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DESCRIPTION OF NUCLEON TRANSFERS PROCESSES
BY A COUPLED CHANNEL METHOD WITH TWO-CENTER STATES

The problem of quantum description of near-barrier fusion of heavy nuclei taking place under strong coupling of relative motion with external nucleons transfers is studied. The method of perturbed stationary states, founded on decomposing of a full wave function of a system of two nuclei and nucleon by a system of two-center nucleon wave functions, is applied for the description of nucleons transfers at low-energy nuclear reactions. The two-center nucleon energy levels – additions to nucleus-nucleus potential in a channels, and wave functions are calculated by a numerical solution of a Schrцdinger equation for an arbitrary axial-symmetrical field with spin-orbit interactions, based on decomposing on Bessel functions and difference scheme along internuclear axis.

Keywords: nuclear fusion reactions, nucleons transfers, two-center nucleons states, coupled channel method.