TOF Method Measurements of Neutron Cross Sections in 299 Energy Intervals of the ABBN-93 Group Constants

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Numerical Monte-Carlo codes, designed for calculation of fast breeder reactors and their radiation shields, in order to achieve high accuracy are currently being transformed to the use of 299-group ABBN-93 constants, instead of classical 28-group ABBN-78 system. The new system, having a smaller step of lethargy, puts forward increased requirements on performance of nuclear physics facilities. On which, in order to provide calculation codes with initial data, experimental measurements of the cross sections for interaction of neutrons with nuclei of fissile, raw and structural materials are carried out.

In this paper we review the possibility of measurements of the 299-group constants at the existing 50 meter, and at projected 500-meter, flight bases of the INES TOF spectrometer of a pulsed spallation neutron source RADEX, installed on the beam of the INR RAS linear proton accelerator.

Results of numerical calculations for the diffusion time of neutron spectrums from tungsten targets of various thicknesses are also presented, within the framework of the analysis for possibility to reduce the duration of neutron flashes.