

## Neutrons transfers and fusion in reactions with halo nucleus ${}^6\text{He}$

The probabilities  $p$  of the external neutron transfer of  ${}^6\text{He}$  and  ${}^{18}\text{O}$  nuclei at different energies of the neutron separation  $\epsilon$ , energies in a center of mass system  $E$  and collision impact parameter  $b$  were calculated via a numerical solution to the nonstationary Schrödinger equations [1]. An analytical approximation of the probability was found and used to calculate the cross section for formation of the  ${}^{198}\text{Au}$  isotope in the  ${}^6\text{He} + {}^{197}\text{Au}$  reaction. The calculation results agree satisfactorily with the experimental data [2] for energies near the Coulomb barrier.

### REFERENCES

1. Samarin, V.V. and Samarin, K.V., Bull. Russ. Acad. Sci. Phys., 2012, vol. 76, no. 7, p. 450.
2. Kulko, A.A., et al., J. Phys. G: Nucl. Part. Phys., 2007, vol. 34, p. 2297.

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