SINGLE-PARTICLE MOTION IN A WOBBLING NUCLEUS A CASE-STUDY FOR ODD-MASS ISOTOPES

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Abstract

The wobbling phenomenon in nuclei, which implies a precession of the total angular momentum combined with an oscillation of its projection onto the rotation axis, is analyzed within the Particle Rotor Model for odd-mass nuclei. Triaxial nuclei are objects with all three moments of inertia associated with the principal axes different in magnitude, making it possible for rotation to occur around all three axes. This results in a rich rotational spectrum with a collective character. Interpretation of the wobbling motion in odd-mass nuclei is usually done through a particle-rotor coupling, where an even-even triaxial is coupled to an odd-j nucleon which is said to be moving in a deformed quadrupole mean-field generated by the core itself. The strength of that potential is crucial in the description of the wobbling spectrum of a nucleus. In the present work, an analysis of the potential strength that characterizes the coupling between the core and the odd-nucleon is made, with the help of a deformed Nilsson potential in the total Hamiltonian of the system. A study of the coupling term is performed for different isotopes in which wobbling motion is known to occur.

A block containing a list

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- **Mauris tempor** risus nulla, sed ornare
- **Libero tincidunt** a duis congue vitae
- **Dui ac pretium** morbi justo neque, ullamcorper

Eget augue porta, bibendum venenatis tortor.

A block containing an enumerated list

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1. **Morbi mauris purus**, egestas at vehicula et, convallis accumsan orci. Orci varius natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.
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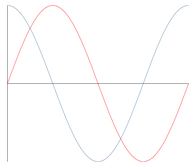

Figure 1:Another figure caption.

A block containing some math

Nullam non est elit. In eu ornare justo. Maecenas porttitor sodales lacus, ut cursus augue sodales ac.

$$\int_{-\infty}^{\infty} e^{-x^2}\,dx = \sqrt{\pi}$$

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A heading inside a block

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Another heading inside a block

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Nullam vel erat at velit convallis laoreet

Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Phasellus libero enim, gravida sed erat sit amet, scelerisque congue diam. Fusce dapibus dui ut augue pulvinar iaculis.

First column	Second column	Third column	Fourth
Foo	13.37	384,394	α
Bar	2.17	1,392	β
Baz	3.14	83,742	δ
Qux	7.59	974	γ

Table 1:A table caption.

References