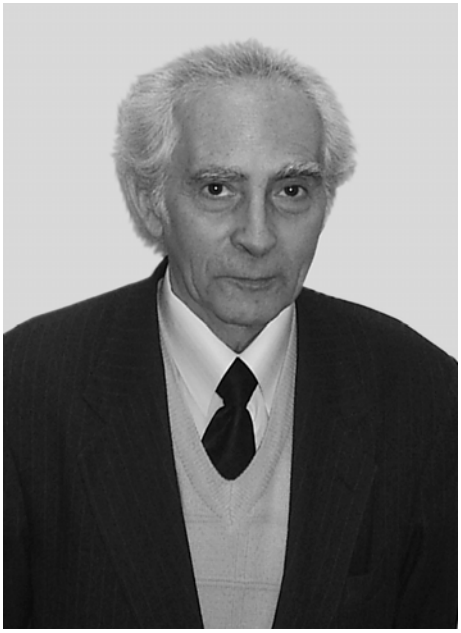
ISSN 1023-1935, Russian Journal of Electrochemistry, 2010, Vol. 46, No. 5, pp. 600–601. © Pleiades Publishing, Ltd., 2010.
Original Russian Text © V.P. Barabanov, An.M. Kuznetsov, R.R. Nazmutdinov, R.S. Saifullin, 2010, published in Elektrokhimiya, 2010, Vol. 46, No. 5, pp. 636–637.

OBITUARY

Michail Samoilovich Shapnik (28.02.32–20.11.09)

DOI: 10.1134/S1023193510050174



Michail Samoilovich Shapnik passed away after a serious illness on November 20, 2009. He was Doctor of Chemistry, Professor of the Department of Inorganic Chemistry, Kazan State Technological University, a recognized pedagogue and scientist in the field of electrochemistry.

Shapnik was born on February 28, 1932 in Mogilev-Podolsky. During the Second World War, he and his parents endured severe years of occupation. He graduated from school in 1951 and entered Kazan Chemical Technological Institute (KCTI; now, Kazan State Technological University). In 1956, after graduating from the institute, young specialist Shapnik was sent to Kazan Synthetic Caoutchouc Plant, where he worked first as a foreman and later as a shiftsman. However, the recenly graduated student longed for research work he enjoyed during his student years. In 1959, he returned to KCTI as a lecture assistant at the Department of Inorganic Chemistry and actively engaged in the research work on the electrochemistry of complex compounds under supervision of G.S. Vosdvizhenskii and N.V. Gudin.

In 1965, Shapnik defended his candidate dissertation titled "Certain Problems of the Electrochemical Behavior of Copper Complexes with Nitrogen-Containing Ligands". In this dissertation, for the first time in our country, the method of electron paramagnetic resonance was used in situ, i.e., directly in an electrochemical cell. The studies by Shapnik had attracted keen attention and later he was invited to present a cycle of lectures at a workshop on electrochemistry held in Chernovtsy.

The early years of his research were devoted to studies in the field of applied electrochemistry. He developed several new technological processes of electroless plating and electroplating to produce coatings that surpassed those known earlier in their operational properties as was confirmed by numerous publications and inventor's certificates. These and other developments by M.S. Shapnik are of practical importance in the field of corrosion protection of products of engineering and instrumental industries.

Shapnik often cited the following saying of Lichtenberg: " He who understands nothing except chemistry, can not have a sufficient understanding of chemistry itself." Hence, he was actively interested not only in chemistry and electrochemistry but also in other fundamental sciences. He always desired to gain insight into the chemical and electrochemical processes on the microscopic level. This desire strengthened when he got acquainted with the fundamentals of the quantum mechanical theory of the charge transfer elaborated by V.G. Levich, R.R. Dogonadze, A.M. Kuznetsov, and other scientists. After listening to the course on quantum chemistry read by Professor M.E. Dyatkina, he understood that quantum chemistry is a tool that allows one to cast light on many electrochemical problems from the standpoint of quantum mechanics. Many novel ideas were thus born in his mind. At one of conferences, he confided his ideas to R.R. Dogonadze in the hope of checking their correctness. The reply by Dogonadze was laconic: "Everything is very interesting and tempting. Go ahead. Tell me when you get some results". His weighty opinion served as a stimulus for Shapnik to pursue the concepts and implementation of theoretical electrochemistry.

In 1985, at the Mendeleev Institute of Chemistry and Technology, Shapnik defended his doctoral dissertation "Electronic Structure of Complexes and the Electrode Processes". According to his opponents, this study represented an original combination of experimental and theoretical approaches to explore relationship between the electronic structure of complexes and their electrochemical behavior.

In 1988, Shapnik was given the status of Professor of the Department of Inorganic Chemistry, the department where he worked up to his last days.

Shapnik and his pupils have developed a new scientific direction in the field of theoretical electrochemistry based on quantum-chemical modeling of a wide spectrum of electrochemical processes. Within the framework of a cluster model of the electrode surface, the data on the structure and energy of adsorption of representative molecular and ionic electrolyte components were obtained. These data, particularly, the microscopic series of hydrophilicity of metals, are of considerable interest for the theory of the electrode/solution interface structure and its effect on the kinetics and mechanism of charge–transfer electrode processes. Within the framework of quantum-chemical modeling based on the quantum-mechanical theory of charge transfer in polar media, the elementary acts of electrochemical reactions that lie at the basis of processes of electroreduction of several complexes of transition and nontransition metals and also of anodic metal dissolution were studied.

Mikhail Samoilovich was a highly talented pedagogue. His skill as a lector was constantly noted not only by his students but also by the listeners of the Extension Courses to whom he read his original course "Fundamentals of Theoretical Chemistry". In the years of realization of the Soros Educational program, he was awarded the J. Soros scholarship every year. Within the framework of this program, Shapnik presented many lectures on electrochemistry for school teachers in Kazan and other Russian cities. These lectures were always distinguished by their bright content and extreme elegance of presentation.

Shapnik was the author of over 300 scientific, instructional and other publications. He had a sharp sense of novelty in science, a desire to initiate highly original research in solve topical scientific problems. He and the school he had founded played a uniquely prominent role in the development of theoretical electrochemistry in Russia. Many of the studies carried out under his supervision became widely recognized and were further developed in Russia and abroad. They also opened up new prospects for using the methods of quantum chemistry for solving a wide range of electrochemical problems.

Up to his last days, Professor Shapnik paid great attention to training young scientists. Under his supervision, 26 candidate dissertations were prepared and three of his pupils became doctors of sciences. Being a man of wide knowledge and erudition, Mikhail Samoilovich generously shared his knowledge and ideas with his pupils thus imbuing them with a creative attitude to science.

Professor Shapnik was characterized by extreme intelligence, public spirit, patriotism, boundless generosity in his contacts with people.

Mikhail Samoilovich was decorated with medals "55 Years of Victory in the Great Patriotic War 1941–1945", "60 Years of Victory in the Great Patriotic War 1941–1945", "Veteran of Labor", "1000th Anniversary of Kazan", and the Zhukov Medal. His research and pedagogical activities were also acknowledged by Diploma of the State Committee of the RSFSR on Science and Higher Education "For Great Contribution in Training of Specialists and Development of Scientific Researches" and also the Titles "Honored Worker of the Republic Tatarstan" and "Honored Worker of the Higher Professional Education of the Russian Federation".

The memory of Mikhail Samoilovich will always live in hearts of his colleagues and numerous pupils.

V.P. Barabanov, An.M. Kuznetsov,
R.R. Nazmutdinov, and R.S. Saifullin