INFLUENCE OF THE MOMENTS OF INERTIA ON THE SHAPE AND DYNAMIC OF A TRIAXIAL NUCLEUS

Robert Poenaru[1,2]

[1]Doctoral School of Physics, University of Bucharest, Bucharest, Romania
[2]Department of Theoretical Physics, NIPNE-HH, Magurele, Romania
robert.poenaru@drd.unibuc.ro

The energy spectra of rapidly rotating nuclei have specific rotational spectra, parametrized in terms of some empirical constants called moments of inertia (MOI), in correspondence to the energy levels of a rigid rotating top. In this work, a quantitative description of the moments of inertia (e.g, kinematic, dynamic) is made, by using different formulas for their calculation. A comparison between the moments of inertia specific to the rigid case and irrotational one is also shown for a set of deformation parameters specific for the triaxial shapes (i.e., β, γ) [1]. Moreover, the connection between the wobbling motion, namely the wobbling frequency, the rotational frequency, and the three MOIs is analyzed for a specific excited spectrum of odd-mass nuclei [2]. The different modes of rotation for the deformed rigid bodies are also specified in terms of these quantities. As a final goal, the theoretical MOIs of several odd-*A* nuclei are compared to the experimental values using the *ab* formula[3].

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[2] Masayuki Matsuzaki, Yoshifumi R. Shimizu, and Kenichi Matsuyanagi Phys. Rev. C **65**, 041303(R)
[3] Timár et al. Phys. Rev. Lett. **122**, 062501