

CHARGE RADII IN HG ISOTOPES CLOSE TO PROTON DRIP-LINE

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Thanks to the recent progress in experimental technique we have now access to a large quantity of highly accurate experimental data that we can use to test our functional.

In particular, we investigate the properties of Hg isotopes close to the proton drip-line. Experimentally we observe an odd-even staggering of charge radii along the isotopic chain. This is interpreted as a change in deformation (oblate/prolate) of the nucleus when one neutron is added (removed). Such a behaviour represents a real challenge for mean-field models.

By performing axial Hartree-Fock-Bogoliubov calculations for both even-even and odd-even nuclei, we have observed for the very first time the role of the pairing correlations on the odd-even staggering of charge radii and we have been thus able to reproduce the data.

The same functional has been then applied to neighbour nuclei (as Gold) with also quite satisfactory results.