

THE RELATIVE YIELDS AND HALF-LIVES OF PRECURSORS OF DELAYED NEUTRONS IN THE FISSION ^{241}Am BY FAST NEUTRONS.

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Track 6. Test Reactors, Experiments and Modeling and Simulations

ABSTRACT

At the present time, the most perspective processes, which could form the basis of the technology of transmutation of radionuclides, are the processes associated with using of nuclear reactors, as well as sub-critical systems with high neutron flux generated using charged particle accelerators. The delayed neutrons have an important role in the safe management and kinetics of nuclear power plants. Therefore, the development of any of the above concepts of transmutation of nuclear waste requires the information on nuclear-physical characteristics of delayed neutrons for minor actinides in the reactor energy range of primary neutrons. In this paper the energy dependence of the relative delayed neutron yields and half-lives of their nuclear precursors in the fission ^{241}Am by neutrons in the energy range of 1-5 MeV was measured. The assembly of ^3He -counters in neutron moderator block was used as a detector. The measurements of decay curves of delayed neutron activity were carried out in a cyclic mode. The obtained decay curves of delayed neutron activity have been processed in order to obtain the values of the relative yields and half-lives of delayed neutron precursors. The energy dependence of the detection efficiency of neutron detector was obtained as a result of a series of measurements of spectra of monoenergetic neutrons.

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