

High- K Isomers and the Role of β_6 Deformation

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Abstract

Recent relativistic projectile fission experiments at RIBF, RIKEN have enabled the discovery of high- K isomers in neutron-rich $Z \approx 64$ nuclei, in particular the $N = 102$ isotones ^{164}Sm and ^{166}Gd [1], which are relevant to r -process abundances. Similar to the $A \approx 250$ region of high- K isomers [2], β_6 deformation has a significant effect on the single-particle energies and may also be important in the formation of a deformed sub-shell gap at $N = 102$. These two regions of high- K isomers will be compared, with specific reference to β_6 deformation. Observables related to deformed sub-shell gaps will also be discussed.

[1] Patel Z et al. 2014 *Pys. Rev. Lett.* **113** 262502

[2] Liu H L, Xu F R, Walker P M and Bertulani C A 2011 *Phys. Rev. C* **83** 011303(R)