

THE INVESTIGATION OF $^{197}\text{Au}(d, xpyn)X$ REACTIONS AT THE ENERGY OF 2.2 GeV/NUCLEON

Balabekyan A.R.¹, Demekhina N.A.², Karapetyan G.S.³, Drmoyan D.R.⁴,
Zhemelik V.I.⁴, Adam J.⁴, Zavorka L.⁴, Solnyshkin A.A.⁴,
Tsoupko-Sitnikov V.M.⁴, Khushvaktov J.⁴

¹Yervan State University, Yerevan, Armenia; ²Yerevan Physics Institute, Yerevan, Armenia;

³Instituto de Fisika, Universidade de Sao Paulo, Sao Paulo, Brazil; ⁴Joint Institute for
Nuclear Research, Dubna, Russia

E-mail: balabekyanl@ysu.am

The interaction of deuterons with energy of 2.2 GeV/nucleon from the Nuclotron of the Laboratory of High Energy (LHE), Joint Institute for Nuclear Research (JINR) with a ^{197}Au target have been investigated using method of gamma spectroscopy.

The cross-sections of about 100 radioactive nuclide as well as their kinematic characteristics were obtained and were analyzed. The results including charge and mass distributions have been parameterized in term of 3-parameter equation in order to reproduces the real isobaric distribution. The kinematic characteristics of residuals were obtained using the mathematical formalism of the standard two-step vector model. The dependence of the mean excitation energy of the residual nucleus formed after cascade on product mass number were investigated.

The analysis of the mass-yield distribution (Fig.1) was allowed to suppose different channels of the interaction such as spallation, deep spallation, fission-like and multifragmentation processes.

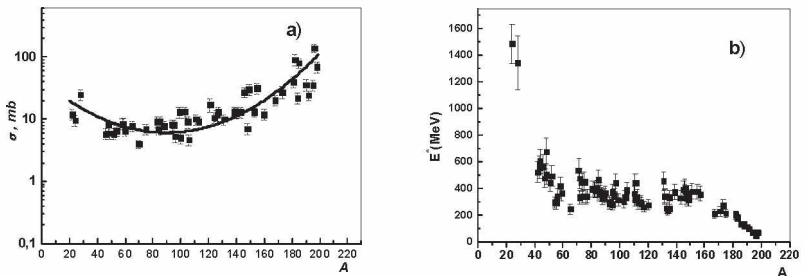


Fig. 1. The mass-yield distribution of cross-sections a) and the dependence of the mean excitation energy of the residual nucleus on product mass number b).