Corrections – Revised Manuscript V1
PRC-FEB-2021

- ***Pn****=Pagina n (e.g, P3 = pagina 3)*
- **Observatie:** Am vazut ca preferati sa punem in text TSD_i (i=1,2,3,4), asa ca unde am gasit diferit, am incercat sa mentionez, ca sa pastram consecventa la notatia benzilor.

1. **P1**: Chiar prima fraza: "The wobbling motion was first…" -> **was firstly described…**
2. **P1**: La finalul primului paragraph: apar doua virgule dupa referinte:

e. , ^{161,165,167}Lu [3–7, 10],,and recently the nuclei ^{135}Pr

3. Tot in acel loc: este un spatiu dupa **i.e.** si virgula. Spatiul trebuie scos.
4. **P1:** In al doilea paragraph: apar in trei locuri numele benzilor astfel: TSD1, TSD2, TSD2. Ele trebuie modificate in **TSD_1** si, respectiv **TSD_2**. Locatiile se pot vedea mai jos:

In a previous work [18, 19], a successful description of the wobbling phenomenon in ^{163}Lu was achieved. Therein, the calculations were based on a particle-triaxial rotor system, that was semi-classically treated. The band structure was obtained in terms of two ground state bands (TSD1 and TSD2) of different signatures, given by coupling an odd $j = i_{13/2}$ proton to a core with angular momenta R=0,2,4,6,. . and R=1,3,5,. . re-spectively, one wobbling phonon excitation of the TSD2 band, $n_w = 1$, TSD_3, and one ground state band obtained by coupling a different valence nucleon, namely the $j = h_{9/2}$ to a core exhibiting an a. m. from the sequence $\mathbf{R} = 0, 2, 4, \ldots$.

5. **P1:** Al treilea paragraph – al doilea rand din coloana 2: apar spatii in plus dupa "i.e." si de asemenea lipseste virgula dupa "i.e."
6. **P1:** Inainte de ecuatia (2): "the inertial parameters A_k...." -> Noi am notat indicele mai departe cu *i,* deci trebuie schimbat in A_i.
7. **Ecuatia (7):** La numitor: lipseste paranteza de la $j(j+1)$.
8. **P2:** "the ground band head state is an isomeric state with a relative large half-life" -> **relatively large half-life.**
9. **P2:** Unde se face referire la termenii B si C: trebuiesc puse parantezele la (10) si (11). Trebuie un spatiu intre Ref. si [19]. Trebuie adaugat un punct la final. Se poate vedea in poza de mai jos:

where the coefficients B and C have the expressions 10) and 11) from Ref[19]

10. **P2:** Sub ecuatia 13: "…are linear dependent" -> **are linearly dependent**
11. Tabelul 1 si Tabelul 2: Benzile trebuiesc redenumite: TSD1 -> TSD_1 etc.
12. **P3**: "leading to a r.m.s. value of…" -> **leading to an r.m.s. value**
13. **P3**: "where this is $approx 240 keV$." -> **where the rms is $approx 240$ keV.** Unitatea de masura trebuie scoasa din math-mode $ $.
14. **P3:** "contrary to Ref. [19])" -> **apare o paranteza in plus.**
15. **P3: "**which results in having an I-dependence of both…" -> mentionati "both" dar acolo sunt de fapt enumerati trei termeni. Mai bine -> "**which results in having an I-dependence for $\mathcal{H}$, Ω_1, and Ω_2."**
16. **P3:** Am marcat mai jos niste greseli. Hamiltonianul trebuie scris cu math-mode H, valoarea energiei mentionate are litera "o" in loc de cifra 0, si banda patru trebuie notata TSD_4.

parity operator to any a.m. vector **I** leads to -**I**. Consequently, the parity operator commutes with the quantal Hamiltonian H and therefore the eigenfunctions of H are of either positive or negative parity. Moreover, the states of different parities are degenerate. In order to lift up this degeneracy, an additional term linear in the total a.m. is to be included in H. Since such a term is missing the adhoc correction of the mean-field with the amount of o.6 MeV for the TSD4 states is necessary. In this way one simulates the breaking of the parity symmetry. By

17. **P4:** Deasupra tabelului III: "and negative parity states in the spectrum of H" -> **spectrum of H.**

18. **P4: "***Effects of the stable octupole deformation on the rotational motion in nuclei was investigated in Ref.[28].*" -> cateva observatii legat de aceasta propozitie nou adaugata:

a) Noi mentionam aceasta referinta, dar ar trebui sa si precizam concret si in text ca noi NU avem termeni de tip octupole in Hamiltonianul nostru. Pentru ca nicaieri pana la aceasta fraza nu s-a mai adus in discutie "octupole deformation", si se pot crea confuzii.

b) Cred ca fraza aceea ar putea fi schimbata in: **"The characteristics of rotational bands in deformed nuclei were also studied in Ref. [28] using cranking calculations which include the octupole-like deformation. However, keep in mind that in the present formalism there are no octupole terms in the initial Hamiltonian".**

c) Daca nu este OK fraza de mai sus, atunci macar sa facem referire la faptul ca noi nu luam in considerare deformari octupolare, asa ca analiza facuta in Ref [28] care arata ca apare o noua simetrie (asa numita simplex) nu are un echivalent clar in modelul nostru (eventual acest effect de simplex este "ascuns" in shift-ul energetic $e_{j,2}-e_j$).

19. **P5**: Banda trebuie notata TSD_4:

as follows. Despite the fact that TSD4 is of an opposite parity than the lower bands, the four bands are described by coupling a sole single particle of positive parity to the

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20: **Figurile 1,2,3 -> Notatia benzilor trebuie schimbata cu TSD_K in loc de TSDK. Notatia trebuie sa fie consecventa cu cea din restul textului:**

FIG. 1: The excitation energies for the bands TSD1, TSD2, TSD3, and TSD4.

FIG. 2: A contour plot with the energy function $\mathcal{H}$ for TSD1 and TSD2. The parameter set $\mathcal{P}$ was used for the numerical calculations.

FIG. 3: A contour plot with the energy function $\mathcal{H}$ for TSD3 and TSD4. The parameter set $\mathcal{P}$ was used for the numerical calculations.