Multi neutrons transfer in reaction 6Li(68 MeV) on Be target

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The results of experiments on studying nucleon and cluster transfer processes in the reactions of the 6Li (68 MeV) ions with the 9Be target nuclei are presented. The angular distributions for the reaction channels 9Be(6Li,6Li)9Be, 9Be(6Li,7Li)8Be, 9Be(6Li,8Li)7Be, Be(6Li,α)11Bg.s., s. have been measured. To describe the possible contributions of sequential transfer of nucleons and alpha clusters, as well as direct transfer of the 2n cluster, the Coupled Reaction Channel method (FRESCO) is used.The spectroscopic amplitudes are obtained for the configurations of (7Li+d), (7Li+n), (6Li+2n) 8Li+p in the 9Be, 8Li , 7Be and (6Li+α) in the 10B nucleus. The results of the theoretical analysis are in agreement with the experimental data and indicate a strong correlation between a neutron and an α-cluster and two neutron in the transfer processes. A review of similar experiments on the similar study of the di-neutrons is given.

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