

Abstract Submitted
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Precision Mass Measurements of Heavy ^{252}Cf Fission Fragments Near the r -Process Path¹ J. VAN SCHELT, G. SAVARD, S. CALDWELL, M. STERNBERG, Chicago, J.A. CLARK, J.P. GREENE, A.F. LEVAND, T. SUN, B.J. ZABRANSKY, ANL, J. FALLIS, K.S. SHARMA, Manitoba, D. LASCAR, R.E. SEGEL, Northwestern, G. LI, McGill — Precision mass measurements of species 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 is measuring the masses of fission products from a 150 μCi ^{252}Cf source placed inside a new large-volume He gas catcher. New precision mass measurements have been made closer to the r -process path than have previously been published, with precisions near 15 keV/ c^2 . Presented measurements include Pr, Nd, Pm, Sm, Eu, and Gd to $N = 96, 97, 98, 99$, and 99 respectively, and our results differ from the AME 2003 by up to 515 keV/ c^2 . Work will continue with the current fission source until 2009, when measurements of many more neutron-rich isotopes will be made at the CARIBU upgrade to the ATLAS accelerator at ANL.

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