## Single-particle and collective motions from nuclear many-body correlation (PCM2025)



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## Shape coexistence of octupole shapes in the superheavy nucleus <sup>286</sup>No

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Covariant density functional theory is applied on a three-dimensional lattice in a microscopic and fully selfconsistent manner, without imposing any symmetry restrictions [1], to investigate the superheavy nucleus <sup>286</sup>No. Our findings reveal that the ground state exhibits a distinct non-axial octupole shape, which coexists with a tetrahedral isomeric state. The energy difference between these states is merely 0.12 MeV, and they are separated by a potential barrier of approximately 0.5 MeV. We analyze the presence of octupole correlations by examining the evolution of single-particle levels near the Fermi surface, which are influenced by octupole deformations [2].

B. Li, Z.X. Ren, P. W. Zhao, Phys. Rev. C 102 (2020) 044307
F. F. Xu, B. Li, P. Ring, P. W. Zhao, Phys. Lett. B 856 (2024) 138893

## Type of contribution

poster

## Are you a student or postdoc?

no

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