

ENERGY SPECTRUM OF ELECTRONS EMITTED
DUE TO IONIZATION OF ATOMS
BY α -PARTICLES PASSING
THROUGH A SUBSTANCE

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S u m m a r y

The energy spectrum of electrons generated due to the ionization of atoms of a target by α -particles is studied, by using the (αe)-coincidence technique by applying the retarding voltage U in the electron registration channel. A ^{238}Pu alpha-source and targets representing films of different thicknesses with spray-coated aluminum were used. The obtained distribution $N_e(eU)$ is compared with the theoretical one calculated under the assumption that it is caused by the transition of an electron from the bound atomic state to the continuum due to a sudden perturbation of the atom by the α -particle charge. It is shown that the observed distribution of fast electrons generated due to the passage of the α -particle through a substance can be described in the approximation of a quantum-mechanical transition of the system (atom) from the initial neutral state to the final ionized one accompanied by the ejection of the electron from the bound state to the continuum due to a sudden perturbation of the atom by the charge of an α -particle passing near it (shake-off effect).