

**STUDY OF  $^{10}\text{Li}$  LOW ENERGY SPECTRUM IN THE  $^2\text{H}(^9\text{Li},p)$   
REACTION AT THE ACCULINNA-2 FRAGMENT  
SEPARATOR**

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A significant part of experiments dedicated to the investigation of the structure of light neutron rich exotic nuclei is based on the detection of charged particles – nuclear interaction products. The experimental difficulty of detection of neutrons from reactions is caused by relatively low (in comparison with charged particles) detection efficiency of neutron detectors. However neutron measurements can considerably enrich nuclear physics with information on nuclear structure especially near the neutron drip line, where neutron decay is the dominant process. The ACCULINNA-2 fragment separator was commissioned at FLNR, JINR in 2017. One of the first experiments was measurement of  $^2\text{H}(^9\text{Li},p)^{10}\text{Li}$  reaction. Radioactive ion beam of  $^9\text{Li}$  with an average energy of 27 MeV/A was used to bombard gaseous deuterium target. Coincidences of protons with neutrons and  $^9\text{Li}$  from  $^{10}\text{Li}$  decay were measured. This allows to reconstruct  $^{10}\text{Li}$  excitation energy spectrum together with angular correlations of the decay.