

# Harmonic and anharmonic wobbling excitations from a semiclassical treatment of rigid quasiparticle alignments

## Contenu

The dynamical features of particle-rotor systems are investigated by means of a semiclassical treatment applied to a triaxial rotor Hamiltonian with rigidly aligned high- $j$  quasiparticles [1,2]. The effect on the rotation dynamics of an additional spin-spin interaction accounting for the rotational alignment mechanism is investigated in a classical mainframe [3]. The quantum realization of the excitations associated to the transverse wobbling regime in the presence of additional alignment is achieved in a harmonic approximation, whose quality is ascertained in a general theoretical context and particularly when applied to wobbling excitations in odd mass nuclei. In a further development, one constructed from the same semiclassical picture a quantum Hamiltonian with a consistent accounting for anharmonic effects [4]. The model is successfully applied for the description of wobbling excitations proposed in the two-quasiproton bands of even-even nuclei [4,5].

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[3] R. Budaca, Phys. Rev. C 103, 044312 (2021).

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