High Spin Physics 2001, Warsaw, February 6-10, 2001

Abstract No: 042
Submitted on: 24 Jan 2001, 13:08 GMT

Title: **Determination of quadrupole deformation parameters of the ^{165}Ho nucleus in excited states**

Author(s): M. Zielińska,[1] J. Iwanicki,[1] T. Czosnyka,[1] J. Choiński,[1] P. Napiorkowski,[1] M. Loewe,[2] M. Würkner,[2] and J. Srebrny[3]

Affiliation(s): [1]*Heavy Ion Laboratory of Warsaw University,* [2]*Sektion Physik, Universität München,* [3]*Institute of Experimental Physics, Warsaw University*

The ground state level of the ^{165}Ho nucleus may be understood as built by a single proton occupying the Nilsson orbital [523] around a ^{164}Dy core which gives the spin of 7/2 and negative parity.

The nucleus may undergo a γ vibration and the spin of a phonon may be subtracted or added to the ground state spin and these two possibilities give two other rotational γ bands starting from the states 3/2- and 11/2-, respectively.

A remarkable change of quadrupole moment in one of the γ-vibrational bands was found.

Coulomb Excitation experiments, using O, Ne and Ar beams, were performed at the Heavy Ion Laboratory of Warsaw University using the CUDAC and Osiris set-ups.

A model–independent analysis using the GOSIA code yielded a set of reduced matrix elements values coupling the low–lying collective excited states. A quadrupole sum rules approach was used to determine the deformation of the states.

Preferred presentation of the contribution: in the poster session.