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Estimation of spins of ^{193}Pb Superdeformed Band

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we have analyzed all the known and unknown superdeformed (SD) bands in ^{193}Pb using the modified Variable Moment of Inertia (VMI) model to obtain the values of unknown band-head spin (I_0) along with the level spins. The band-head spin so estimated is not known experimentally in bands 7, 8 and 9. A total of 9 experimentally known SD bands of ^{193}Pb have been analyzed. A quantitatively good result of the γ -energies and the spins for the entire Pb band is successfully obtained. We also examine the ratio of transition energies over spin $E_\gamma/2I$ (RTEOS) to confirm the correct spin of the band-head and level spins by the VMI equations. The calculated and observed transition energies are in well agreement. In the present paper, we have reported the band-head spin for the ^{193}Pb (b7-b9) superdeformed band. Out of the available 9 SD bands, the band-head spin is predicted for 3 SD bands, where the band-head spins are not known experimentally. As an important outcome of our study, we propose the spin assignments and level energies of the ^{193}Pb (b7-b9). We resolve the tentative nature of the assignments and present the unique level schemes. These results may be useful for the future studies.

Is this abstract from experiment?

No

Name of experiment and experimental site

N/A

Is the speaker for that presentation defined?

Yes

Details

Dr. Poonam Jain, Assistant Professor, Department of Physics, Sri Aurobindo College, University of Delhi, India

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Yes

Author: Dr JAIN, poonam (University of Delhi)

Co-author: Dr KUMAR, Yogesh (University of Delhi)

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