

APR10-2009-000085

Abstract for an Invited Paper
for the APR10 Meeting of
the American Physical Society

Mass Measurements for Nuclear Astrophysics

MILAN MATOS, LSU

The masses of nuclei are a crucial input to nucleosynthesis models. Masses of nuclei near the valley of stability have been known with sufficient precision for several decades. On the contrary, only after the recent development of radioactive beam facilities have the first mass measurements of exotic nuclei been made. Enormous effort at several places around the world has been devoted to obtain new mass values of exotic nuclei using a variety of techniques: the most precise measurements are typically obtained by the Penning trap technique, on the other hand the complimentary time-of-flight (TOF) technique can access even more exotic nuclides. The TOF-Brho technique has been recently implemented at the National Superconducting Cyclotron Laboratory and the first experiment, focused on neutron rich isotopes in the region of $Z \sim 20-30$ has been successfully performed. An overview of mass measurements important for nuclear astrophysics, mass measurement techniques and recent mass measurements will be given. Results and details of the NSCL experiment will also be presented.