

Professor Gennady Zaikov

50 years in science

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January 7th, 2005 was the 70th birthday of Prof. G.E. Zaikov and 50 years of his scientific activity. Of those 50 years, in about 15 years Prof. Zaikov has been having a close collaboration with our research group in Coimbra, resulting in many papers published, several books co-edited, communications, and lectures of both the present authors and of Prof. Zaikov in Russia and in Portugal, and in other parts of the world. Therefore, Prof. Zaikov has given a significant contribution to scientific research in Portugal.

Gennady Efremovich Zaikov was born in Omsk, Siberia where he also graduated from their primary, middle and high school. He also graduated from a musical school where he studied violin. However, his parents Efrem and Matrena decided that it might be better for their son to continue his education by following in the footsteps of his mother – a chemistry teacher in High School and Omsk's Medical Institute (his father was a mathematician and land-surveyor). Therefore, in 1952 Gennady moved to Moscow where he entered the Moscow State University (MSU), and he graduated with chemistry degree in December 1957. His bachelor's degree dealt with the problem of separating Li6 and Li7 isotopes. After this, he joined the Institute of Chemical Physics (ICP) in Moscow in February 1958.

Gennady was originally invited to ICP by Professor Nikolai Markovich Emanuel. Under his guidance, G.E. Zaikov defended his Ph.D. thesis entitled "Comparison of the Kinetics and Mechanism of Oxidation of the Organic Compounds in Gaseous and Liquid Phases" in 1963. In 1968, he defended a Doctor of Science thesis entitled "The Role of Media in Radical-Chain Oxidation Reactions". In 1970 he became a full professor.

In 1966, Gennady became involved with polymer science. N.M. Emanuel asked Zaikov to work on problems associated with aging and stabilization of polymers, and, later, with the combustion of polymeric materials. At that time in the 1970's there were about 1000 scientists in the USSR working on these problems including 200 scientists from ICP under Zaikov's leadership. The research was conducted on all aspects of these polymer problems thermal degradation, oxidation, ozonolysis, photodegradation and radiation degradation, hydrolysis, biodegradation, mechanical degradation, pyrolysis and flammability.

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After “perestroika and degradation” of the USSR in 1991 the new Russian government reduced drastically the financial support of science. So, G.E. Zaikov has now with him in N.M. Emanuel Institute only 20 coworkers (instead of 200 in 1970-1980’s). Fortunately, he has good scientific cooperation with 28 research centers of former USSR (Russia, Ukraine, Georgia, Belorussia, Armenia, Tadjikistan etc.) and with some research centers of Europe (Portugal, Spain, Belgium, Czech Republic, Poland, Bulgaria, Romania).

G.E. Zaikov is an outstanding scientist with expertise in wide areas of chemistry: chemical and biological kinetics, chemistry and physics of polymers, history of chemistry, biochemistry.

In addition to his position at N.M. Emanuel Institute, he is lecturer at the Moscow Institute of Fine Chemical Technology. He taught his students from his own books: “Degradation and Stabilization of Polymers”, “Physical Methods in Chemistry” and “Acid Rains and Environmental Problems”. G.E. Zaikov has written about 1800 original articles, 130 monographs (20 in Russian and 110 in English), 250 chapters in 55 volumes. It is apparent from this work that he has made valuable contributions to the theory and practice of polymers – aging and development of new stabilizers for polymers, organization of their industrial production, life-time predictions for use and storage, and the mechanisms of oxidation, ozonolysis, hydrolysis, biodegradation, and decreasing of polymer flammability. New methods of polymer modification using the process of degradation were introduced into practice by Zaikov. These methods allow the production of new polymeric materials with improved properties. For a last period he is very active in the field of semiconductors and electroconductive polymers, polymer blends and polymer composites including nanocomposites.

G.E. Zaikov is a member of many editorial boards of journals published in Russia, Poland, Bulgaria, USA and England.

In the former Soviet Union (after academician N.M. Emanuel’s death) he headed the team dealing with the problem of polymer aging in the USSR and the Eastern European countries in the cooperation with the Soviet Academy of Sciences.

His present position is: head of Laboratory, member of directorium and deputy of department of the N.M. Emanuel Institute of Biochemical Physics Russian Academy of Sciences, Professor of Polymer Chemistry in the Moscow State Academy of Fine Chemical Technology. His fields of interest are Chemical Physics, Chemical Kinetics, Flammability, Degradation and Stabilization of Polymers, Diffusion, Polymer Materials, Kinetics in Biology, History of Chemistry.

On his 70th birthday, G.E. Zaikov is in the prime of his life. Although support for scientists and research is now at a low point for many in Russia, he is hopeful that for the sake of his country and its future that this will improve.

The practice of good science still exists in Russia and G.E. Zaikov has been and is a significant contributor.

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