

IN MEMORY OF ALEXANDER S. ILYUSHIN

PACS 01.60.+q



On April 12, 2021, at the age of 78, died suddenly Alexander Sergeevich Ilyushin, Doctor of Physics and Mathematics, Professor, Head of the Chair of Solid State Physics, Faculty of Physics, Lomonosov Moscow State University, Honored Professor of Lomonosov Moscow State University, a full member of the Russian Academy of Natural Sciences, a well-known specialist in the field of structural solid state physics.

Alexander Sergeevich was born in 1943 in Kemerovo city, where a military plant was evacuated, where his father worked as a design engineer. After the plant re-evacuation from Kemerovo to Zheleznodorozhny, the family settled in this town near Moscow. There A.S. Ilyushin went to school, which he graduated with a silver medal in 1961 and, having successfully passed the entrance exams, entered the Physics Faculty of Lomonosov Moscow State University.

In the third year A.S. Ilyushin was assigned to the Chair of Solid State Physics, where, under the leadership of senior researcher, Ekaterina V. Kolontsova completed his diploma on the study of the defect structure of deformed

DOI: 10.17725/rensit.2021.13.221

whisker single crystals of copper by diffuse X-ray scattering. In the course of his diploma, A.S. Ilyushin designed and manufactured an original camera for recording small-angle X-ray scattering. The results of these studies were published by him in two articles, which became the beginning of his scientific biography.

In 1967 A.S. Ilyushin after defending his diploma, entered graduate school at the Chair of Solid State Physics, where, under the guidance of Professor Mariya I. Zakharova studied structural and magnetic phase transformations in high-coercive alloys of the "tikonal" type - the most promising alloy at that time for the manufacture of permanent magnets. The result of these studies was the establishment of the atomic-structural mechanism of phase transformations that form optimal magnetic properties in alloys. The research carried out formed the basis of the Ph.D. thesis "Metastable states in Fe-Mn-Al, Fe-Co-Ti and tikonal alloys", successfully defended in 1971.

In 1974-75 A.S. Ilyushin was sent for a scientific internship in the USA, where he worked at the University of Pittsburgh in the laboratory of W.E. Wallace - the largest specialist in the field of rare-earth magnetics. According to the results of the studies carried out there, A.S. Ilyushin in collaboration with W.E. Wallace has published several articles in prestigious international scientific journals. Work on this new promising topic was continued by A.S. Ilyushin at Moscow State University at the Faculty of Physics, where he created his own scientific school on the structural physics of rare-earth intermetallic compounds and alloys based on them. He trained 27 candidates of physical and mathematical sciences and over 50 specialists-physicists. His students successfully work not only in Russia, but also in the countries of near and far abroad - in Ukraine, Georgia,

Kazakhstan, Uzbekistan, Morocco, Syria, Egypt, Iraq, USA, Venezuela, South Korea, China.

Since 1970, Alexander Sergeevich Ilyushin has been an employee of the Chair of Solid State Physics. He held the positions of an engineer, junior and senior researcher at the Chair. From 1984 to 1987 A.S. Ilyushin was the deputy head of the Chair for scientific research, and from 1987 to 1991 acting Head of the Chair of Solid State Physics. In 1991 he was elected Head of the Chair and headed it for 30 years until his last days.

In the most difficult 1992-95 years for the country A.S. Ilyushin was the deputy dean of the Physics Faculty of Moscow State University for scientific work. Since 1987, he has been an indispensable member of the Academic Council of the Faculty of Physics, for 25 years he was a member of the councils for the defense of candidate and doctoral dissertations, and since 2001 he was the deputy chairman of the dissertation council for the defense of doctoral dissertations.

A.S. Ilyushin has published more than 50 monographs and textbooks, the results of his scientific research have been published in more than 250 articles. The area of scientific interests of A.S. Ilyushin - experimental studies of the atomic-crystal structure and structural phase transitions in substances with special physical properties (magnetics, ferroelectrics, high-temperature superconductors, rare-earth intermetallic compounds, high-pressure phases, deuterides and hydrides of rare-earth intermetallic compounds, etc.). Completed by A.S. Ilyushin, complex experimental studies have a priority character and are associated with the problems of creating new materials with optimal physico-chemical characteristics.

A.S. Ilyushin was the first to discover a number of new physical effects: distortion phase transitions and spontaneous internal magnetostriction in rare-earth Laves phases, carried out their complete structural study and established the atomic-structural mechanism of

spontaneous magnetostriction. He also proposed and developed methods for controlling the energy characteristics of magneto-crystalline anisotropy and magnetostriction in this class of magnetic materials using various physical factors (concentration, temperature, pressure, etc.). He summarized his scientific results in the monograph "Introduction to the structural physics of rare-earth intermetallic compounds" and formalized it in the form of a doctoral dissertation "Structural phase transitions and spin reorientations in the rare-earth Laves phases", which he defended in 1989.

A.S. Ilyushin always paid great attention to educational, methodological and teaching work, sincerely loved students and helped them in every possible way. For almost 50 years, he prepared and read 39 new original special courses to undergraduate and graduate students of the chair and department, the most notable of which are "Diffraction and Resonance Structural Analysis", "Introduction to the Structural Physics of Rare-Earth Intermetallics", "Structural Physics of High-Temperature Superconductors", "Kinematic Theory scattering", "Structural physics of substances with special properties", "Electronic transport in condensed matter", "Actual problems of the structural physics of condensed matter".

In 2002 he was awarded the honorary title "Honored Professor of Moscow University". He was awarded the medal "In Commemoration of the 850th Anniversary of Moscow" (1997) and the Badge "Honorary Worker of Higher Professional Education of the Russian Federation" (2005).

A.S. Ilyushin was a member of the scientific coordination councils of Moscow State University on solid state physics, physics of magnetic phenomena and high-temperature superconductivity, a member of the International Union of Crystallographers (1976), the Russian Physical Society (1989), a full member of the International Academy of Informatization (1999) and the Russian Academy of Natural Sciences

(2001), in the Department of Problems of Radioelectronics, Nanophysics and Information Technologies of the Russian Academy of Natural Sciences, he was the Chairman since 2007.

A.S. Ilyushin was a member of the editorial boards of the scientific journals "Bulletin of Moscow University. Series 3. Physics. Astronomy", "Scientific Notes of the Physics Faculty of Moscow University", "Advanced Materials", "Physics and Chemistry of Material Processing", Chairman of the Editorial Board of the journal "Radioelectronics. Nanosystems. Information Technologies (RENSIT)".

Portrait of A.S. Ilyushin will not be complete, if not to mention his hobby for philately. In this area of human predilections, A.S. Ilyushin occupied a very prominent and honorable place. Since 1992, he has been a member of the Commission on State Postage Marks of the Ministry of Communications of the Russian Federation. In 1992 A.S. Ilyushin, as an activist of the Moscow branch of the Philatelists Union of the USSR, was one of the organizers of the Russian Philatelic Union (RPU), and at the founding conference (First Congress of the Union) in Smolensk, he was elected the First President of the RPU, on whose shoulders fell the heavy burden of reorganizing the Union from the Department of the Ministry ties, which he was in the USSR, into a public organization with a fundamentally different status in a new, different country-state, into which our Russia was turning. This post by A.S. Ilyushin held for 10 years from February 1992 to December 2001. In 2009, after an eight-year hiatus, A.S. Ilyushin again headed the Russian Philatelic Union, now for the rest of his days.

Ilyushin A.S., an active propagandist of his hobby, published articles in the country's newspapers and Union journals, published catalogs, organized philatelic exhibitions and participated in them as an exhibitor and as a member of the jury. With his participation, the first in the history of our country, the World Philatelic Exhibition "Moscow-97" was

held as Deputy Chairman of the Organizing Committee. His own exhibits at the International and National Exhibitions have received a large number of awards of the highest dignity. He is a member of the jury of the International Federation of Philately (FIP), a member of the editorial boards of the journals "Mark", "Philately", "World of Stamps", editor-in-chief of the yearbooks "Collector" and "Postal Wholes and Postal History". Ilyushin A.S. - Honorary and Life Member of the Russian Philatelic Union, Honorary Member of the Armenian Philatelic Union and Life Member of the American Philatelic Society, member of the Royal Philatelic Society of London, member of the Slovak Academy of Philately. In 2013, by the decision of the Philatelic Congress of Great Britain A.S. Ilyushin, the first Russian, was given the honorary right to inscribe his name in the parchment "Roll of Outstanding Philatelists" - the most prestigious award in modern world philately, established almost a hundred years ago. To date, the "Roll" has been signed by about 250 philatelists representing more than 50 countries.

A great lover of history and literature, A.S. Ilyushin was the director of the museum of the Physics Faculty for almost two decades. Thanks to his enthusiasm, the museum today is a living page in the history of the Faculty. Combining his passion for the history of physics and philately, A.S. Ilyushin initiated the publication by the Ministry of Communications of the Russian Federation of many issues of postcards and envelopes, as well as commemorative stamps dedicated to the anniversaries of outstanding scientists and professors of the Physics Faculty of Moscow State University - A.G. Stoletov, N.N. Bogolyubov, I.K. Kikoin, A.A. Vlasov, V.S. Fursov, K.P. Belov, R.V. Khokhlov, L.A. Artsimovich. A.S. Ilyushin is the author of fundamental books about his beloved chair, about the legendary dean of the Physics Faculty V.S. Fursov, about professors G.S. Zhdanov and S.E. Haykine, books, astounding in the richness and careful selection of material.

Alexander Sergeevich was a man of rare scale in all his manifestations. If physics, then new physical effects - no less - in the materials under study. If the chair, then 30 years of care for harmony in a large and complex scientific and pedagogical team with rich traditions, subtly feeling the dynamics of the development of scientific and educational trends in the country (long-term chairman of the Department at the Russian Academy of Natural Sciences - a fundamentally new organization of science for the country). If a hobby is philately, then on a national scale, despite all the specifics of collecting activities. If this is his favorite history and literature, then hundreds of pages of foliants already laying down to the table.

He had an amazing sense of the happening - its place and time: he was never in a hurry and did not fuss. And he always was in time! At the same time, a bright perception of the world and a person, a sparkling sense of humor, kindly and gentle, an amazing memory for poetry and anecdotes, a big and generous soul of any company, a leader, leading through friendly communication labyrinths. An interested and indefatigable storyteller with an immense palette of topics, who has traveled half the world, with a lively reaction to the surrounding details. Tempted by his own life experience and knowledge of the history of the country and Moscow, including and above all the Soviet period with its endless vicissitudes, Alexander Sergeevich was a zealous patriot of his Russia.

...All this is unforgettable and irreplaceable...

The bright memory of You, Alexander Sergeevich, will long warm each of one who knew You for. And in the annals of the Physics Faculty of Moscow State University, need to hope, You will be eternally.

RENSIT journal editorial board