

Analysis of Low Lying Collective States in the Symplectic Interacting Vector Bosons Model

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Within the framework of the Symplectic Interacting Vector Bosons Model (IVBM), a successful description of both positive and negative parity band configurations and the corresponding band-head's structure is obtained. The analysis of the collective structure of the low lying excited states with different parity is carried out in two of the dynamical symmetries, reducing the $Sp(12, R)$ to the physical angular momentum subgroup $SO(3)$. The relation between the subgroup of the two reduction chains allows for the analysis of the structure of collective bands in conjunction with the results obtained from the energy distributions of the the states with fixed angular momentum in the space of the number of boson excitations, building the states. The obtained results are interpreted in terms of the monopole anharmonic vibrations of the nuclear surface.