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Nuclear shapes and density profiles of exotic nuclei (remote)

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Exotic nuclei exhibit various nuclear shapes depending on their shell structure. In this talk, I will present our recent systematic analyses of the nuclear shapes on neutron-rich nuclei using the density distributions of microscopic mean-field models. First, I will discuss how the density profile is changed by nuclear deformation [1] and show some examples of characteristic density profiles in the island of inversion near N=40 [2]. This property is well reflected in the density distributions near the nuclear surface. I will show that high-energy nucleus-nucleus collision can be a promising tool to investigate such density profiles. References

[1] W. Horiuchi and T. Inakura, Prog. Theor. Exp. Phys. 2021, 103D02 (2021).

[2] W. Horiuchi, T. Inakura, and S. Michimasa, Phys. Rev. C 105, 014316 (2022).

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Classification de Session: Session 13: Ab initio methods