

Interaction of ^{11}Li and ^9Be in the framework of the time-dependent Schrodinger equation

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Neutron transfer and nucleus breakup cross sections in $^{11}\text{Li}+^9\text{Be}$ reaction are calculated at energy range up to 32 MeV/nucleon. The evolution of probability density of external weakly bound neutrons of ^{11}Li and the probabilities of neutron transfer and nucleus breakup are determined based on a numerical solution of the time-dependent Schrodinger equation. Our calculation results are agree with the experiment.

Summary

The cross sections of neutron transfer and nucleus breakup in $^{11}\text{Li} + ^9\text{Be}$ was calculated based on the numerical solution of the time-dependent Schrodinger equation. The evolution of the probability density and the probability of transfer and breakup were determined based on a numerical solution of the time-dependent Schrodinger equation for external weakly bound neutrons of the ^{11}Li nucleus. The calculations results are agree with the experimental cross section of neutron removal. Further theoretical and experimental improvements are needed by the more exactly description the processes of interaction of external neutrons in reactions with weakly bound nuclei.

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