

BORIS SERGEEVICH DZHELEPOV

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PROFESSOR Boris Sergeevich Dzhelepov, Corresponding Member of the U.S.S.R. Academy of Sciences, is one of the pioneers in the field of research of the atomic nucleus in our country and is the founder and leader of the Leningrad school of nuclear spectroscopists, under the direct or indirect influence of which nearly all the nuclear-spectroscopy research laboratories in the U.S.S.R. have grown.

Dzhelepov was born in 1910 in Odessa in the family of a clerk. He attended secondary school in Novgorod until 1925. In 1926-1927 he studied the first-year program of the university on his own, as he was too young to be accepted, and enrolled in the physics department of Leningrad University in 1927. In 1931 Dzhelepov began to work in the Physico-technical Institute of the U.S.S.R. Academy of Sciences in Leningrad, where he was a staff member until 1945. From 1935 Dzhelepov worked at the University of Leningrad as well (where he became a lecturer before he reached the age of 25). During the time he worked in the second physics laboratory at LGU, Dzhelepov did a great deal for the growth of this laboratory and for raising the level of work done in it.

The beginning of Dzhelepov's scientific work coincided with the discovery of artificial radioactivity. In his first papers published as early as 1934-1935 (in collaboration with A. I. Alikhanov and A. I. Alikhan'yan) Dzhelepov investigated the radiation of radioactive nuclei of nitrogen-13, aluminum-26, phosphorus-30 and others, as well as the influence of nuclear charge on the form of the beta-spectrum. In the Thirties Dzhelepov was the first to design a spectrometer for measuring the energies of electron-positron pairs in radioactive disintegration.

During this time Dzhelepov began his work at the University of Leningrad in training personnel to be nuclear-physicists, although only a few students before the war studied this subject under Dzhelepov's guidance.

In 1943-1944 Dzhelepov served in the Soviet navy and participated in studies on the demagnetization of ships.

During the summer of 1944 those nuclear specialists whom I. V. Kurchatov selected to become part of the staff of his laboratory were recalled from the front and demobilized; among them was Dzhelepov. He worked for three months with Kurchatov in Moscow; however, he subsequently returned to Leningrad and continued his work at the University of Leningrad and beginning in May, 1945 he became a staff member of the Radium Institute.

Upon returning to the University, Dzhelepov created a special laboratory of nuclear physics, collected a team of able young workers, and actively immersed himself into scientific investigations in nuclear physics. The first graduation of students specializing in nuclear physics took place already in 1945, and in January, 1946



a department, of which Dzhelepov became the head, now the Department of Nuclear Spectroscopy was created on the basis of his laboratory. Since that time the department has trained more than 400 specialists in the field of atomic physics who are working at the present time in various laboratories, research institutions, and in institutions of higher learning in the Soviet Union.

Dzhelepov, a talented lecturer, has attracted the hearts of many students forever to his favorite science, that of nuclear physics, by his clear, witty lectures which are conducted on a high scientific level.

One of Dzhelepov's main achievements in science is the creation of new precision instruments, namely beta and gamma spectrometers of various types for different purposes, but always distinguished by an original plan and intricate execution. Thus (in collaboration with other members of the laboratories in Leningrad University, the Radium Institute, and the Metrology Research Institute) he created the kétron (conversion-electron spectrometer), the ritron (a gamma spectrometer using recoil electrons), the élotron (a magnetic gamma spectrometer with an improved focusing device) gamma and beta hodoscopes, as well as many other instruments.

These instruments were used to investigate an enormous number of different radioactive isotopes in their

most varied aspects, from the establishment of their decay schemes and measurement of their lifetimes to the investigation of the neutrino mass, resonant scattering and positron annihilation. In the same time Dzhelepov advanced his original ideas concerning the properties of mirror nuclei (the properties of mirror nuclei of the highest orders), applied the recently introduced idea of isobar multiplets of nuclei to the research of nuclear spectra, and pointed out for the first time (in 1951) the possibility of proton radioactivity of a nucleus, the existence of which was recently demonstrated experimentally. He later directed his chief attention to the study of the structure of the nucleus in the region of large static deformations. The study of neutrino-deficient radioactive isotopes (Dubna, Leningrad) which was developed on a large scale under Dzhelepov's direction, revealed a great number of important new details of their structure (paper at the Second Geneva Conference on the Peaceful Use of Atomic Energy, a series of investigations awarded the University Prize, and other studies, including the systematics of quadrupole moments of a nucleus, of nuclei with $K = \frac{1}{2}$, of the levels 0^+ , 1^- in deformed nuclei). Dzhelepov devoted much attention to the compilation of various kinds of tables needed for successful work in the field of nuclear spectroscopy (tables for the analysis of beta spectra, tables of beta-decay energy, tables of atomic nuclei and masses of nuclei, and a basic reference book entitled "Decay Schemes of Radioactive Nuclei," widely known both here and abroad, without the "consultation" of which no work in the field of nuclear spectroscopics can start, and others).

Dzhelepov is the author of over 400 scientific works, over 30 candidate's and doctoral dissertations have been defended under his direction, amongst his pupils (both past and present) are approximately 20 doctors of

science and two corresponding members of the Academy of Sciences. Dzhelepov's work as an organizer of science is evident in the yearly conferences on nuclear spectroscopy and the structure of the atomic nucleus which he organizes (the 21st conference has taken place by now). In its time this was the only place where physicists working in the field of nuclear research could regularly meet each other and exchange ideas, and these conferences now play an essential role in the scientific life of the country. In addition Dzhelepov is the initiator and organizer of numerous conferences on the spectroscopy of neutrino-deficient isotopes and on nuclear theory in Dubna.

The nuclear seminar which Dzhelepov set up at the Leningrad State University should also be mentioned. It was the first continually active seminar on nuclear physics in the U.S.S.R., played a noticeable role in the training of nuclear physicists, and at a certain stage was the center towards which all the Leningrad physicists interested in nuclear physics and in working on this problem gravitated. Finally, mention should be made of the vast amount of work which Dzhelepov did as the editor of many publications, including the journal "Izvestiya AN SSSR, Ser. Fiz."

Dzhelepov's scientific, organizational, and pedagogical activity was recognized in 1953 with a government order of merit.

Dzhelepov's pupils, his co-workers, comrades, and friends heartily congratulate him on the occasion of his sixtieth birthday, wish him health and future success in his renowned work in conquering the secrets of the atomic nucleus and in his training of new generations of researchers.

Translated by A. Barker