

P R E F A C E

We would like to introduce the report on the scientific activity of the Frank Laboratory of Neutron Physics for 2002. The first part is a brief review of the experimental and theoretical results of investigations achieved in the main scientific directions – condensed matter physics, neutron nuclear physics and applied research. The second part includes reports on the status of the IBR-2 pulsed reactor and IREN project. The third part is devoted to the IBR-2 spectrometers complex and computing infrastructure. The fourth part presents the investigations that characterize the main directions of research in greater detail. The report completes with the list of publications for 2002.

In 2002 the IBR-2 reactor operated, as planned, 8 cycles in strict accordance with the approved working schedule. It should be noted, however, that the deficit financing and delays in funding the IBR-2 modernization project and the IREN project resulted in the suspension of works on the modernization project and in a considerable delay in the realization of the IREN project.

In the course of the year a significant modernization of the SPN and YuMO spectrometers at the IBR-2 reactor was carried out and since the autumn cycle they operate for users.

High Energy Neutron Detector (HEND) designed and created by the Russian Space Research Institute under the contract between the Russian Space Agency and NASA in collaboration with FLNP successfully started regular operation on the Martian orbit. Together with other detectors carried by the Mars Odyssey 2001 spacecraft, HEND provides the decisive evidence that the surface layers of Mars contain huge amount of water.

The Frank Laboratory of Neutron Physics continues to be one of the leading neutron centers of Europe and develops in spite of all the difficulties connected with severely limited funding.

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