SHAPE TRANSITIONS AND TRIAXIALITY IN NEUTRON-RICH Nb AND Y NUCLEI

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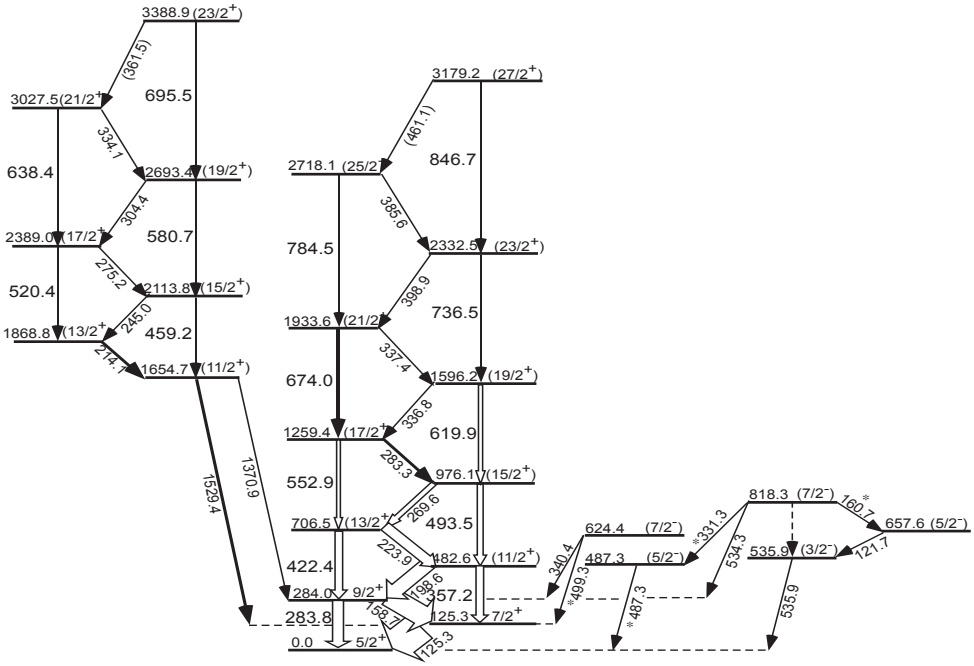
Intensive studies of shape transitions and triaxiality have been carried out in neutron-rich even-even nuclei with A~100[1,2,3]. However, there is less published for odd-Z nuclei. Following our work on Rh (Z=45)[4] and Tc (Z=43)[5] we now propose new level schemes of ^{99,101}Y and ^{101,105}Nb based on our fission gamma data accumulated with ^{252}Cf in Gammasphere in 2000.

Very small signature splitting is observed in Y isotopes, in contrast to the large splitting in neutron-rich Nb, Tc, Rh, and Ag. The signature splitting indicates triaxial deformation in the latter nuclei[4,5]. A band built on excited $11/2^+$ state with high excitation of 1654.7 keV is observed in ^{99}Y, and the decay-out transitions of this band predominantly feed the $7/2^+$ state of the yrast band, in contrast to the low excitation and very small E2 strength in neutron-rich Tc, Rh, and Ag [4,5]. It is clear that there is triaxiality in neutron-rich Tc, Rh, and Ag [4, 5], with axial symmetry in ^{99,101}Y.

[1] J. Skalski et al., Nucl.Phys. A**617**, 282(1997).
[2] J.H. Hamilton, Treatise on Heavy Ion Science, Vol. 8,A. Bromley, Ed., New York, Plenum Press, (1989), p. 2.
[3] H. Hua, *et al*., Phys. Rev. C**69**, 014317(2004).
[4] Y.X. Luo *et al*., Phys. Rev. C**69**, 024315(2004).
[5] Y.X. Luo *et al*., to be published.