Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Precision Mass Measurements at CARIBU[1] D. LASCAR, J. VAN SCHELT, G. SAVARD, S. CALDWELL, A. CHAUDHURI, J.A. CLARK, A.F. LEVAND, G. LI, M. STERNBERG, T. SUN, B.J. ZABRANSKY, Argonne, R. SEGEL, Northwestern, K. SHARMA, Manitoba — Neutron separation energies (S_n) are essential inputs to models of explosive r-process nucleosynthesis. However, for nuclei farther from stability, the precision of S_n decreases as production decreases and observation of those nuclei become more difficult. Many of the most critical inputs to the models are based on extrapolations from measurements of masses closer to stability than the predicted r-process path. Measuring masses that approach and lie on the predicted r-process path will further constrain the systematic uncertainties in these extrapolated values. The Canadian Penning Trap Mass Spectrometer (CPT) at Argonne National Laboratory (ANL) has measured the masses of more than 160 nuclei to high precision. A recent move to the CAlifornium Rare Isotope Breeder Upgrade (CARIBU) at ANL has given the CPT unique access to weakly produced nuclei that cannot be easily reached via proton induced fission of ^{238}U. CARIBU will eventually use a 1 Ci source of ^{252}Cf to produce these nuclei. Installation of the CPT at CARIBU as well as the first CPT mass measurements of neutron rich nuclei at CARIBU will be discussed.

[1]Support from U.S. DOE, Nucl Phys Div and NSERC Canada.

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Date submitted: 26 Oct 2009 Electronic form version 1.4