

CROSS SECTION FOR THE REACTION ${}^7\text{Li}(t,\alpha){}^6\text{He}$ AT TRITON
ENERGIES 75 - 400 keV

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We have measured the cross section for ${}^7\text{Li}(t,\alpha){}^6\text{He}$ reaction in the energy range 75 - 400 keV of the triton beam. Molecular T_2^+ beam was used for the measurements at energies lower than 150 keV. After a detailed analysis of the spectra obtained in this reaction the peaks belonging to α_0 and α_1 groups of the observed reaction have been separated from those found for reactions such as ${}^{16}\text{O}(t,\alpha){}^{15}\text{N}$ and ${}^6\text{Li}(t,\alpha){}^5\text{He}$.

The cross section for ${}^7\text{Li}(t,\alpha_0){}^6\text{He}$ was measured in steps of 25 keV in the energy range $75 < E_t < 400$ keV. The values obtained for the cross sections are within the limits $1.5 \mu\text{b} < \sigma < 137 \mu\text{b}$. Since in this case the cross sections were measured for beam energies below the Coulomb barrier, special calculation analysis of Coulomb's functions and corresponding corrections have been made to obtain corrected cross section values with proper accuracy.

Experimental cross section values were used for calculation of S functions. The values obtained in this way, found within the range of $100 < E_t < 400$ keV, fall in the range $200 < S(\text{MeV}\cdot\text{b}\times 10^{-3}) < 100$. This analysis also shows that within the analysed energy range the S function has an oscillatory character.