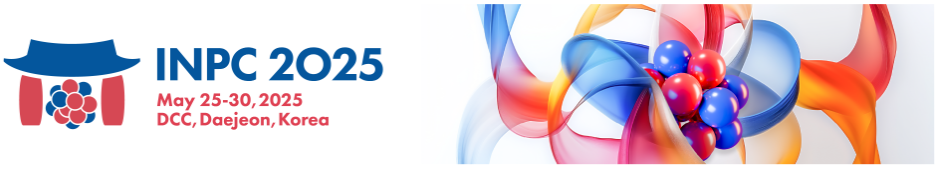

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Exotic nuclear properties in deformed relativistic Hartree–Bogoliubov theory in continuum

Monday, 26 May 2025 14:25 (15 minutes)

The deformed relativistic Hartree-Bogoliubov theory in continuum (DRHBc) has proven to be a powerful framework for investigating exotic nuclear phenomena, particularly in nuclei near the drip-lines. By self-consistently incorporating nuclear deformation, pairing correlations, and continuum effects, the DRHBc theory has significantly advanced our understanding of nuclear structure and stability.
This presentation focuses on two key phenomena explored using the DRHBc theory: shape coexistence and drip-line predictions. Specifically, it examines the critical role of deformation in predicting the neutron drip-line, followed by the identification of candidate nuclei for shape coexistence in the O-Ca region using the DRHBc theory. These predictions show excellent agreement with experimental data and are expected to be further validated by new rare isotope beam facilities such as RAON, FRIB, and others.

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