

Obituary: Professor Nikolai Plate (1934–2007)

Alexander V. Kabanov · Alexei R. Khokhlov ·
Valeri P. Shibaev

Published online: 8 August 2007
© Springer-Verlag 2007



Professor Nikolai A. Plate tragically passed away on March 16, 2007 at the age of 72. A brilliant representative of a famous Soviet and Russian polymer school founded by Academician Valentin A. Kargin, Plate was a vice-president of the Russian Academy of Sciences (RAS), the director of the A.V. Topchiev Institute of Petrochemical Synthesis in Moscow, Russia, and a professor at Moscow State University (MSU). He was born in Moscow on November 4, 1934, into a family with a rich tradition in chemistry. His

father, A.F. Plate, was a Professor and Chair of the Department of Oil Chemistry and Catalysis at MSU. His grandfather, N.D. Zelinsky, was one of the most famous Russian chemists of the 20th century.

In 1954, then a student of the MSU Faculty of Chemistry, Plate made his decisive choice in science – chemistry of macromolecular compounds – and joined his mentor, the great V.A. Kargin, with whom he worked for 15 years. In 1960, Plate defended his Ph.D. thesis and subsequently received the degree of Doctor of Chemical Sciences at the early age of 31. In 1974, he was elected as a Corresponding Member of the USSR Academy of Sciences and, in 1987, a Full Member of this academy, the highest recognition for a scientist in Russia.

Plate spent his entire scientific career in only two research institutions. First, he advanced through the ranks at MSU from a junior researcher to a full professor, a position he held till his untimely death. Second, he was appointed the head of a scientific group at A.V. Topchiev Institute of Petrochemical Synthesis in 1963, and subsequently became the head of a laboratory and director of the institute in 1985.

Plate made outstanding contributions to polymer science. He developed a quantitative theory of polymer-analogous reactions of macromolecules in solution, condensed state, and polymer blends (Kargin Prize of the USSR Academy of Sciences, 1981). He then applied this theory to modifications of polymer materials and was among the first to demonstrate possibilities of a structural–chemical approach to altering properties of numerous materials by polymer-analogous reactions. He was one of the pioneers in the field of thermotropic polymer liquid crystals with mesogenic groups and spacers (State Prize, 1985) and also discovered unusual mesophase structures of linear polymers that do not contain mesogenic groups (Lebedev Prize of the Presidium

A. V. Kabanov (✉)
College of Pharmacy, University of Nebraska Medical Center,
Omaha, NE, USA
e-mail: akabanov@unmc.edu

A. R. Khokhlov
Faculty of Physics, Moscow State University,
Moscow, Russia
e-mail: khokhlov@poly.phys.msu.ru

V. P. Shibaev
Faculty of Chemistry, Moscow State University,
Moscow, Russia
e-mail: lcp@genebee.msu.su

of RAS, 1995). This research led to the development of a new generation of liquid–crystalline polymers and composite materials for optics, electronics, and other high-tech applications.

Plate was one of the pioneers in discovering novel polymer materials for biology and medicine. His early work resulted in the development of selective hydrogel-based sorbents for clinical detoxification and various other biocompatible polymer materials for prosthetic devices and organ transplantation (State Prize, 2002). He also developed an oral hydrogel form of insulin that has been successfully tested clinically in diabetes patients. Plate was one of the developers of a new generation of highly permeable and selective gas separation membranes that found wide practical application in industry. In various years, he also worked on problems of hydrogen energy, protection from weapons of mass destruction, polymeric sensors for environmental control, novel catalytic systems for petrochemical synthesis, destruction of chemical weapons and toxic waste using rocket engine technologies, and other applied problems of chemistry.

Plate was a talented teacher and a brilliant lecturer at MSU. Nearly 100 of his students defended their Ph.D. dissertations and 20 of them subsequently became doctors of science. Many graduates of his Laboratory of Chemical Transformations of Polymers at MSU are now leaders in polymer science in former USSR and other countries. He was an author and coauthor of more than 500 scientific papers and eight monographs, including *Comb-Shaped Polymers and Liquid Crystals* (Plenum, 1987) and *Macromolecular Reactions* (Wiley, 1995), which are well-known to polymer scientists around the world. His *Fundamentals of Chemistry and Technology of Monomers* received a Book Oscar as Russia's best scientific monograph in 2003. He devoted considerable effort to editorial work and served an editor-in-chief of a principal polymer science periodical in Russia, *Vysokomolekulyarnye Soedineniya* (since 1988),

and was also an editorial board member for numerous other scientific journals.

Plate was an outstanding organizer of Russian science and one of the courageous and brilliant leaders that made a difference in the RAS during its most difficult times. He served as the RAS secretary-general for science (1996–2001) and subsequently vice-president (since 2001). He was also a member of the Russian Federation President's Council for Science, Technologies, and Education, a member of the State Commission for Chemical Disarmament, and a chairman of the RAS Scientific Publishing Council. He played a pivotal role in maintaining international relationships of the RAS with scientific organizations all over the world. For many years he worked in the International Union of Pure and Applied Chemistry, International Council for Science, and participated in the International Pugwash movement of scientists.

Plate's outstanding contributions to science have received the highest recognition in Russia and other countries. He was elected as a member of Academia Europaea, a foreign member of the National Academy of Sciences of Ukraine, and Academy of Sciences of Tajikistan. Plate was also awarded an *Honoris causa* doctoral degree at Paris University, an honorary membership of the Polish Chemical Society, an International Herman Mark Medal of the Austrian Chemical Society, an award for Achievements in Polymer Chemistry and Technology of the Polymer Society of Japan, a Russian order "In Service to the Motherland" (II degree), a French order of the "Legion of Honour," and other orders from the Soviet Union, Russia, Belgium, France, the Netherlands, and Poland.

Professor Plate was a tireless spokesman for science and education in Russia and worldwide. He was also a cordial person and a great friend to those who knew him personally. His untimely passing is a tremendous loss to polymer science and a tremendous personal loss to his loved ones, friends, and colleagues. He will be missed and remembered.