

Mikhail Grigorievich Meshcheryakov

This year marks the centenary of Mikhail Grigorievich Meshcheryakov. A well known Russian physicist and a pioneer of research at Dubna, he was born on 17 September 1910 and died 25 May 1994.



Meshcheryakov

Meshcheryakov received his higher education at Leningrad State University, where he graduated with honours in 1936. He then took post-graduate courses for three years under the guidance of Igor Kurchatov at the Radium Institute of the USSR Academy of Sciences. At that time, the USSR's first cyclotron was under construction and pioneering research in neutron physics and the radiochemistry of the products of artificial transformations of nuclei was to begin there. Meshcheryakov's scientific views as a physicist-experimenter evolved in the atmosphere of high-level academic research that Vladimir Vernadsky, Lev Mysovsky and Vitaly Khlopin initiated.

As a post-graduate Meshcheryakov enthusiastically joined the work on the 1-m cyclotron that started up in 1938 and in experiments there he discovered that cross-sections for the radiative capture of fast neutrons strongly fluctuated with the growth of the nuclear-mass number. Meshcheryakov summed up the results of these studies in his thesis, which he successfully defended in 1940. He became head of a laboratory at the Radium Institute that same year.

At the outbreak of the Second World War Meshcheryakov volunteered for the front. After being injured and demobilized in July 1942, he returned to the Radium Institute, which at the time was evacuated to Kazan University. He immediately joined the research on the atomic programme. When the blockade of Leningrad was broken in 1944 Meshcheryakov and colleagues reconstructed the cyclotron and used it to irradiate uranium blocks in connection with the development of industrial technology for the extraction of plutonium from uranium. At the same time, using the cyclotron as a high-resolution mass separator, he conducted a cycle of experiments to determine the isotopic composition of helium of various origins.

In the years 1946-1947, as a scientific expert from the USSR, Meshcheryakov took part in the work of the Technical Committee of the UN Atomic Commission. On his return

from the US he was appointed deputy director of the Atomic Energy Institute in Moscow and the scientific leader of the work to design and construct what was at the time the largest accelerator - the 6 m synchrocyclotron - in the future city of Dubna, in the vicinity of the Bolshaja Volga settlement. Meshcheryakov was the director of the Hydrotechnical laboratory, which was based on the synchrophasotron and which later became the Institute of Nuclear Problems. After 1956 this institute became part of the Joint Institute for Nuclear Research (JINR).

A talented scientist and organizer, Meshcheryakov was the head of a large scientific research institute in a city under construction; he carefully considered not only scientific issues but the tasks of city planning. He was the first to define the image of the future Dubna - the city with a special atmosphere of the invisible but constant work of the human mind.

From 1950, Meshcheryakov's scientific interests became concentrated on studies of the strong interactions of nucleons at high energies. He initiated research into nuclear structure using 660 MeV proton beams, which brought about the discovery of the clusterization phenomena in nuclei and considerably influenced further development of relativistic nuclear physics. Unexpected results of the research that he conducted became widely known and were later confirmed in studies at other scientific centres.

Meshcheryakov became professor at Moscow State University in 1954. He always paid much attention to the training of scientific staff. He was a member of the Scientific Council on the application of computing techniques and automation means in experimental nuclear physics at the department of nuclear physics of the USSR Academy of Sciences. He was also a member of the editorial boards of journals such as **Atomic Energy**, **Nuclear Physics**, **Nuclear Instruments and Methods**, **Elementary Particle Physics** and **Atomic Nuclei**. He twice received the Soviet State Prize, in 1951 and 1953, and became a Corresponding Member of the Academy of Sciences of the USSR in 1953.

In 1966 Meshcheryakov received an assignment to organize a special laboratory at JINR for the elaboration of methods to apply the latest achievements in computer technology and automation to scientific research. New techniques that emerged at the institute as a result of this work considerably widened the range of experimental and theoretical research and facilitated the development of new scientific trends.

Meshcheryakov belonged to the group of outstanding Soviet scientists who were the first in the country to start the construction of large accelerators, conduct research in the physics of the atomic nucleus and elementary particles, and to bring automation to scientific research.

