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ELASTIC AND INELASTIC SCATTERING OF ^{18}O IONS BY ^{6}Li AT 114 MeV AND ISOTOPIC DIFFERENCES OF ^{6,7}Li + ^{18}O AND ^{6}Li + ^{16,18}O NUCLEI INTERACTIONS

Angular distributions of the ^{6}Li + ^{18}O elastic and inelastic scattering as well as the ^{6}Li(^{18}O, X) reactions with production of ^{16,17,19}O + ^{8,7,5}Li, ^{14,15,16,17}N + ^{10,9,8,7}Be and ^{12,13,14}C + ^{12,11,10}B nuclei were measured at E_{lab}(^{18}O) = = 114 MeV. The data were analyzed within the optical model and coupled-reaction-channels method. The ^{6}Li + ^{18}O optical potential parameters as well as deformation parameters of these nuclei were deduced and the scattering mechanisms were studied. The isotopic differences between the ^{6,7}Li + ^{18}O and ^{6}Li + ^{16,18}O scattering as well as their potential parameters were investigated.

Keywords: heavy-ion scattering, optical model, coupled-reaction-channels method, spectroscopic amplitudes, optical potentials, reaction mechanisms.