

## **Determination of Target Parameters and Detector Response Functions Using Monte Carlo Method for Experiment on Inelastic Neutron Scattering on Various Samples at TANGRA facility**

Within the framework of the TANGRA (TAGged Neutrons and Gamma-RAys) project at the Frank Neutron Physics Laboratory, JINR works to study inelastic scattering of 14.1 MeV neutrons on nuclei of various elements are being carried out. To process and simulate the experimental data, a software module was created in the GEANT4 package, which allows calculation of the interaction of fast neutrons with various materials and construction of probability distributions. The results of modeling of the response function of a scintillation detector for gamma radiation induced by fast neutron inelastic scattering are presented in order to understand the mechanism of its formation. Angular distributions of gamma quanta have also been studied to determine corrections to experimental data related to finite thickness of the sample and absorption of gamma quanta.

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