

Data on the np -scattering length from the nd -breakup reaction at low energies

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A kinematically complete experiment to determine the np -scattering length in the $n + d \rightarrow (np) + n$ reaction on the neutron beam of the RADEX channel of the INR RAS was carried out. In the experiment a recoil neutron as well as a neutron from the breakup of the np system was registered. The primary neutron energy and the proton energy from the breakup of the np system was reconstructed from the known emission angles and energies of two neutrons and the fact that a breakup proton was detected in an active deuterated target. The experiment was carried out at low neutron energies 8 – 13 MeV. The value of the np -scattering length was obtained by a comparison of the experimental dependence of the nd -breakup reaction yield on the relative energy of the np pair with the simulation results. The obtained value of the np -scattering length differs significantly from the value obtained in direct np -scattering and can be associated with a significant influence of $3N$ -forces.

The speaker is a student or young scientist

Yes

Section

1. Experimental and theoretical studies of nuclear reactions

Primary author: KASPAROV, Aleksandr (INR RAS)

Co-authors: Dr MORDOVSKOY, Mikhail (INR RAS); POTASHEV, Stanislav (Institute for Nuclear Research of Russian Academy of Sciences); Mr AFONIN, Alexey (INR RAS); MITCUK, Viacheslav (INR RAS)

Presenter: KASPAROV, Aleksandr (INR RAS)

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