THREE-PARTICLE STRUCTURE OF THE HALO NUCLEUS ^{6}Li

B. E. Grinyuk, I. V. Simenog

Bogolyubov Institute for Theoretical Physics, National Academy of Sciences of Ukraine, Kyiv

The three-particle model for ^{6}Li nucleus (α-cluster, and two halo nucleons p and n) is used to study the structure properties of this system within the variational method with Gaussian basis. The ground triplet ($J^\pi = 1^+$) and the excited singlet ($J^\pi = 0^+$) states of ^{6}Li are studied. For this purpose, potentials of the np- and $N\alpha$-interaction are proposed to give description of the elastic S-phases at low energies simultaneously with correct values of the binding energy and the charge radius of ^{6}Li nucleus. The density distributions, elastic form factors, pair correlation functions, clusterization coefficients, and momentum distributions of ^{6}Li nucleus are studied.