THE ADIABATIC THREE-PARTICLE SHELL MODEL OF NUCLEUS

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S u m m a r y

A theoretical description of the energy spectrum of nuclear excited slates is carried out within the framework of the adiabatic three-particle shell model of nucleus in terms of collective variables, namery: hyperradius R, hyperangle α, and conventional spherical angles (θ_i, φ_i), $i = 1, 2$. A new model is based on the assumption as to separability of the motion of valence nucleons into fast motion on the angular variables and adiabatic (slow) motion along the hyperradius R. A convenient notion of the potential term $U_\mu(R)$ of nucleons is introduced. The efficiency of the adiabatic approach is illustrated by the example of numerical calculations of the energy spectrum of the lower excited levels of $^{18}_{10}$Ne nucleus, whose unfilled shell constains two protons.