

P R E F A C E

We would like to introduce the report of the scientific activity of the Frank Laboratory of Neutron Physics for 1994. The first part is a brief review of the experimental and theoretical results of investigations in condensed matter physics, nuclear physics and applied research. The second part presents, in a greater detail, the investigations which characterize the main directions of research. An emphasis should be put on the initiation of high pressure experiments with the DN-12 diffractometer and experiments with the HRFD diffractometer to investigate internal stresses in industrial samples. The reader can receive a more complete picture of the research carried out in the Laboratory from the list of publications for 1994 following Part 2.

In 1994 the Laboratory Directorate paid special attention to the basic facilities. The IBR-2 reactor was shut down in March for a scheduled replacement of the movable reflector. The intense work of a large group of engineers and workers of the technical departments of the Laboratory was successful, and at present, the new PO-2RM reflector is under testing at its regular site near the reactor core. At the end of March 1995 is to resume its regular operation mode.

A considerable advance has been made in the realization of the project for a new source of resonance neutrons - IREN - which is to replace the IBR-30 booster currently in operation. The solution of the problems associated with the fulfillment of obligations for constructing the main parts of the accelerator by the Institute of Nuclear Physics, Siberian Branch, Russian Academy of Sciences and transferring fuel for producing the multiplying target by the Ministry of Atomic Energy of the

Russian Federation created the necessary conditions for successful execution of the Project in 1998.

Further development of the User policy continued, aimed at attracting a larger number of physicists, chemists, biologists, and specialists in materials science to carry out experiments at the IBR-2 reactor. User Committees were formed for the four research directions: diffraction, small-angle scattering, inelastic scattering, polarized neutrons (reflectometry and depolarization). To increase the organization efficiency of the experiments the specific structure of the condensed matter physics department was elaborated.

The financial situation in the Laboratory did not noticeably change in 1994. The basic facilities and the technical infrastructure were financed from the JINR budget as in previous years. Instrument upgrades and the scientific program were provided for mainly from financial contributions in the frame of JINR-FRG and JINR-Hungary agreements for cooperation, as well as from other programs and funds. It should be specifically noted that the Ministry of Science and Technical Policy of the Russian Federation established the new National Research Program "Neutron Investigations of Matter" in 1994. This Program will undoubtedly contribute to the development of neutron scattering investigations at the IBR-2 reactor, which is the best research neutron source in Russia at present.

By and large the Frank Laboratory of Neutron Physics is one of the leading neutron centers of Europe and continues to develop in spite of the difficulties its host country currently experiences.

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Director

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