



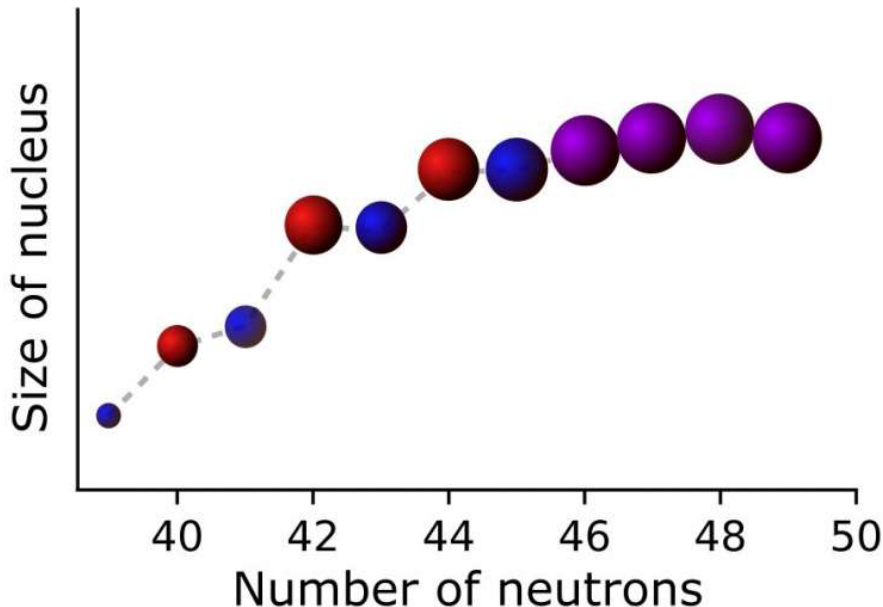
Odd-even staggering of charge radii of exotic copper isotopes

Objectives

- Isotopes with an odd number of neutrons are usually slightly smaller in size than their even-neutron neighbors. This odd–even staggering effect (OES) varies with the number of protons.
- To understand charge radii data on copper isotopes up to ^{78}Cu , we applied models based on nuclear density functional theory and valence-space in-medium similarity renormalization group theory.

Impact

- We demonstrated good agreement between measurements and theoretical results. Given the intrinsic complexity of medium-mass odd-proton systems, this represents an important step forward in our global understanding of the nuclear binding energy and charge radius of exotic isotopes.
- The interplay between the bulk nuclear properties and local variations was shown to be crucial in revealing the microscopic description of the OES effect in radii and binding energies.



Accomplishments

- Publication: De Groote et al., [Nat. Phys. 16, 620 \(2021\)](#)
- Featured by [Phys.org](#).

Odd-even staggering pattern in the sizes of copper isotopes