

Search for Triaxial Deformation using Coulomb Excitation and Beta Decay

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Collective shape degrees of freedom have been a major direction in the study of the nuclear finite many-body problem for over 50 years. There is widespread evidence for quadrupole deformations, primarily of large prolate spheroidal deformation with axially symmetric rotor degrees of freedom. This naturally leads to the question of whether or not axially asymmetric rotor degrees of freedom are exhibited by any nuclei, with the implication of triaxial shapes. With respect to best cases for observation of triaxial shapes near the ground state, two regions stand out. The first is the Os-Pt region and the second is the neutron-rich Mo-Ru region, where low-energy 2_2^+ states are consistent with such an interpretation. Furthermore, the neutron-rich Mo-Ru region is expected to undergo a relatively rare instance of prolate-to-oblate shape evolution. Recent results from Coulomb-excitation and beta-decay studies of neutron-rich Mo-Ru isotopes will be presented. These experiments were conducted at the CARIBU-ATLAS facility of ANL using GRETINA-CHICO2. A survey of the equipment, techniques, and results will be presented. In addition, a comparison of ^{106}Mo Coulomb-excitation data with the old ECR and new EBIS ion sources will be highlighted.

*This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics.