

Beta-decay Transition Probabilities of Deformed Nuclei in the A=100 and 160 Mass Regions*

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Abstract

Decay spectroscopy in combination with mass-spectrometry techniques is a powerful tool to elucidate properties of neutron-rich nuclei. These data are important to multi-disciplinary fields, including nuclear structure and nuclear astrophysics, as well as to energy and non-energy applications of nuclear science. This presentation will reflect on recent decay spectroscopy studies at the CARIBU facility, Argonne National Laboratory using the X-array and Gammasphere. Results in the deformed A=100 and 160 mass regions will be presented, and the experimental data will be compared with deformed multi-quasiparticle blocking calculations. Applicability of the Nilsson model in predicting the structure of the beta-decaying states and the associated beta-decay transition strengths will also be presented. In addition, specific configuration changes will be invoked to explain the half-life anomaly for the ground and isomeric states in the neutron-rich nucleus ^{104}Nb .

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