Abstract Submitted for the HAW09 Meeting of The American Physical Society

New Precision Mass Measurements of Heavy ²⁵²Cf Fission Fragments Near the r-Process Path¹ J. VAN SCHELT, G. SAVARD, S. CALD-WELL, M. STERNBERG, University of Chicago, J.A. CLARK, J.P. GREENE, A.F. LEVAND, T. SUN, B.J. ZABRANSKY, ANL, J. FALLIS, K.S. SHARMA, University of Manitoba, D. LASCAR, R.E. SEGEL, Northwestern University, G. LI, McGill — Precision mass measurements of nuclides near the astrophysical r-process path are vital to reduce the uncertainties in the relevant neutron separation energies given by mass models, and the consequent abundance predictions. As part of an ongoing program, the Canadian Penning Trap mass spectrometer at Argonne National Laboratory has measured the masses of fission products from a 252 Cf source in a large-volume gas catcher. This has produced 38 new mass measurements of neutron-rich nuclides ranging from Z = 51 to 64, many closer to the r-process path than had previously been measured for these elements. Systematic deviations from the AME 2003 are seen over a wide range of elements. The program of mass measurements will continue at the CARIBU upgrade to the ATLAS accelerator at ANL this fall.

¹This work has been supported by grants from NSERC, Canada and by the U.S. DOE, Nuclear Physics Division, under Contract No. DE-AC02-06CH11357.

J. Van Schelt University of Chicago

Date submitted: 06 Jul 2009

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