

SUPERDEFORMATION IN THE BISMUTH NUCLEI

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Although a large amount of work has been done in attempting to chart the regions of stable superdeformed nuclei, until recently no structures indicative of superdeformation had been observed in nuclei with $Z > 82$: This was despite the fact that many calculations [Cha 89, Sat 91] predicted the presence of such structures in the bismuth nuclei.

Two recent experiments carried out using the Gammasphere spectrometer at the Lawrence Berkeley Laboratory have resulted in the observation of two superdeformed bands in the bismuth isotopes. The first experiment [Cla 94] utilised the reaction $^{183}\text{W}(^{19}\text{F}, \text{xn})$ optimised to populate ^{197}Bi , whereas in the second the $^{181}\text{Ta}(^{20}\text{Ne}, \text{xn})$ reaction was used to maximise the production of ^{195}Bi . For both experiments, the array consisted of 36 Compton-suppressed large-volume HPGe detectors and the beam was provided by the 88-inch Cyclotron facility.

The properties of the observed bands, their structures and their assignment to the bismuth isotopes will be discussed with reference to other bands in the mass region.

References:

- [Cha 89] R. R. Chasman et al., Phys. Lett. **B219** (1989)
 [Cla 94] R. M. Clark et al., Phys. Rev. C to be published
 [Sat 91] W. Satula et al., Nucl. Phys. **A529** (1991)