

Static Properties of Ge and Sr Isotopes in the Cluster Model

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Abstract : We have studied the cluster structure of even-even stable isotopes of Ge and Sr. The Schrodinger equation has been solved using the generalized parametric Nikiforov-Uvarov method with a phenomenological potential. This potential is the sum of the attractive Yukawa-like potential, a Manning-Rosen-type potential, and the repulsive Yukawa potential for interaction between the cluster and the core. We have shown that the available experimental data of the first rotational band energies can be well described by assuming a binary system of the α cluster and the core and using an analytical solution. Our results were consistent with experimental values. Hence, this model can be applied to study the other even-even isotopes

Keywords : cluser model, NU method, ge and Sr, potential central

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