

Evolution of the neutron spectrum during propagation of the neutron flux in solid bodies

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The results of numerical modeling of leakage spectra, diffusion time and absorption spectra during propagation of neutron fluxes in solid bodies are presented. The spherically symmetric task of neutron flux diffusion from a central source to the outer surface of spheres, made of various materials, is reviewed. The simulation was carried out using the Monte Carlo method with ABBN-78 neutron group constants.

The task was carried out within the framework of modeling the spectrum of a tungsten-water proton beam target of the pulsed neutron source RADEX, which is used as a proton beam target of the INR RAS proton linear accelerator. Modeling was carried out in order to determine the effect of the target material choice on the neutron spectrum, value of neutron flux and its diffusion time. Possibility to reconstruct capture spectrum, using experimentally measured leakage spectrum, is discussed.

Section

Applications of nuclear methods in science, technology, medicine and radioecology

Primary author: KHLIUSTIN, Denis (Institute for Nuclear Research Russian Academy of Sciences)

Presenter: KHLIUSTIN, Denis (Institute for Nuclear Research Russian Academy of Sciences)

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