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Analyses of the structure of wave functions and energies spectra of ground and low excited states of Ytterbium isotopes

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Abstract
Non – adiabatic effects in wave functions and energy spectra of ground (gr) 02+(β1), 03+(β2), 21+(γ1), 22+(γ2) and Kπ = 1v+ rotational bands of 170;172;174Yb isotopes are studied, within the phenomenological model, which takes into account the mixing of ground 02+(β1), 03+(β2), 21+(γ1), 22+(γ2) and Kπ = 1v+ rotational bands. The wave functions and energy of ground and low excited states are calculated. The finding reveals that the mixture of bands have been found to considerable impact on the wave functions of low – lying states of 0m+ and 2ℓ+ bands.

Author Keywords
Elements, Isotope; Energy; State; Structure

Index Keywords
Excited states, Wave functions, Ytterbium; Element, isotope, Energy, Low-lying state, Lower excited state, Non-adiabatic effect, Phenomenological models, Rotational band, State, Wave energy spectra, Wave function spectra; Isotopes

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References

- Selin, E., Hjorth, S.A., Ryde, H.
(1970) *Physica Scripta*, 2, pp. 181-189.
- Usmanov, Ph.N., Okhunov, A.A., Salikhbaev, U.S., Vdovin, A.I.
(2010) *Phys. Part. Nucl. Lett.*, 7, pp. 185-191.
- Wesselborg, C., Brentano, P.V., Zell, K.O., Heil, R.D., Pitz, H.H., Berg, U.E.P., Kneissl, U., Stock, R.
(1988) *Physics Letter B*, 207, pp. 22-26.
- Zilges, A., Wesselborg, C., Brentano, P.V., Heil, R.D., Kneissl, U., Lindenstruth, S., Pitz, H.H., Stock, R.
(1990) *Nucl. Phys. A*, 507, pp. 399-412.
- Bengtsson, R., Frauendorf, S.
(1979) *Nucl. Phys. A*, 327, pp. 139-171.

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