

MICROSCOPIC ANALYSIS OF ELASTIC SCATTERING AND TRANSFER REACTION IN THE ${}^7\text{Li}+{}^{10}\text{B}$ COLLISION AT ENERGY 58 MEV

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Analysis of cross sections of the ${}^7\text{Li}+{}^{10}\text{B}$ elastic scattering and the transfer reaction ${}^7\text{Li}+{}^{10}\text{B}\rightarrow{}^6\text{Li}+{}^{11}\text{B}$ at the beam energy $E_{LAB} = 58$ MeV is carried out by using the microscopic optical potential (OP) [1]. Such OP is calculated by a corresponding double folding procedure taking into account antisymmetrization effects and depends on the nucleon density distribution of interacting nuclei. The only free parameters are the depths of the real and imaginary parts of the OPs determined by fitting the experimental angular distributions for the elastic scattering channel and the transfer channel obtained in 2023 at the U-400 cyclotron of the Flerov Laboratory of Nuclear Reactions, Joint Institute for Nuclear Research, Dubna, Russia [2]. A reasonable agreement of the theoretical results with the experimental data is achieved which confirms a peripheral character of the scattering. This research was funded by the Russian Science Foundation, project № 24-22-00117.

References:

- [1] V. K. Lukyanov, E. V. Zemlyanaya, and K. V. Lukyanov, Phys. At. Nucl. 69, 240 (2006)
- [2] S.S. Stukalov, Sobolev Yu.G., Penionzhkevich Yu.E et al., Measurement of angular distributions of differential cross sections of charged products of the ${}^7\text{Li}+{}^{10}\text{B}$ reaction, in this book.

Section

Experimental and theoretical studies of nuclear reactions

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