SPECTRA OF GAMMA-RAYS IN (n, xγ) REACTIONS ON FERRUM AND BISMUTH NUCLEI

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The results of the gamma-ray spectra measurements for (n, xγ) reactions induced by 14.1 MeV neutrons on iron and bismuth are presented. Time-of-flight method based on pulse neutron generator was applied. Measurement results are compared with theoretical calculations performed assuming gamma-emission from compound nucleus as well as preequilibrium emission. Calculations were performed by the use of EMPIRE and TALYS codes. Sensitivity of the calculations to characteristics of excited nuclei was analyzed.

Keywords: neutron induced reactions, time-of-flight method, gamma-spectra, Hauser - Feshbach statistical model, radiative strength function, nuclear level densities.