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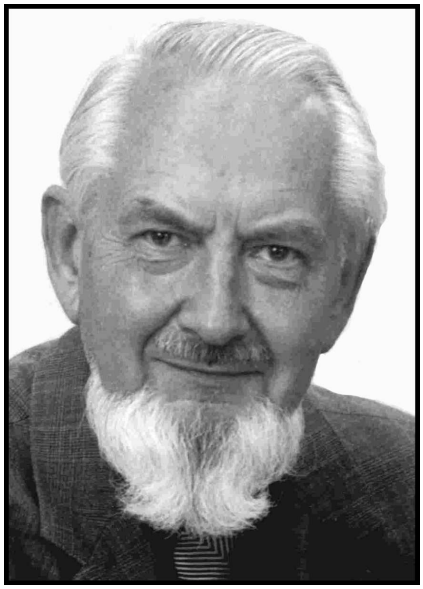
IN MEMORY OF SERGII MYKHAILOVYCH LEVITSKY (1926–2018)



On March 22, 2018, Sergii Mykhailovych Levitsky, Doctor of Science in physics and mathematics, Professor, Honored Worker of Education in Ukraine, Honored Professor of Taras Shevchenko National University of Kyiv (KNU), a prominent physicist-experimenter in the domains of physical electronics and plasma physics, one of the leading lecturers at the Faculty of Radiophysics, Electronics, and Computer Systems of the KNU, died.

S.M. Levitsky was born on October 25, 1926 in Kyiv in the family of the famous Ukrainian ophthalmologist Professor Mykhailo Andriyovych Levytskyi (1871–1942) and his wife Yuliya Mykolaivna Shevchuk-Levytska (1890–1979), who was also a Professor of ophthalmology.

After graduating from the Radio Engineering Faculty of the Kyiv Polytechnic Institute in 1949, S.M. Levitsky began to work at T.G. Shevchenko State University of Kyiv, and all his further professional carrier, which lasted for 67 years, was connected with this University.

In 1949-1952, S.M. Levitsky was a post-graduate student at the Chair of Electrophysics of the Faculty of Physics. In 1952, the Faculty of Radiophysics was organized (now, the Faculty of Radiophysics, Electronics, and Computer Systems), and Sergii Mykhailovych began to work there as a senior lecturer at the Chair of Physical Electronics (it was the former Chair of Electrophysics renamed after the latter became a part of the Faculty of Radiophysics). In 1957, he became an assistant professor of this Chair. Later, in 1974–1989, S.M. Levitsky headed the Chair of Radioelectronics; then he worked as a Professor at the Chairs of Radioelectronics (1990–1996), Semiconductor Electronics (1996–2002), Physical Electronics (2002–2011), and Radio Engineering and Radioelectronic Systems (2011–2016).

The actual supervisor of the Ph.D. thesis of S.M. Levitsky "Research of the high-frequency discharge in gases", which he defended in 1953, was N.D. Morgulis, Corresponding member of the Academy of Sciences of Ukraine, the founder of the Kyiv scientific school of physical electronics, the founder and long-time head of the Chair of Physical Electronics at the Kyiv University. In the dissertation, the high-frequency discharge modes in a gas were experimentally studied and interpreted for the first time. The phenomenon of electrode sputtering in a high-frequency discharge was discovered and explained. Later, this phenomenon was widely used in the film growing technology and in the fabrication of semiconductor devices and integrated circuits. Those works became classical, indeed; they are cited in many books (in particular, in the well-known monographs by Yu.P. Raizer about the gas discharge) and review articles.

In his Dr.Sci. thesis "Ultra-high-frequency phenomena at the interaction of electron beams with plasma", which was defended in 1973, the world-class scientific results were also obtained. In particular, together with his disciple I.P. Shashurin (1936–2018), Sergii Mykhailovych experimentally studied, for the first time, the evolution of the velocity distribution function of electrons in the beam under the condition of development of the plasma-beam instability. The re-

sults obtained there were reproduced, in particular, in the books by L.A. Artsimovich and R.Z. Sagdeev, E.V. Mishin, Y.Yu. Ruzhin and V.A. Telegin, and others. Initially, they were interpreted in the framework of the quasilinear theory of plasma-beam relaxation, but later obtained a more general explanation. S.M. Levitsky created the world's first evacuated plasma-beam amplifier (in the form of a sealed tube, making no use of a vacuum installation).

Later, S.M. Levitsky together with his colleagues and disciples was engaged in researches dealing with microwave plasma diagnostics, plasma waveguides, meteoric traces in the ionosphere, pulse surface discharge, electromagnetic wave emission by modulated electron beams in inhomogeneous plasma, and barrier transillumination in supercritical plasma. In particular, he proposed a method of barrier transillumination for electromagnetic waves in dense plasma with the use of electron beams, which was later studied experimentally.

S.M. Levitsky published more than 250 scientific papers. He was a supervisor of 11 Ph.D. and 1 Dr.Sci. theses. This fact makes it possible to say about the scientific school created by him at the Kyiv University and aimed at studying ultra-high-frequency phenomena in plasma. Two disciples of Sergii Mykhailovych, namely, I.P. Shashurin and I.O. Anisimov, became the heads of chairs. I.O. Anisimov also became a Dean of the Faculty of Radiophysics at the KNU. A number of his graduate students defended their doctoral dissertations. O.K. Nazarenko became Corresponding member of the National Academy of Sciences of Ukraine.

A lot of efforts was given by S.M. Levitsky to the scientific-managerial activity. For many years, he was the deputy chairman of the specialized council for the defense of Ph.D. and doctoral dissertations, a member of the editorial board of the journal "Bulletin of the Kyiv University. Physical and Mathematical Sciences", the deputy editor-in-chief of the journal "Bulletin of the Taras Shevchenko National University of Kyiv. Radiophysics and Electronics".

For more than 60 years, the scientific activity of S.M. Levytskyi was combined with lecturing at the Faculty of Radiophysics of the Kyiv University. Sergii Mykhailovych was one of the most experienced lecturers. His name is recalled with respect and gratitude by all generations of the faculty graduates. He was one of those who lectured to the first graduates of the Faculty of Radiophysics in 1953. During more than 60 years of his work at the university, S.M. Levitsky taught more than six thousand students. He prepared and lectured 13 courses, published over 20 textbooks and manuals. Among the latter, two textbooks occupy a distinct place. These are the first in the world literature "Collection of Problems and Calculations on Physical Electronics" (1964), which was used for training many generations of students of the corresponding specialization and which became known far abroad, and the comprehensive textbook "Fundamentals of Radio Electronics" (2007). Sergii Mykhailovych also wrote about ten popular scientific books for schoolchildren. His style of lecturing was characterized by the consistency and the clarity of material presentation, the ability to give a simple physical interpretation to analyzed effects, the emphasis on the fundamental principles of every lectured discipline, a permanent interest in new methods of training the students and testing their knowledge.

S.M. Levitsky was one of the most authoritative methodologists at the Kyiv University. About twenty years, he headed the scientific-methodical commission at the Faculty of Radiophysics. During this period, according to his creative idea and under his guidance, the corresponding structural and logical schemes were developed, which allowed the teaching of disciplines at the faculty to be organized in a logical sequence and interconnection. He spent a lot of efforts on the implementation of the modular rating system of education, which promotes students to better master the material and activates their personal work. When introducing the degree system of student training, he was also one of the leading developers of the curricula in the specialities "Applied Physics" (for bachelors) and "Radiophysics and Electronics" (for masters).

Sergii Mykhailovych was not only an outstanding scientist and a wonderful teacher. He also possessed high human qualities. He was characterized by an extraordinary responsibility for his deed, a creative approach to the work, personal modesty, a benevolent attitude to his colleagues, and a permanent readiness to come to the rescue. He was a true intellectual and a man of encyclopedic interests that extended far beyond his professional duties. Besides Russian and Ukrainian, he also spoke English, German, and French. He liked and felt the art, especially poetry and painting. The sense of humor never betrayed him. He was a devoted friend. He always had

a deep respect and undisputed authority among his colleagues in the scientific and teaching work, as well as among his numerous disciples and students.

S.M. Levitsky was awarded the award of the Academic Council of the KNU and the award of the National Academy of Sciences of Ukraine "For the training of scientific successors". He was awarded the titles of the Honored Professor of the KNU and the Honored Worker of Education in Ukraine.

Sergii Mykhailovych brought up a daughter and was always proud of her success. Now, Mariya Sergiivna Levytska is a leading Ukrainian scenic artist, a leading artist of Taras Shevchenko National Opera and Ballet Theatre of Ukraine, People's Artist of Ukraine, a winner of the Shevchenko Prize, Corresponding member of the Academy of Arts of Ukraine.

Everyone who knew Sergii Mykhailovych recognizes that it was a true gift of destiny to be acquainted and communicate with him. The blessed memory of S.M. Levitsky, a distinguished scientist, a beautiful teacher, and a true intellectual with high human qualities, will remain forever in the hearts of his relatives, colleagues, and disciples.

I.O. Anisimov, L.V. Gubers'kyi, A.G. Zagorodny, V.G. Lytovchenko, V.M. Loktev, M.V. Makarets', A.G. Naumovets, S.M. Ryabchenko, M.V. Strikha