SEARCH FOR ^{7}H AT ACCULINNA-2

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The ^{7}H isotope is the Golden Fleece to be searched by the RIB holders. Until the present moment only upper limits of its lifetime and ground state energy were estimated. Such unbound complicated five-body nuclear system, which has extremely large mass-to-charge ratio, lies far beyond the drip-line and has not been detected yet.

An experimental search for the ^{7}H resonance was performed with the ^{2}H(^{8}He,^{3}He)^{7}H reaction. Beam of the ^{8}He with energy of ~26 *A* MeV provided by ACCULINNA-2 fragment separator interacted with the gaseous cryogenic deuterium target (6 mm thick at 27K and at 1 atm). The detector system was consisted of Si and CsI telescope detectors intended for detection of the recoil ^{3}He and ^{3}H emitted from ^{7}H decay. Compared to the previous works dedicated to ^{7}H the main advantage and novelty of the used setup was the possibility to measure the angle and energy of the emitted tritium.

Events with a coincidence of detected ^{3}He and ^{3}H was considered as candidates for ^{7}H event. The number of coincidences of the decay products allowed us to estimate the reaction cross-section. Measuring the spectra of ^{3}He under the small angles allows to reconstruct the ^{7}H missing-mass spectrum. The obtained angles and energies of ^{3}He and ^{3}H in coincidence gave a lot of informative angular correlations.

In the report we will present preliminary ^{7}H missing-mass spectrum together with estimation of detection efficiency of the ^{7}H and various angular correlations of reaction products (e.g. missing-mass spectrum with the angle of the emitted tritons). Simulations needed for data analysis has been performed within the ExpertRoot framework [1].

1. http://er.jinr.ru/