

**Yu. N. Pavlenko, V. L. Shablov, V. O. Kyva, O. K. Gorpinich, N. L. Doroshko,
A. V. Stepanyuk, O. I. Rundel, L. L. Dulger, D. V. Kasperovych**

**DEUTERON AND TRITON DECAYS OF ^5He RESONANCES
IN THE REACTION $^7\text{Li}(d, \alpha)^5\text{He}^*$**

The processes of excitation and decay of high excited ^5He resonances into the $d + t$ channel have been studied in the reaction $^7\text{Li}(d, \alpha)^5\text{He}^*$ at the energy of deuteron beam $E_d = 37$ MeV. In the inclusive spectra of α -particles in addition to the contributions of well known ^5He resonances, the high excited states with excitation energies $E_x \sim 19$ and $E_x > 20$ MeV were observed. Cluster decay of these resonances was also identified in αd - and αt -coincidence spectra. For the first time, the decay into the $d + t$ channel was observed for ^5He resonances with $E_x = 22$ and 26 MeV. The determined resonance energy and width are partly agreed with the R-matrix analysis of data obtained at the study of $d + ^3\text{H}$ and $n + ^4\text{He}$ binary reactions. The possible Coulomb effects in three-particle channels of reaction $^7\text{Li}(d, \alpha)^5\text{He}^*$ are also analyzed for different conditions of observation of high excited ^5He resonances.

Keywords: three-particle nuclear reaction, kinematically complete experiment, coincidence spectra, high excited resonances, decay channels, Coulomb interaction, resonance parameters.