

Pulse Research Reactor IBR-3 – New Reflector Concept

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Periodic Pulsed research reactors IBR-2 type in Dubna is the most effective source of slow neutrons extracted beams for studying various structures by diffraction, small-angle scattering, reflectometer, inelastic scattering and neutron diffraction, due to a short neutron pulse and a high average flux of up to $10^{14} \text{ cm}^{-2} \cdot \text{s}^{-1}$. At the same time, due to the specificity of the kinetics, fluctuations in the power energy of pulses in such a reactor are tens of times higher than in stationary reactors and create problems for the control of the apparatus. This paper proposes and substantiates a method for a significant reduction in the level of fluctuations in power pulses of such reactors using the example of the IBR-3 (NEPTUNE) pulsed reactor project with the threshold Np-237 isotope as a nuclear fuel.