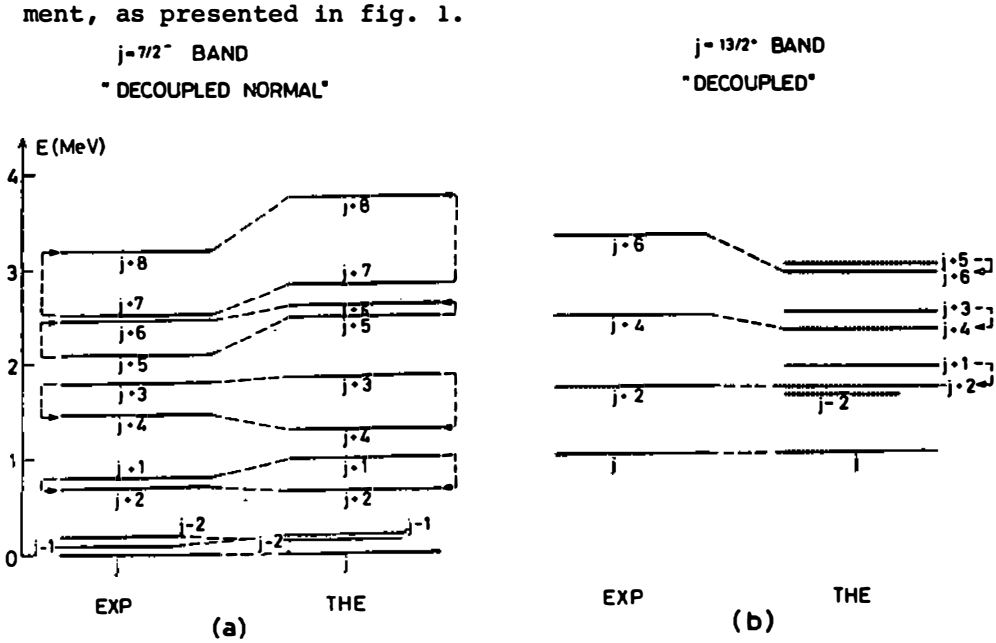
The "Decoupled-Normal" $7/2^-$-Band and "Decoupled" $13/2^+$-Band in ^{147}Sm

J. Kownacki and Z. Sujkowski, Institute of Nuclear Research, Dept. of Physics, Świerk, Poland
V. Paar, Prirodoslovno-matematički fakultet, University of Zagreb and "Rudjer Bošković" Institute, Zagreb, Yugoslavia
E. Hammarén, E. Liukkonen and M. Piiparinen, Dept. of Physics, University of Jyväskylä, Jyväskylä 72, Finland
H. Ryde and T. Lindblad, Research Institute for Physics, Stockholm, Sweden

The ^{146}Sm and ^{147}Sm nuclei have been investigated by using in-beam γ-ray conversion electron spectroscopy following (^3He,xn) and (α,xn) reactions at external beams of the Stockholm and Jyväskylä cyclotrons. Two pronounced bands have been discovered, based on the $7/2^-$ ground state and the $13/2^+$ excited state, and compared with the theoretical predictions of the cluster-vibration model (CVM). The model generates two pronounced bands in ^{147}Sm, the $7/2^-_1$ ground-state band of the "decoupled-normal" type, and the $13/2^+_1$ band of the "decoupled" type[1], in agreement with experiment, as presented in fig. 1.



1) G. Alaga and V. Paar, Phys.Lett. 61B (1976) 129.