

INVESTIGATION OF ^{166}Er IN $(n, n'\gamma)$ REACTION

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The results of measurements of γ -spectra, γ -quantum angular distributions with respect to the neutron beam axis and linear polarizations of γ -transitions following $^{166}\text{Er}(n, n'\gamma)$ reaction are presented. Experiments were performed by using fast neutron beam facilities on the IR-8 reactor installed at the NRC "Kurchatov Institute". A lot of earlier unknown γ -transitions belonging to ^{166}Er were found and for more 50 γ -transitions the multipole mixing ratios were determined. The level and γ -transition scheme of this nucleus was constructed. Using the obtained experimental data and features of $(n, n'\gamma)$ reaction all levels with angular momentum $J = 0 \div 4$ up to 1.9 MeV excitation energy was established and the problems with $K^\pi = 0^+_{21}$ and $K^\pi = 2^+_{21}$ rotational bands (the lack of $J^\pi K = 2^+_{02}$, 4^+_{02} and 3^+_{22} band levels at expected energies) [1] were confirmed.

The levels for the $K^\pi = 1^+_{11}$ rotational band (2^+_{11} , 3^+_{11} and 4^+_{11} levels) were ascertained. It is necessary since one from reasons of the observed peculiarities connects with Coriolis interaction of the levels with $K^\pi = 0^+_{21}$, 2^+_{21} and 1^+_{11} (the level energies of these ground bands: 1713.41 keV, 1703.10 keV and 1812.76 keV).

1. E.P.Grigoriev // Yad. Fiz. 1994. V.57. P.590.