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Title: **Wobbling motion in ${}^{163}_{71}$Lu$_{92}$ - Understanding of observed properties**
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Though nuclear wobbling motion, which is a unique feature of the rotation of a triaxial nuclear shape, has been theoretically discussed for years (for example, see ref. [1]), it has never been experimentally identified with conclusive evidence. For nuclei with N$\sim$94 and Z$\sim$71-72, the total energy surface calculations [2] predict stable triaxial shapes with large quadrupole deformation ($\varepsilon\sim0.38$ and $\gamma\sim\pm20°$) for all parity and signature in a certain region of angular momentum. Using the fusion evaporation reaction ^{139}La(^{29}Si,5n)^{163}Lu with a beam energy of 152 MeV, two presumably triaxial super deformed (TSD) bands have been observed. The possible assignment of the excited TSD band as a wobbling mode built on the yrast TSD band is reported [3].

A careful analysis of all observed quantities (the level scheme, spin-alignments, electromagnetic properties, etc.) of those TSD bands is now available [4]. I plan to explain our understanding of the result of the analysis in terms of a wobbling mode built on the aligned $i_{13/2}$ proton, which is suggested using particle-rotor model calculations in ref. [5]. We believe that we have now a convincing evidence for the observation of nuclear wobbling motion.

References

[1] A. Bohr and B. R. Mottelson, *Nuclear Structure*, Vol.II, (Benjamin, New York, 1975), Chap. 4, p. 190.

[2] H. Schnack-Petersen et al., Nucl. Phys. **A594**, 175 (1995).

[3] S. W. Odegaard, G.B.Hagemann et al., Proc. of International Conference at MSU, Aug., 2000 ; to be published in a special issue of Nucl. Phys. **A**.

[4] S. W. Odegaard, G.B.Hagemann et al., contribution to this conference.

[5] I. Hamamoto, Phys. Lett. **B193**, 399 (1987).

Invited talk.