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# Probing the shell structure and interplay of configuration in neutron-rich N=50 nuclei

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Exploring the nuclear shell structure of neutron-rich N = 50 nuclei is one of the most interesting and mysterious phenomena in nuclear physics, and it has become the forefront of both experimental and theoretical research in recent years. We have constructed the shell model Hamiltonian in the π(f p)-ν(sdg) model space based on an ab initio approach using VS-IMSRG(3f2) with minimal phenomenological adjustments to the single-particle energies to reproduce the recently available experimental data in the N = 50 region. To perform the large-scale shell model calculations, we have carried out the state-of-the-art
advanced Monte-Carlo Shell Model (MCSM) to interpret the nuclear structure properties of nuclei near the neutron magic number N = 50. Our MCSM-calculated nuclear structure properties, based on the new shell model Hamiltonian derived from VS-IMSRG(3f2), show a rather good qualitative agreement with the experimental data and previous shell model predictions. The prediction of structural properties in the N = 50
The region has significant implications for nuclear astrophysics, as it affects nucleosynthesis pathways and contributes to the distribution of elemental abundances in the universe.

## Research field of your presentation

Theoretical Low-energy nuclear physics

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