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NEUTRON ABSORPTION AND SCATTERING OF BY SUB-BARRIER REFLECTION

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A cold neutron storage project is being considered for the projected NEPTUNE reactor. The neutron density in the storage is determined by the absorption and scattering (leakage) of neutrons on the walls of the storage. To determine the probability of neutron leakage, it is proposed to use a neutron wave resonator in which the probabilities of the studied processes are increased. The resonator is made in the form of a three-layer Cu/Al/Cu structure. Experimental studies were carried out for two structures manufactured in NRC "Kurchatov Institute"- PNPI (Gatchina) and IMP UB RAS (Ekaterinburg). It is shown that the contribution to neutron leakage is associated with scattering on roughness, non-flatness of the interface and resonant neutron absorption.

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