

International center for neutron research based on the PIK reactor

Current status of the high-flux research reactor PIK and its instrumental base commissioning will be presented. The PIK reactor is a neutron source with record parameters. It is a vessel reactor, where light water is used as a coolant, and heavy water as a neutron reflector and moderator. The main parameters of the reactor are as follows [1]:

- Thermal power - 100 MW;
- The volume of the reactor core - 50 liters
- Thermal neutron flux in the reflector up to $1.2 \cdot 10^{15} \text{ n/cm}^2\text{s}$;

The PIK reactor has been brought to the power mode of operation in 2021. Thermal power of 7 MW [2] has been reached in March 2022. The first 5 neutron scattering stations have been put into operation, and the first experiments are being carried out [3]. The full-scale instrumental program [4] for the creation of 20 instruments, cold, ultracold and hot neutron sources are currently under progress.

- [1] M. V. Kovalchuk, S. L. Smolskiy, and K. A. Konoplev, Research Reactor PIK, Crystallography Reports, 2021, Vol. 66, No. 2, pp. 188–194.
- [2] M. V. Kovalchuk, V. V. Voronin, S. V. Gavrilov et al, Research Reactor PIK: The First Experiments, Crystallography Reports, 2022, Vol. 67, No. 5, pp. 729–738
- [3] S. Grigoryev, V.V. Voronin, A. Gartvik et al, PIK research reactor put into megawatt-power operation, Neutron New, 2022, DOI: 10.1080/10448632.2022.2126716
- [4] Kovalchuk M.V., Voronin V.V., Grigoriev S.V. et al. Instrument Base of the Reactor PIK. Crystallogr. Rep. 66, 195–215 (2021)

Section

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