

MECHANISM OF FAST NEUTRONS INELASTIC SCATTERING BY COPPER NUCLEI

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Applicability of the optical statistical approach version, based on the spherical optical model, model of an excited core and modern versions of statistical model, for the description of a neutrons inelastic scattering by ^{63}Cu and ^{65}Cu nuclei was studied first in the energy range from a threshold up to 9 MeV. Within the framework of this approach the possibility of an adequate description of experimental data set on inelastic scattering cross-sections was shown. The results of the theoretical analysis were used for investigation of fast neutrons inelastic scattering mechanism by the studied nuclei. It was shown, that a compound mechanism of inelastic scattering gives the predominant contribution to excitation cross-sections of the lowest three levels of studied nuclei only in the neutron energy range up to 5 MeV, and at the end of studied energy range these levels are excited by means of the direct scattering mechanism.