Manitoba, R. ORFORD, McGill U., S. PADGETT, LLNL, A. PEREZ GALVAN, ANL, R.E. SEGEL, Northwestern U., K.S. SHARMA, ANL/U. Manitoba, K. SIEGL, S. STRAUSS, U. Notre Dame, R.M. YEE, UC Berkeley/LLNL — Characterizing β-delayed neutron emission (βn) is of importance in reactor safety modeling, understanding of r-process nucleosynthesis, and nuclear structure studies. A newly developed technique enables a reliable measurement of βn branching ratios and neutron energy spectra without directly detecting neutrons. Ions of interest are loaded into a Paul trap surrounded by an array of radiation detectors. Upon decay, recoiling daughter nuclei and emitted particles emerge from the center of the trap with minimal scattering. The neutron energy is then determined from the time-of-flight, and hence momentum, of the recoiling ions. I will explain the details of the technique, and present the results from the most recent experimental campaign at the CARIBU facility at Argonne National Laboratory.

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