

PRELIMINARY DATA OF THE EXPERIMENT ON THE STUDY OF PROTON-PROTON CORRELATIONS IN THE $d + {}^1\text{H} \rightarrow p + p + n$ REACTION

A value of a neutron-neutron scattering length was obtained in different experiments. It can be observed that there is a spread in values of a neutron-neutron scattering length a_{nn} . In [1] it was suggested that such spread may be explained by influence of $3N$ -forces. It can be assumed that pp -scattering length and energy of 1S_0 virtual state extracted in the $d + {}^1\text{H} \rightarrow n + p + p$ reaction will be influenced by $3N$ -forces and will differ from the value obtained in the experiment with two protons in a final state. To test the assumption, in INR RAS the study of the $d + {}^1\text{H} \rightarrow n + p + p$ reaction is carried out.

In current work a processing of data from several measurements to study the $d + {}^1\text{H} \rightarrow n + p + p$ reaction with registration of protons from the breakup of a pp -system and a recoil neutron is discussed. The proton energy spectrum was obtained in these measurements. A comparison of obtained experimental spectrum with the simulated ones that correspond to different values of virtual pp -state energy was carried out. As the comparison result the estimation of possible value of proton-proton energy state was done.

1. E.S. Konobeevski, S.V. Zuyev, A.A. Kasparov, V.I. Kukulín, V.M. Lebedev, M.V. Mordovskoy, V.N. Pomerantsev, and A.V. Spassky // Phys. Atom. Nucl. 81, 595 (2018).

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Section

1. Experimental and theoretical studies of nuclear reactions

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