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RESEARCH OF NEUTRONS INTERACTION WITH THE MATTER UNDER HIGH DENSITY INTERACTIONS

Part II. The experimental research dependence of neutron cross section from density interactions

Research of neutron interactions with the matter under density interactions (DI) up to ~10^9 $cm^{-2} \cdot s^{-1}$, were provided with aim of revelation of possible dependence neutron cross section from DI. The method of research [1] for revelation of such dependence was improved [2]. It consists on transmission asymmetry (TA) of neutrons measurement through of samples pair from different matters. TA was revealed for all pairs containing ^{235}U, in particularly, for pair (^{235}U - Cd) TA consists of $(2{,}541 \pm 0{,}294) \cdot 10^{-4}$ that does not contradict to assumption of the cross section dependence from DI. It was defined that correlation related with fission of ^{235}U, and corresponding of relative change of the effective neutron cross section equals ~$2{,}6 \cdot 10^{-4}$. Analysis shows that observed dependence may be treated as the result of secondary states composition of ^{235}U with anomaly great values of neutron cross section, yield, reduced of possibility radioactive transition and small energy, excited by fragment fission.

Keywords: transmission asymmetry, density interactions, neutron, cross section, capture, scattering, fission, reduced of possibility transition, stability.