

P. Ponomarenko, S. Bezotosnyi, M. Frolova
Sevastopol National University of Nuclear Energy and Industry

On Physical Fraction of Delayed Neutrons in the Reactor Core with Low-Enriched Fuel in Initial Criticality Stage

The paper is devoted to theoretical evaluation of the physical fraction of delayed neutrons in the core of a thermal reactor whose fuel elements contain only uranium fuel, prior to initial criticality stage.

One of the most responsible and potentially dangerous nuclear procedures in operation of any reactor is its initial criticality stage. In the initial criticality stage, the effective fraction of delayed neutrons, crucial positions of control rods and their physical characteristics in effective fractions, and reactivity factors are determined. The key factor in this series of measures is the effective fraction of delayed neutrons, which is the product of the physical fraction and the value of delayed neutrons.

Keywords: nuclear energy, nuclear reactor, fraction of delayed neutrons, nuclear safety, core, reactivity, low-enriched fuel, uranium, multiplication factor, number of nuclei, initial criticality, value of delayed neutrons.