FORMATION OF CORRELATED CHARGED PARTICLES AT ABSORPTION OF π^--MESON IN "LIVE" TARGET

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The results of measuring the energy spectra correlated at an angle of 180° of pairs of single-charged particles emitted by the nuclei of a "live" target at the absorption of stopped π^--mesons are presented. The Si detector (an analogue of the ^{28}Si target) was installed as a "live" target.

The use of a "live" target in the experiment makes it possible, simultaneously with the registration of the formed secondary particles (p, d, t), to measure the energy release in it itself. The energy release in the sensitive volume of the "living" target consists of energy losses of the incoming pion and the resulting particles, including the recoil core.

The energy spectra measured on a "live" target are interesting from the point of view of testing hypotheses about the mechanisms of formation of complex particles [2]. The large energy releases in the target are due to the high multiplicity of particles in the final state and indicate the significant role of incoherent processes in these reactions. At the same time, for reaction channels in which secondary processes are suppressed, the energy release in the target is near zero [3].

Analysis of the dependences of the average particle energies in pd, pt and dt pairs on the excitation energy of the nucleus showed that the deuteron in the pd pair is formed as a result of neutrons picking up protons on the surface of the nucleus. In turn, pt and dt pairs arise through the absorption of the π^--meson on the α-cluster, when the triton is a "direct" particle, and the other charged particles are secondary products of the intracellular interaction.

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