

## STUDY OF PHOTONUCLEAR REACTIONS IN $^{165}\text{Ho}$ NUCLEUS AT THE LINAC-200 ACCELERATOR

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The cross sections for the reactions  $^{165}\text{Ho}(\gamma, n)^{164}\text{Ho}$ ,  $^{165}\text{Ho}(\gamma, 3n)^{162m}\text{Ho}$ ,  $^{165}\text{Ho}(\gamma, 4n)^{161}\text{Ho}$ ,  $^{165}\text{Ho}(\gamma, 5n)^{160m1}\text{Ho}$ ,  $^{165}\text{Ho}(\gamma, 5n)^{160}\text{Ho}$ , and  $^{165}\text{Ho}(\gamma, 6n)^{159}\text{Ho}$  were experimentally determined in the energy range from 50 to 110 MeV. Calculations were also performed using the Geant4 code and the Talys program to determine the cross section of reactions in holmium samples. The calculation results are compared with the obtained experimental results. The dependence of the isomeric ratio  $^{160m1}\text{Ho}/^{160}\text{Ho}$  on the electron energy has been measured.

Экспериментально определены сечения реакций  $^{165}\text{Ho}(\gamma, n)^{164}\text{Ho}$ ,  $^{165}\text{Ho}(\gamma, 3n)^{162m}\text{Ho}$ ,  $^{165}\text{Ho}(\gamma, 4n)^{161}\text{Ho}$ ,  $^{165}\text{Ho}(\gamma, 5n)^{160m1}\text{Ho}$ ,  $^{165}\text{Ho}(\gamma, 5n)^{160}\text{Ho}$  и  $^{165}\text{Ho}(\gamma, 6n)^{159}\text{Ho}$  в диапазоне энергий от 50 до 110 МэВ. Также выполнены расчеты с использованием кода Geant4 и программы Talys для определения сечения реакций в образцах гольмия. Результаты расчетов сопоставлены с полученными экспериментальными результатами. Измерены зависимости величины изомерного отношения  $^{160m1}\text{Ho}/^{160}\text{Ho}$  от энергии электронов.

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