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Determination of the response function of the LaBr₃(Ce) detector for g-quanta, formed during inelastic scattering of neutrons with an energy of 14.1 MeV on oxygen nuclei

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The work is devoted to determining the response function of the detector LaBr₃(Ce) for γ -quanta, formed during inelastic scattering of neutrons with energy of 14.1 MeV on the nuclei ¹⁶O. In gamma spectrometry, output pulses are recorded, the amplitudes of which are proportional to the energy lost in the detection medium by incident photons. One of the main tasks of radiation detection is to restore radiation characteristics from signals measured at the outputs of detectors. For this, it is necessary to know, first of all, the general characteristics of detectors as converters of radiation into signals. The main characteristic of the detector is its response function, which can be defined as the probability that a particle with given properties generates a certain signal in the detector that will be registered by the device. The article presents the results of modeling the response function of a scintillation detector based on a LaBr₃(Ce) crystal for gamma radiation from inelastic fast neutron scattering in order to study the mechanism of its formation.

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Attendance Type

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