

Frontiers in Gamma Ray Spectroscopy

FIG18

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Odd – Even Staggering in $K = 0$ Rotational Bands of Doubly Odd Nuclei

Content :

The $K = 0$ bands in doubly odd nuclei [1, 2] are known to display an additional energy shift due to residual n- p interaction [3], which is known as the Newby shift [4,5]. This shift is not fully understood even now, particularly the sign of the shift. We have analyzed the updated and new experimental data of all the $K = 0$ bands in odd – odd nuclei [6, 7] available in the rare earth region. The calculations have been done within the framework of Two Quasiparticle plus Rotor Model (TQPRM) [1], so that the effect of Coriolis mixing could be accommodated in the Newby shift calculations. Of particular interest are the $\Omega_p = \Omega_n = \frac{1}{2}$, $K = 0$ bands where an additional decoupling term also comes into play. A total of 36 $K = 0$ bands have been analyzed. The reverse sign of the Newby shift in many cases is explained by the calculations. References:

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