TRANSITION DENSITIES AND RADII IN ODD-A NUCLEI

Mishev S.[1,2], Voronov V.V.[3]

[1] *New Bulgarian University, Sofia, Bulgaria;* [2] *Institute for Advanced Physical Studies, Sofia, Bulgaria;* [3] *Joint Institute for Nuclear Research, Dubna, Russia*

E-mail: stoyan.mishev@iaps.institute

Transition densities provide us with a detailed information about the dynamics of the spatial distribution of matter in any finite quantum system. In contrast to even-even nuclei in which these quantities have been studied both analytically and numerically [1, 2] they remain yet unexplored in odd-A systems. We derived formulae for the transition densities in core-plus-particle models of different levels of sophistication [3, 4] and evaluated the particle correlation effects by using a schematic model. The implied trends have been verified against the experimental data on radii of cadmium isotopes [5]. Finally, we briefly online the use of our results to nanoplasma in fullerenes.

1. H.C.Lee // Preprint, AECL-4839, Chalk River, Ontario. 1975.
2. G.R.Satchler, Direct Nuclear Reactions, Oxford University Press, Oxford, 1983.
3. S.Mishev and V.V.Voronov // Phys. Rev. C. V.78. 024310.
4. S.Mishev // Phys. Rev. C. V.87. 064310.
5. M.Hammen *et al.* // Phys. Rev. Lett. V.121. 102501.