APPEARANCE OF SUPERCONDUCTING PAIR CORRELATIONS IN SPHERICAL EVEN-EVEN NUCLEI

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The formation of superconducting pair correlations between like nucleons in the ground state of spherical even-even nuclei is considered within a special Bogoliubov transformation. The influence of the monopole pairing interaction on the energy of single-particle states is taken into account.

It is shown that the emergence of pair correlations depends on the particle number and shell structure.

In open subshell nuclei the correlations exist at any attractive monopole interaction. In this case, nucleon pairs are distributed over all subshells participating in the pairing interaction.

The closed shell nuclei are considered within simplified model with constant pairing interaction. It is confirmed that the superconducting pair correlations appear if the coupling constant G exceeds a certain threshold value. Rough upper and lower estimates are obtained for the threshold value.