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Formation of the nuclear-unstable 5He and 5Li mirror nuclei at 6Li+d reaction

Six-detector silicon spectrometer of charged particles with their separation by ΔE-E method was made. Spectrometer consisted of telescopes with extremely low registration threshold of tritons (0.6 MeV) and 3He nuclei (1.3 MeV). Energy distributions of tritons and 3He produced in 6Li(d,xt) and 6Li(d,x3He) reactions were measured at tandem accelerator EGP-10 (VNIIEF) at Ed=4–10 MeV energy range with 200 keV step and 10-150° registration angle with 10° step on LiF (6Li –91.06%, 7Li –8.94%) targets with mass thickness of 150-200 mu-g/sm2 on thin carbon and aluminum backings.
These spectra were fitted by the same dependence as we used in [1] for 6Li(d,xt) reaction data obtaining (there was a typo in [1]: E0 and E1 must have an ½ power with positive sign)

0≤E≤Emax,
where E, E0, Γ0, E1, Γ1 –registering triton (or helion) energy at the laboratory frame; energies, widths of 5Li (5He) ground and first excited states, Emax –maximum value of E; A0 and A1 –relative population probability of the ground and first excited nucleus states.
6Li(d,t0,1), 6Li(d,he0,1) reaction differential cross sections and 6Li(d,x3He) reaction integral cross sections were obtained for the first time. Widths of the 5He and 5Li states were obtained which are different from literature data.
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1. L.N. Generalov et al., Bull. Russ. Acad. Sci. Phys. 84, 1511 (2020).

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