

ON-LINE NUCLEAR ORIENTATION OF ^{186}Au AND THE STRUCTURE OF ^{186}Pt

D. S. Mosbah

Tajura Nuclear Research Centre, POB 30878, Tripoli, Libya

W. D. Hamilton, J. A. Evans, W. L. Croft

School of Mathematical and Physical Sciences, University of Sussex, Brighton BN1 9QH

I. C. Girit, H. K. Carter, L. A. Rayburn

UNISOR, Oak Ridge Institute for Science and Education, Oak Ridge Tennessee 37831

E. Jones, P. Gore and A. V. Ramayya

Vanderbilt University, Nashville, Tennessee 37235

The on-line nuclear orientation technique was used to study the structures of ^{186}Pt populated following the decay of ^{186}Au ($T_{1/2}=10.7$ min). The orientation of gold nuclei was produced using the hyperfine field in a ferromagnetic host at a low temperature (~ 15 mK) which was achieved in a ^3He - ^4He dilution refrigerator.

The directional distributions of γ -rays were measured by high resolution Ge(Li) detectors. With these measurements unique spin-parity assignments were made to most of the populated levels in ^{186}Pt and the multipole mixing ratios of many mixed transitions were obtained.

The structure of ^{186}Pt was examined using the neutron-proton interacting boson approximation (IBA-2). The energy levels were fitted, and the mixing ratios of some selected transitions were calculated and compared with the experimental results. The set of model parameters indicates that ^{186}Pt has a structure intermediate between the γ -soft, $O(6)$, and rotational, $SU(3)$, limits of the IBA.



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