Abstract for an Invited Paper
for the DNP11 Meeting of
The American Physical Society

First results from CARIBU[1]

GUY SAVARD, Argonne National Laboratory

The Californium Rare Ion Breeder Upgrade (CARIBU) of the ATLAS superconducting linac facility aims at providing low energy and reaccelerated neutron-rich radioactive beams to address key nuclear physics, astrophysics and application issues. These beams are obtained from fission fragments of a 1 Ci 252Cf source, thermalized and collected into a low-energy particle beam by a helium gas catcher, mass analyzed by an isobar separator, and charge breed to higher charge states for acceleration in ATLAS. The method described is fast and universal and short-lived isotope yield scale essentially with Californium fission yields. The facility is now commissioned and operating with a 100 mCi source which has yielded extracted low-energy mass separated radioactive beams at intensities in excess of 100000 ions per second. Radioactive beams have been charge bred with an efficiency of up to 12% and reaccelerated to 6 MeV/u. Commissioning results, together with the results from first astrophysics experiments at CARIBU using the beams from the 100 mCi source will be presented. The final 1 Ci source is currently under fabrication and is expected to be installed by the end of the year.

[1]This work was supported by the US DOE, Office of Nuclear Physics, under contract DE-AC02-06CH11357.