Mechanism of weakening of the K-forbidness in 132Ce:
triaxiality or S-band – yrast band interaction ?

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The unexpected population of high-K isomers by COULEX has brought into question the validity or "goodness" of the K quantum number (see [1]). Experimental data for ^{178}Hf have shown that K-isomer electromagnetic population in this nucleus was due to high–K component admixture to low K bands [1]. The same mechanism was observed in E1 decay of $K^{\pi} = 8^{-}$ isomer in ^{132}Ce [2].

However, new decay branch to quasi γ –band observed in [2] could be interpreted in the frame of triaxial rotor Davydov-Fillipov model. I will present the isomer decay pattern interpretation based on K-component distribution[4] of wave functions of individual states. In Fig.1 K=4 component probability for 6+ state of the ground-band and 5+ state of the quasi γ-band is shown.

The results of γ - γ and γ – e measurements [3] on beam of the U200P cyclotron at HIL Warsaw were used to determine the B(E3; 8 → 5+) / B(E3; 8 → 6+) ratio. Assuming that E3 transition proceeds from K=7 to K=4 , the ratio happened to be a function of K=4 components in both final states and a sensitive probe of gamma deformation for 5+ and 6+ states. This way it was deduced that difference in the γ deformation parameter of 5+ and 6+ states is $\Delta\gamma = 3.5 \pm 1.0^{\circ}$.

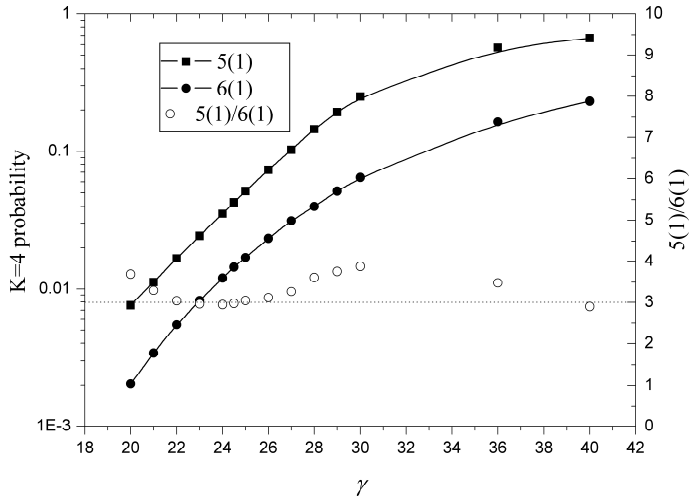

Fig. 1 Results of the D-F model calculation[4]. Full dots and squares show K=4 component probability (left axis) for 5+ and 6+ states, respectively, as a function of γ deformation. Open dots show ratio of K=4 component in 5+ and 6+ states(right axis). The ratio is very close to 3 independently of the value of γ deformation.

[1] A.B. Hayes, D. Cline et al. ***Phys. Rev. Let. 96, 042505 (2006)***
[2] T. Morek, J. Srebrny, Ch. Droste et al. ***Phys. Rev. C63, 034302(2001)***
[3] J. Perkowski et al. **contribution to this Workshop**
[4] P.Napiorkowski **http://www.slcj.uw.edu.pl/~pjn/DF/DF.htm**