
JOSEPH ZALMANOVICH FISHER (to the 90th anniversary of his birthday)



On February 24, 2009, 90 years passed since the outstanding physicist-theorist, Professor of the Odessa University J.Z. Fisher was born in Minsk. In 1941, just before the war, he graduated *magna cum laude* from the Faculty of Physics and Mathematics of the Belarus State University (BSU). It was in his student's years that his parents were subjected to repression. At the end of 1937, his father was executed by shooting, whereas his mother was condemned to 7 years in prison.

In June 1941, Joseph Zalmanovich was evacuated to the Stalingrad region, where he worked first as a combiner assistant. Since the autumn, he became a teacher at a secondary school. Being very short-sighted, he was not drafted to the Red Army. But in 1942, when the front reached Stalingrad, requirements to soldiers' health were softened, and Joseph Zalmanovich volunteered to the front. He was a radio operator in a

reconnaissance platoon of a separate howitzer regiment, being in the acting army till the end of the war. For the bravery and heroism, he was awarded several Orders of the Red Star and the Patriotic War of the first and second classes. During three war years, Joseph Zalmanovich carried "The Principles of Quantum Mechanics" by Dirac in his backpack and every silent minute absorbed into reading it.

In October 1945, when Joseph Zalmanovich was demobilized, he became an assistant at the Chair of Theoretical Physics of the BSU. In 1947–1948, for one year and a half, he was a post-graduate student of Academician of the Byelorussian SSR M.S. Akulov. The Ph.D. thesis of Joseph Zalmanovich was devoted to studying the role of gravitational forces in the interaction of mesons. The dissertation topic was selected by the post-graduate student independently. The results obtained at that time keep their importance till now, being cited in modern articles and reviews. Having defended the thesis, J.Z. Fisher came back to the Chair of Theoretical Physics of the BSU and worked there as Assistant Professor for 12 years.

In 1948, J.Z. Fisher got acquainted with the book written by the outstanding Soviet mathematician and physicist M.M. Bogolyubov "Problems of Dynamic Theory in Statistical Physics". He understood at once that the correlation function technique is a natural tool for studying the properties of liquids and liquid metals. To a certain extent, the choice of the subsequent subjects for researches was made due to a respect to the person of Ya.I. Frenkel and his scientific works. The results of a hard 11-year work were summarized in a thesis for the Doctor's degree defended in 1959. Two years later, the "Nauka" publishing house – the most authoritative one in the Soviet Union – released J.Z. Fisher's monography "Statistical Theory of Liquids", which was among the first books on this subject in the world.

In 1959, J.Z. Fisher was elected Professor at the Chair of Theoretical Physics of the BSU, and, in 1961,

he occupied the Professor position at the Chair of Nuclear Physics of the BSU. In 1962, he was invited to the Odessa State University to head the Chair of Theoretical Physics. In 1963, J.Z. Fisher moved to Odessa, where very favorable conditions for his scientific and pedagogical work were created.

The authority of J.Z. Fisher as one of the largest experts in the liquid state physics permanently grew. The subjects of his scientific researches covered practically all challenging issues in the liquid state physics of the second half of the 20-th century, as well as some problems in the gravitation theory. The soundest contribution was made by J.Z. Fisher to the solution of the following issues:

- 1) the statistical theory of simple liquid properties;
- 2) the theory of critical phenomena in liquids and solutions;
- 3) researches of abnormal properties of water and liquid helium with impurities;
- 4) the theory of collective mass transfer in liquids;
- 5) the theory of molecular scattering of light in liquids and gases;
- 6) the theory of systems with Coulomb interaction between particles (plasma, liquid metals, and semiconductors);
- 7) researches of gravitational effects in the scalar field theory and the Born–Infeld electron theory, the derivation of macroscopical equations of the gravitational field.

The following estimation of scientific contribution made by J.Z. Fisher belongs to C.A. Croxton, a known Australian scientist: “Within last two or three decades, the liquid state physics, which invokes a growing interest, has reached considerable progress, generally speaking, owing to the pioneer works of Soviet authors, mainly N.N. Bogolyubov, Ya.I. Frenkel, and J.Z. Fisher”. In many respects, due to J.Z. Fisher, the physics of liquids, according to L.D. Landau’s statement, changed from a “buckwheat porridge” into a rigorous branch of physical science.

During 32 years that the destiny allotted for his scientific activity, J.Z. Fisher published about 140 papers. He was extremely exigent to the scientific level and the style of the works carried out by him and his subordinates. His main results were published in the *Zhurnal Eksperimentalnoi i Teoreticheskoi Fiziki* (Journal of Experimental and Theoretical Physics), the *Doklady Akademii Nauk SSSR* (Proceedings of the Academy of Sciences of the USSR), the *Zhurnal Tekhnicheskoi Fiziki* (Journal of Technical Physics) (about 50 papers), and other journals of the Academy of Sciences of the USSR. Four of his reviews were published in *Uspekhi Fizicheskikh Nauk* (Soviet Physics–Uspekhi). Professor J.Z. Fisher was also in close collaboration with the Ukrainian Journal of Physics (about 20 papers).

Every Wednesday, there was held a seminar at the Chair of Theoretical Physics of the Odessa University, which drew attention of leading experts in the physics of liquids from the whole Soviet Union. Under the supervision of Professor J.Z. Fisher, 23 Ph.D. dissertations were fulfilled: seven of them at the BSU, and sixteen at the Odessa University. Later, 10 persons of those 23 defended theses for the doctoral degree.

The international community of physicists published a special issue of the *Journal of Molecular Liquids* devoted to the 70th anniversary of J.Z. Fisher’s birthday. In May 1999, the International conference on Special Problems in Physics of Liquids was devoted to the 80th anniversary of J.Z. Fisher’s birthday. The conference reports were published in another anniversary issue of the *Journal of Molecular Liquids*.

The creative flight of Professor J.Z. Fisher was interrupted in 1978 by a serious disease. He had lived 17 years longer and died in a warm evening on May 25, 1995.

*V.M. Adamyan, O.D. Alekhin, Yu.F. Vaksman,
L.A. Bulavin, M.P. Kovalenko, Yu.P. Krasnyi,
M.P. Malomuzh, G.E. Norman, V.M. Sysoev,
V.A. Smintina, A.V. Chalvi*