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Guennadii Efremovich Zaikov 40 Years of Scientific Activity



Professor, DSc Guennadii E. Zaikov was born on January 7, 1935 in Omsk, Russia. After finishing secondary school in 1952, Guennadii Zaikov entered the Chemistry Department of Moscow State University (MSU) and started his scientific research in the Section of Isotope Separation of MSU, which was headed by Professor Georgii M. Panchenkov. His research, for which he was awarded the BSc degree in 1957, concerned the separation of Li^6 and Li^7 isotopes through electrolysis on countercurrent.

After G. E. Zaikov graduated from MSU, Professor Nikolai M. Emanuel invited him to work in the Institute of Chemical Physics (ICP) of the USSR Academy of Sciences. This invitation was made not only on the basis of good recommendations of Erna A. Blumberg and Zinaida K. Maizus—the first co-workers of N. M. Emanuel—but also because of G. E. Zaikov's in musical education and his proficiency in playing various jazz instruments. Professor Emanuel liked jazz very much and requested Zaikov to form the "Emanuel Laboratory Jazz-Band." Since 1958, Prof. Zaikov has worked at ICP. For his postgraduate study, he compared the kinetics and mechanism of oxidation of a number of organic compounds in liquid and gas phases under nearly-critical conditions (high temperature and pressure). The motivation for this research was principles of oxidation of organic compounds under nearly-critical conditions developed by Professor Emanuel. Prof. Zaikov was awarded his PhD in 1964; his thesis was the basis of the industrial method of pro-

duction of acetic acid and methylethylketone by means of liquid-phase oxidation of *n*-butane. This method was subsequently applied at the Moscow Petrol Plant. During the period between 1964–1968, Zaikov prepared his DSc thesis entitled “The Role of Medium in Radical-Chain Processes of Oxidation.” He was awarded his DSc degree in 1968 and went to the laboratory of Professor Kieth Ingold (National Research Council, Ottawa, Canada) for his first postdoctoral fellowship.

Prior to this, in 1966, Zaikov extended his research interest into the new field of Polymer Ageing and Stabilization. Since 1967, he has headed the Laboratory of Chemical Stability of Polymers and became Professor Emanuel’s deputy in the Division of Polymer Ageing of ICP. Prof. Zaikov has also been chairman of a number of international conferences on degradation and stabilization of polymers and flammability of polymeric materials in cooperation with the Academies of Sciences of the Socialist Countries.

Since 1970, Zaikov has been a professor, supervising some 25 PhD theses in the FSU and abroad. He also acted as scientific consultant for five DSc theses.

Presently, Prof. Zaikov is an expert in many fields including chemical physics, chemical kinetics, ageing and stabilisation of polymers, and biological kinetics. The main thrust of his research concerns oxidation of low-molecular and macromolecular compounds, ozonolysis, hydrolysis, biodegradation, mechanical decomposition of polymers, and flammability of polymeric materials. He developed kinetic fundamentals in these areas, which enabled him to achieve substantial progress in the prolongation of reliable exploitation and storage of polymeric materials and products, as well as in the prediction of the lifetime products. Zaikov’s fundamental research has been the basis of a number of methods of modification of polymeric materials worldwide.

Prof. Zaikov is also the author of about 1000 papers, including 70 reviews, 15 booklets, and 44 monographs—with half of his books published in English.

Today, Zaikov is the head of the division on Polymer Aging at ICP and leader of the cooperation of the Academies of Sciences of Socialist Countries on Aging and Stabilization of Polymers.

A well known member of the international scientific community, Prof. Zaikov is an editorial board member of eight international journals, teaches an undergraduate course on aging and stabilization of polymers at Lomonosov State Academy of Fine Chemicals in Moscow, and has been an official referee for more than 200 theses. He is also a member of four PhD/DSc granting scientific councils, and, as a committee-serving member of the International Union of Pure and Applied Chemistry (IUPAC), has presented plenary lectures at several international conferences.

Guennadii Zaikov’s most recent activity has been in developing cooperation between researchers from the FSU and Western Companies and searching for grants with the member states of the European Union. His efforts have helped maintain scientists at the Department of Chemical and Biological Kinetics of ICP after the Russian Government greatly reduced financial support for science. Professor Zaikov greets his 60th birthday full of energy and new scientific ideas.

Dusan C. Prevorsek