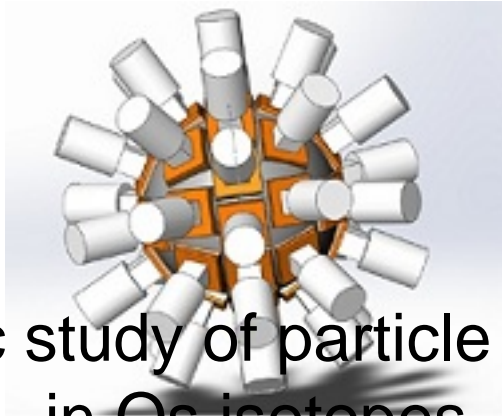


# Frontiers in Gamma Ray Spectroscopy

## FIG18

Contribution ID : 22



## Systematic study of particle alignments in Os isotopes

### Content :

The nuclei in the mid shell region of  $A=180-190$  have moderate deformation and show rotational-like band structures built on different single particle configurations. Many of these nuclei are also known to have gamma-softness. Prior to the present study, the high spin structure of  $^{187}\text{Os}$  was little known although, band structures built on different configurations and band crossings were studied in the neighboring odd-even Os isotopes. These studies show some interesting aspects. For example, the “AB” band crossing for the  $7/2-[503]$  band in  $^{183}\text{Os}$  observed at  $\hbar\omega=0.22$  MeV, is considerably delayed ( $\hbar\omega=0.34$  MeV) in  $^{185}\text{Os}$ . Since the level scheme in  $^{187}\text{Os}$  is limited to below the band crossing, so a systematic comparison is not possible. In order to get a clear picture of band crossings in this region, we have studied the medium-high spin behavior of  $^{187}\text{Os}$  populated by the reaction  $^{186}\text{W}(^4\text{He}, 3n)^{187}\text{Os}$  at 36 MeV beam from K-130 cyclotron at VECC, Kolkata. A stack of three targets each of 300microgm/cm<sup>2</sup> on a  $^{12}\text{C}$  backing (20 microgm/cm<sup>2</sup>) was used. The VECC INGA array with seven Compton-suppressed clover HPGe detectors and one LEPS (electrically segmented) detector was used to detect the gamma rays. Two-fold coincidence data were recorded using a PIXIE-16 digitizer based system of UGC-DAE CSR. All the existing bands could be observed in the preliminary analysis and several new gamma rays were also seen which would extend the bands to higher excitation energies. Interestingly, several new low energy gamma rays have been observed in the LEPS detector. The detail analysis is in progress.

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