

LOW-LYING OCTUPOLE STATES IN  $^{168}\text{Er}$ 

M.L. Bogdanović

*"Boris Kidrič" Institute, Belgrade*

and P. Koldewijn

*Institute for Nuclear Physics Research, Amsterdam*

The experimental study of the low-lying excited states in  $^{168}\text{Er}$ , has been done by different techniques. The properties of the ground rotational band, the  $K^\pi=2^+$   $\gamma$ -vibrational band at 821 keV, and the bands  $K^\pi=4^-$  at 1094 keV and  $K^\pi=3^-$  at 1542 keV have been known. Also it was known that two last states correspond to the two-quasiparticle neutron states  $(633^++521^+)$ <sub>nn</sub> and  $(633^+-521^+)$ <sub>nn</sub>, respectively.

Michaelis et al <sup>1)</sup> have studied some octupole vibrational bands with  $K^\pi=1^-, 2^-, 3^-$  at 1354 keV, 1569 keV and 1542 keV, respectively. At the  $K^\pi=1^-$  state is the neutron  $(512^+-633^+)$ <sub>nn</sub> level. For all of these bands, the energies of the states follow the simple rotational energy systematics, except the  $K^\pi=1^-$  band, where very strong Coriolis coupling has been expected.

We have tried to recalculate energies for four bands with  $K^\pi=0^-, 1^-, 2^-, 3^-$  including Coriolis coupling (Fig. 1). For the four-bands mixing calculations has been used the Coriolis interaction matrix elements between states  $K$  and  $K+1$ , given by K. Neergard and P. Vogel <sup>2)</sup>, and a little modified for our bands.

With such calculation we could check the coincidence measurements, which have been done for the investigation of the population of the 1094 keV isomeric level in  $^{168}\text{Er}$  <sup>3)</sup>.

Reduced branching ratios of transitions from the  $K^\pi=1^-$  band to the transitions of the ground state has been calculated also <sup>4)</sup>.

*References*

- 1) W. Michaelis, H. Ottmar and I. Weller, *Nucl. Phys.* A150 (1970) 161
- 2) K. Neergard and P. Vogel, *Nucl. Phys.* A145 (1970) 33

- 3) J. Simić, M. Stojanović, M. Bogdanović, I. Slavić, B. Lalović and S. Koički, *Fizika* 6 (1974) 21 and *Second International Symposium on neutron capture gamma ray spectroscopy and related topics*, September 2-6. 1974. Petten, page 385
- 4) J. Simić, M. Stojanović, M. Bogdanović, I. Slavić, B. Lalović and S. Koički, *to be published*

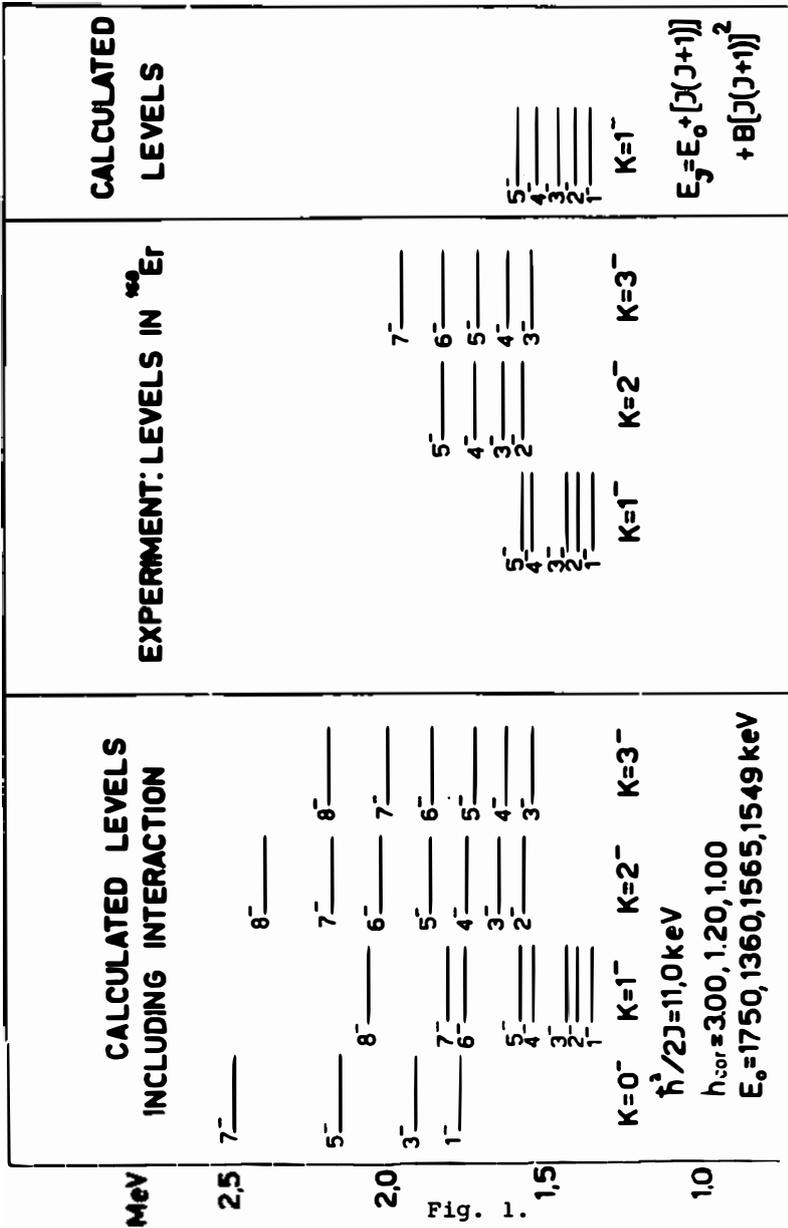


Fig. 1.