

# STUDY OF NUCLEON TRANSFER PROCESSES IN THE REACTIONS

$$^{48}\text{Ca} + ^{197}\text{Au}, ^{48}\text{Ca} + ^9\text{Be}$$

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In this work, we present the results of studying nucleon transfer processes in the reactions  $^{48}\text{Ca} + ^{197}\text{Au}$ ,  $^{48}\text{Ca} + ^9\text{Be}$  at energies above the Coulomb barrier. The experiments were performed at the Flerov Laboratory of Nuclear Reactions, Joint Institute for Nuclear Research, Dubna. A  $^{48}\text{Ca}$  beam with an energy of 400 MeV was accelerated by the U-400 cyclotron and transported to the reaction chamber of the high-resolution magnetic analyzer MAVR [1]. The measured angular distributions of the products of the reaction  $^{48}\text{Ca} + ^{197}\text{Au}$  are presented in Fig. 1. For isotopes of K, Ar (Fig. 1(a)) and Sc, Ti (Fig. 1(b)) corresponding to few-nucleon transfer, maxima are seen in the vicinity of the grazing angle; for isotopes of S, P (Fig. 1(a)) and V, Cr (Fig. 1(b)) corresponding to multinucleon transfer, the angular distributions are practically isotropic. This behavior is consistent with the observations described in detail in review [2]. The obtained experimental data will be analyzed based on numerical solution of the time-dependent Schrödinger equation for nucleons [3].

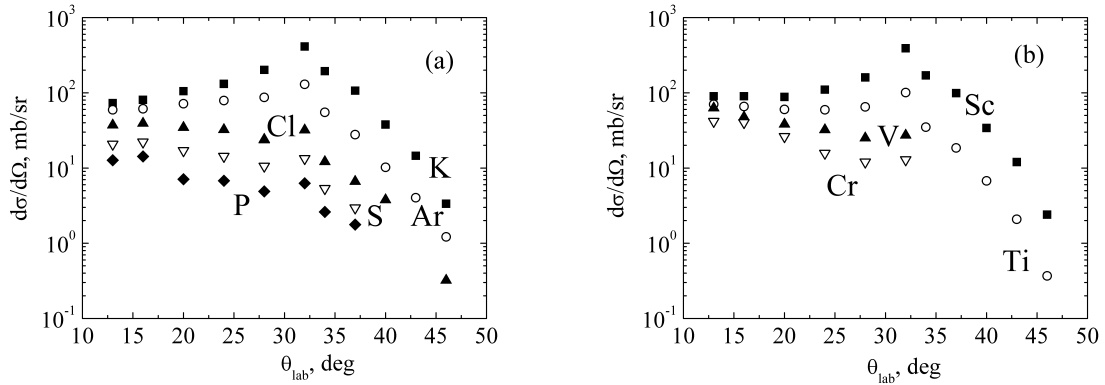


Fig. 1. Differential cross sections of the channels of stripping (a) and pick-up (b) of protons in the  $^{48}\text{Ca} + ^{197}\text{Au}$  reaction at a beam energy of 400 MeV.

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2. V.V. Volkov, Nuclear physics research with heavy ions (JINR, Dubna, 2023).

3. V.V. Samarin et al. // Phys. At. Nucl. 2018. V. 81. P. 486.