

Determination of band-head spin of ^{193}Pb superdeformed Band

Saturday, 25 September 2021 16:45 (25 minutes)

We present an analysis of all the known 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 spin. The band-head spin so estimated is not known experimentally in band-7, 8 and 9. A total of 9 experimentally known SD bands of ^{193}Pb have been analyzed. Quantitatively good results of the γ energies and the spins for Pb band are 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 equation. The calculated and observed transition energies agree quite well. 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.

Primary author: Dr JAIN, Poonam (Sri Aurobindo College, University of Delhi)

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

Presenter: Dr JAIN, Poonam (Sri Aurobindo College, University of Delhi)

Session Classification: Section 1. Experimental and theoretical studies of the properties of atomic nuclei

Track Classification: Section 1. Experimental and theoretical studies of the properties of atomic nuclei.