Various Manifestations of Nuclear Structure - Shapes of the Nuclei as an Example

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Atomic nuclei exhibit diverse properties under extreme conditions. The advent of RI-beams has widely expanded the region of nuclear chart experimentally accessible. In this terra incognita, many new phenomena have been discovered and our understanding of nuclei has to be modified quite drastically. Nuclear structure is governed by the interaction between the nuclei and it can manifest in various forms. Very basic properties of nuclei, such as binding energy, spin, parity, instability etc are a few examples of this manifestations. Recent discoveries of various new phenomena in neutron-rich isotopes offer new aspects of nuclear structure: modification of magic numbers, halo nuclei, shell evolution etc. One of the interesting topics in this respect is the nuclear shape. Starting from spherical shapes, the nucleus can be deformed into prolate or oblate shape. Another possibility of interest is tri-axial shape which does not have an axis of symmetry. The shapes of specific nuclei can be probed from gamma-ray spectroscopy with beta-decay tagging. This presentation will focus on the neutron-rich Mo isotopes with A=106, 108, 110. The result of the decay spectroscopy with an interpretation in terms of shape evolution will be shown. The experiment has been a part of EURICA campaign at RIBF, RIKEN.