

P. M. Vorona, V. F. Razbudey

**INFLUENCE OF NEUTRON ENERGY ON FORMATION OF RADIOISOTOPES
DURING THE IRRADIATION OF TARGETS IN REACTOR**

Method of calculation of nuclear transformations in irradiated targets is realized for selection of optimal conditions for accumulation of radioisotopes in reactor, taking into account contributions of different energy neutrons (thermal, resonance and fast). Wide potentialities of program complex MCNP-4C based on the method of statistical testing (Monte Carlo method) were used. Positive in proposed method is that all calculations starting from spectra and fluxes of neutrons in reactor and completing by quantity of accumulating nuclei carry out within the framework of the same methodological approach. It was shown by the example of radioactive ^{98}Mo production in $\text{Mo}^{98}\text{Mo}(n, \gamma)^{99}\text{Mo}$ reaction that for achievement of maximal yield of target radionuclide. it is necessary to irradiate start targets of Molybdenum in hard spectrum with essential contribution of resonance neutrons.

Keywords: research nuclear reactor, neutron spectre, neutron flux, radioisotope, calculation, method Monte Carlo, activity.