Contribution ID: **43** Type: **not specified**

Wobbling and chiral bands with non-axial quasiparticle alignments

Thursday 14 July 2022 12:35 (20 minutes)

The variation of spectral characteristics of the wobbling and chiral partner bands and the associated dynamics inferred by non-axial quasiparticle alignments with arbitrary tilting [1] is investigated within a semiclassical approach to the particle-rotor Hamiltonian [2,3]. The results for the alignment of the valence h11/2 nucleons are investigated as a function of total angular momentum and the angles of their tilting with respect to the principal axes of the triaxial core. It will be shown that the nucleus undergoes a transition through a variety of distinct dynamical phases which arise in specific ranges of tilting angles and total angular momentum. Few examples are provided as experimental realizations of the discussed dynamics.

[1] R. Budaca, Phys. Lett. B. 817, 136308 (2021).
[2] R. Budaca, Phys. Rev. C. 98, 014303 (2018).
[3] R. Budaca, Phys. Lett. B. 797, 134853 (2019).

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Session Classification: Novel aspects and signatures of QPTs in nuclei

Track Classification: Novel aspects and signatures of QPTs in nuclei