

4. A SEARCH FOR EXCITED STATES OF ${}^3\text{He}$ BY THE REACTION ${}^7\text{Li}(d,{}^6\text{He}){}^3\text{He}$

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At deuteron energy of 37 MeV the ${}^6\text{He}$ inclusive spectra are measured in the exit channel of reaction ${}^7\text{Li}(d,{}^6\text{He}){}^3\text{He}$. The resonance-like structure of spectra in the range of ${}^6\text{He}$ energies corresponding to the excitation of ${}^3\text{He}$ recoil nuclei in the range of $E^* = 6 \dots 16$ MeV was observed. The experimental data can be described in assumption of existence of ${}^3\text{He}$ resonances with excitation energies of $E^* = 9, 13$ and 16 MeV. An analysis of the experimental spectra shows that observed structure of ${}^6\text{He}$ spectra can be as well explained by the more probable processes of excitation and decay of ${}^7\text{Li}$ and ${}^7\text{He}$ unbound states in accompanied reaction channels.