

INVESTIGATION OF CORRELATIONS
OF NUCLEONS OF EVEN-EVEN NUCLEI
IN THE FRAMEWORK OF THE ADIABATIC
THREE-PARTICLE MODEL OF NUCLEI

R.M. Plekan, V.Yu. Pojda, I.V. Khimich

Uzhgorod National University, Chair of Nuclear Physics
(9a, Kapitulna Str., Uzhgorod 88000, Ukraine;
e-mail: *nphys@univ.uzhgorod.ua*)

S u m m a r y

Stationary states of even-even atomic nuclei, whose mean self-consistent field is simulated by the Woods–Saxon potential, are described in the framework of the adiabatic three-particle model of nuclei. The description is carried out in the terms of collective variables, namely, the hyperradius R , hyperangle α , and conventional spherical angles (θ_i, φ_i) , $i = 1, 2$. The efficiency of the adiabatic approach is illustrated by the example of the numerical calculation of the energy spectra of low-lying excited states of even-even atomic nuclei ^{40}Ca , ^{64}Zn , ^{74}Se , and ^{200}Hg which possess two valent nucleons in the external shell.