

# MECHANISM OF ELASTIC SCATTERING OF ${}^7\text{Li}$ , ${}^7\text{Be} + {}^9\text{Be}$ NUCLEI AND OPTICAL POTENTIALS OF THEIR INTERACTION

**A. T. Rudchik, V. O. Romanyshyn, V. M. Kyryanchuk,  
O. A. Ponkratenko, V. V. Uleshchenko**

${}^7\text{Li} + {}^9\text{Be}$  and  ${}^7\text{Be} + {}^9\text{Be}$  elastic scattering data at the energies  $E_{\text{lab}}({}^7\text{Li}) = 15.75, 24, 30, 34$  MeV and  $E_{\text{lab}}({}^7\text{Be}) = 17, 19$  and  $21$  MeV were analyzed within the optical model and coupled-reaction-channels method taking into account  ${}^7\text{Li}$ ,  ${}^7\text{Be}$  and  ${}^9\text{Be}$  reorientations, as well as one- and two-step transfers for these scattering. Sets of optical model parameters were deduced for the interaction of  ${}^7\text{Li} + {}^9\text{Be}$  and  ${}^7\text{Be} + {}^9\text{Be}$  nuclei, as well as their energy dependence and mechanism of the elastic scattering of these nuclei was obtained. Isobaric and isotopic differences for the parameters of  ${}^7\text{Li} + {}^9\text{Be}$ -,  ${}^7\text{Be} + {}^9\text{Be}$ - and  ${}^8\text{Be} + {}^9\text{Be}$ -potentials were studied.