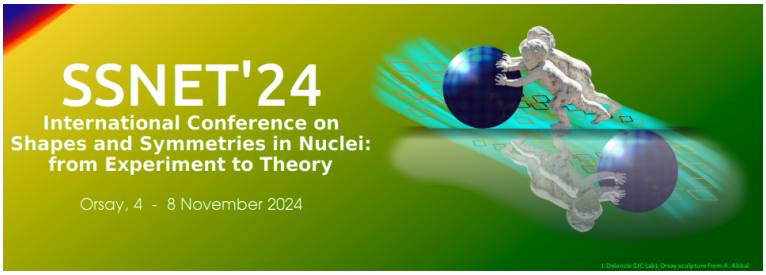

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Octupole phonon excitations on the shell-model states in Xe, Cs, and Ba isotopes up to mass 142

vendredi 8 novembre 2024 10:00 (20 minutes)

Octupole phonon excitations on the shell-model states in Xe, Cs, and Ba isotopes up to mass 142

Large-scale nuclear shell-model calculations are performed in Xe, Cs, and Ba isotopes up to mass 142 (Z > 50 and N > 82) beyond 132Sn. All the single-particle levels in the one-major shells, six neutron (1f7/2, 2p3/2, 2p1/2, 0h9/2, 1f5/2 and 0i13/2) orbitals and five proton (0g7/2, 1d5/2, 1d3/2, 0h11/2, and 0s1/2) orbitals are considered. For an effective two-body interaction, only one set of the multipole pairing, quadrupole-quadrupole interactions is employed and the strengths of the two-body interactions are set constant for all the nuclei considered. These interactions are phenomenologically determined to reproduce the experimental energy spectra in two-body systems. Some of the isomeric states are analyzed in terms of the shell-model configurations. Octupole correlated states are discussed by phenomenologically introducing a collective octupole phonon on top of each shell model state.

References
N. Yoshinaga, K. Higashiyama, C. Watanabe, and A. Odahara,
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