FIRST EXPERIMENTS WITH RE-ACCELERATED NEUTRON-RICH BEAMS FROM CARIBU

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A successful campaign of GRETINA experiments at ATLAS has been recently completed. The superior Doppler reconstruction capability of GRETINA in conjunction with the 4π PPAC array, CHICO2, is ideal for multi-step Coulomb excitation measurements of re-accelerated neutron-rich isotopes from CARIBU source.

The properties of seven re-accelerated neutron-rich isotopes have been measured. Three experiments have been performed using a ^{98}Y, ^{98}Zr and ^{100}Zr beam to measure static quadrupole matrix elements in these nuclei. The goal of these measurements is to address questions concerning nuclear shape evolutions encountered in these neutron-rich isotopes. Two experiments have been performed on ^{106}Mo and ^{110}Ru. For these cases, the physics motivation is to confirm the theoretical suggestion that these two nuclei possess a triaxial shape even at or near their ground states. Beam time has also been dedicated to the measurements of the absolute strength of the octupole correlations in ^{144}Ba and ^{146}Ba from the deduced E1 and E3 moments.