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Evolution of the spectra during propagation of neutron fluxes in Rhenium, Molybdenum and Aluminum

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The results of numerical modeling of leakage spectra, diffusion time and absorption spectra during propagation of neutron fluxes in 75Re, 42Mo and 13Al27 are presented. The spherically symmetric task of neutron flux diffusion from a central source to the outer surface of the spheres 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 and optimization of the target station of the spallation 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 it's diffusion time. Possibility to reconstruct capture spectrum, using experimentally measured leakage spectrum, is discussed.

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