

DYNAMICAL EFFECTS' ROLE IN THE FORMATION OF T -ODD ANGULAR ASYMMETRIES OF THE PRODUCTS OF TERNARY FISSION CAUSED BY POLARIZED NEUTRONS

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In the framework of the quantum theory of nuclear fission [1-3] the following dynamic effects that determine the character of the formation of T -odd P -even asymmetries in the angular distributions of pre-scission and evaporation third particles for low-energy ternary fission caused by cold polarized neutrons have been highlighted:

1) the conservation of axial symmetry for the transition fission states of the fissioning system both before and after the appearing of fission products;

2) the coldness of the fissioning system in the vicinity of the scission point, which provides the smallness of Coriolis interaction and leads to the conservation of its spin projection onto the symmetry axis;

3) the main role of wriggling vibrations of fissile compound nucleus [2] in the vicinity of its scission point for the focusing of the flight direction for binary fission fragments along or against the symmetry axis;

4) the necessity to take into account the interference of fission amplitudes [3] of different s - neutron resonances of compound fissile nucleus with the same and different values of its spins for the formation of the angular distributions of fission products;

5) the main role of the knock out mechanisms of appearance for pre-scission third particles caused by strong nonadiabaticity of compound fissile nucleus collective deformation motion near its scission point;

6) the influence of the collective rotation of the polarized fissioning system on the amplitude of the angular distributions of emitted fission fragments and pre-scission third particles caused by Coriolis interaction of orbital momenta of fission fragments and pre-scission third particles with total spin of the fissioning system;

7) the appearance of T -odd TRI- and ROT- asymmetries in the angular distributions of the pre-scission third particles due to the contribution of only even or only odd orbital momenta of the third particles correspondently caused by interference of fission amplitudes of different neutron resonances [3].

It is concluded about necessity to continue experimental studies of T -odd P -even asymmetries for ternary fission of new target-nuclei by cold polarized neutrons in order to verify validity of the above named representations.

1. S.G.Kadmensky *et al.* // *Yad. Fiz.* 2011. V.74. P.1522.

2. S.G.Kadmensky, D.E.Lubashevsky, L.V.Titova // *Bull. RAN. Ser. Phys.* 2011. V.75. P.1052.

3. V.E.Bunakov, S.G.Kadmensky, S.S.Kadmensky // *Yad. Fiz.* 2010. V.73. P.2460.