

Exploring quadrupole and octupole correlations in Zr isotopes using relativistic nuclear DFT

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Research Purpose: Reflection-asymmetric tetrahedral deformation in atomic nuclei is of increasing interest in recent years. To study the exotic in the vicinity of octupole magic numbers, relativistic mean-field calculation was performed using RCNP SQUID.

Contents: Investigation of intrinsic and spectroscopic properties of ^{110}Zr . The project were preceded to the point where potential energy surfaces were yielded, yet beyond mean-field correlations are to be considered to assess the effect of octupole correlations on spectroscopic properties.

Result: A finite tetrahedral deformation (β_{32}) was successfully indicated by our calculation, which is not yet identified experimentally.

Computing system: SQUID General Purpose CPU system

