

JUSTIFICATION OF CRITICAL EXPERIMENTS ON STAND FKBN-2 TO VERIFY NEUTRON-PHYSICAL SOFTWARE FOR CALCULATIONS OF THE MOLTEN-SALT REACTOR

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In order to reduce the long-term potential hazard of waste from the reprocessing of spent nuclear fuel from thermal reactors and to increase the environment attractiveness of nuclear power in our country, work is underway to create a molten-salt reactor-burner of minor actinides (MSR-B). The first stage on this path is the creation of an investigative molten-salt reactor (IMSR) for testing key technological solutions for the full-scale MSR-B. A carrier fuel based on the two-component LiF-BeF₂ system was chosen as the base for the IMSR. At present, there are no computer software certified for neutron-physical calculation of a reactor with fuel based on molten salts of the LiF-BeF₂ type, adopted for design work on the IMSR. There are also large uncertainties in the choice of neutron constants that exceed the permissible limits for the accuracy of calculations when justifying of the choice of specific core parameters when performing design work. Experiments with critical multiplying systems that simulate the IMSR core in terms of the composition of materials and spectral characteristics are required to justify and subsequently certify neutron-physical software as applied to the IMSR project. One of the possible installations for carrying out such experiments is the stand for critical assemblies FKBN-2. An important task is to justify the possibility of setting up critical experiments on this stand.

Country/Int. organization

Russian Federation

Authors: YUDOV, Aleksey; KHMELNITSKI, Dmitry; MODESTOV, Dmitry; VOLVOV, Igor; BELONOGOV, Mikhail; Mr TRAPEZNIKOV, Mikhail; ANDREEV, Sergey; SIMONENKO VADIM; LITVIN, V; SOKOLOV, Yuri

Presenter: Mr TRAPEZNIKOV, Mikhail

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