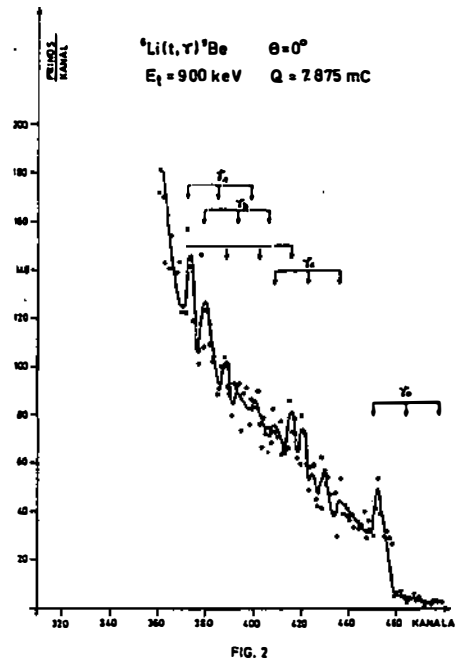
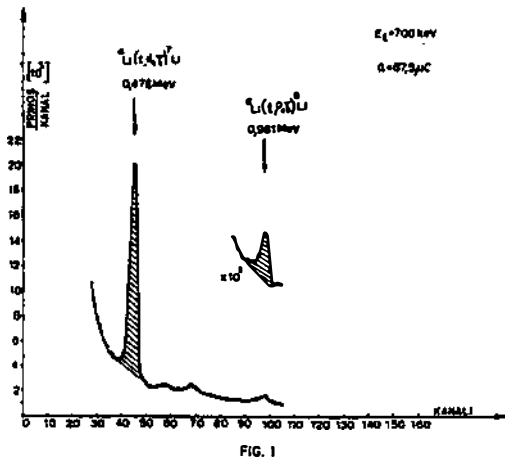


GAMMA RAYS FROM THE TRITON BOMBARDMENT OF ${}^6\text{Li}$

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The present investigation of the effects of compound nucleus formation in triton-induced reactions on ${}^6\text{Li}$ nucleus at low energy indicated a complicated resonance structure in the excitation curves of the (t, γ) , $(t, p_1 \gamma)$ and $(t, d_1 \gamma)$ reactions. Measurements have been made in the energy range 0.35-1 MeV. Strong evidence of resonant behaviour in the excitation functions of the ${}^6\text{Li}(t, p_1 \gamma){}^8\text{Li}$ and ${}^6\text{Li}(t, d_1 \gamma){}^7\text{Li}$ reactions was observed at $E_t = 0.5$ MeV ($E_x = 18.02$ MeV in ${}^9\text{Be}$). The interference effects between compound and direct capture process are observed in ${}^6\text{Li}(t, \gamma){}^9\text{Be}$ reaction and the contribution to the total cross-section by compound nucleus formation appeared to be only 30%¹⁾. Spectra of gamma rays from triton-induced reactions on ${}^6\text{Li}$ (measured with Ge(Li) detector) are shown in Figs. 1 and 2. Due to the small efficiency of Ge(Li) detector counts in the individual channels of observed spectra in capture reaction ($E_{\gamma_0} = 18.02$ MeV) differ considerably from their expected values. By a properly performed smoothing procedure, using counts of five neighbouring channels²⁾, the statistical fluctuations can be removed and gamma transitions to the low-lying states in ${}^9\text{Be}$ can be identified. For the ${}^6\text{Li}(t, \gamma){}^9\text{Be}$ reaction a peak cross section value of $2.8 \mu\text{b}/\text{sr}$ at $E_t = 0.5$ MeV was obtained.



References:

1. K.M. Subotić, Thesis, University of Beograd, 1976
2. P. Quittner, Gamma-ray spectroscopy (Adam Hilger, London, 1973)