



ID de Contribution: 14

Type: Non spécifié

## Axial quadrupole and octupole dynamics in medium mass and heavy even-even nuclei

jeudi 7 novembre 2024 12:45 (20 minutes)

A quadrupole-octupole axially symmetric geometric model is proposed for the description of alternate parity bands observed in heavy [1] and medium mass even-even nuclei [2]. The shapes and the dynamical behaviour of the considered nuclei are ascertained from the phenomenology of the adopted model and the obtained parameters [2,3]. The model parameters exhibit a regular evolution as a function of neutron number [2,4]. As a result, the quadrupole shape phase transition around  $N=90$  is found to be accompanied by the increase of the vibrational character for the octupole deformation. A similar critical point is also identified in the  $A = 224-228$  mass region of the Ra and Th nuclei. It marks different stages of the transition between static and dynamic octupole deformation with a specific spin dependence for the electromagnetic transitions. Model extrapolations are performed for various types of excited states, for which distinguishing spectral signatures are forwarded.

- [1] R. Budaca, P. Bugu, A. I. Budaca, Phys. Rev. C 106, 014311 (2022).
- [2] R. Budaca, A. I. Budaca, P. Bugu, Phys. Scr. 99, 035309 (2024).
- [3] R. Budaca, P. Bugu, A. I. Budaca, Eur. Phys. J. A 59, 242 (2023).
- [4] R. Budaca, P. Bugu, A. I. Budaca, Il Nuovo Cimento C 47, 25 (2024).

**Auteur principal:** BUDACA, Radu (IFIN-HH, Magurele, Romania)

**Co-auteurs:** Dr BUDACA, Andreea-Ioana ("Horia Hulubei" National Institute for R&D in Physics and Nuclear Engineering); BUGANU, Petrica ("Horia Hulubei" National Institute for R&D in Physics and Nuclear Engineering)

**Orateur:** BUDACA, Radu (IFIN-HH, Magurele, Romania)

**Classification de Session:** Session 14