

Non-stationary approach to description of neutron transfer in reactions with ${}^3,6,8\text{He}$ nuclei

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Experimental cross sections for formation of isotopes ${}^{44,46}\text{Sc}$ in reactions ${}^3,6\text{He} + {}^{45}\text{Sc}$ [1,2], ${}^{65}\text{Zn}$ in reaction ${}^6\text{He} + {}^{64}\text{Zn}$ [3] and ${}^{196,198}\text{Au}$ in reactions ${}^3,6,8\text{He} + {}^{197}\text{Au}$ [4-6] have been analyzed. To calculate neutron transfer probabilities and cross sections the time-dependent Schrödinger equation (TDSE) [7,8] for external neutrons of ${}^3,6,8\text{He}$ and target nuclei has been solved numerically. The contribution of fusion-evaporation processes to the experimental data has been taken into account within the statistical model. The results of calculation demonstrate overall satisfactory agreement with experimental data.

References

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