

---

---

## CHRONICLE

---

---

# Vilen Vagarshovich Azatyan Is 75

DOI: 10.1134/S0023158406040215

On March 25, 2006, Vilen Vagarshovich Azatyan, Corresponding Member of the Russian Academy of Sciences, Doctor of Chemistry, Professor, and a member of the editorial board of *Kinetika i Kataliz*, celebrated his 75th birthday.

Azatyan was born in 1931 in Yerevan. In 1954, he graduated from the Department of Chemistry of the Moscow State University. Now he is the head of the Laboratory of Chain Heterogeneous Processes at the Institute of Structural Macrokinetics and Materials Research Problems, Russian Academy of Sciences.

Azatyan is an eminent researcher in the field of physical chemistry and a universally acknowledged expert in the mechanisms of gas-phase chain reactions. His fundamental works have radically changed the old understanding of the physical chemistry and laws of gas combustion, explosion, and detonation. He has found that chain branching is the determining factor in gas-phase combustion at any pressure and any self-heating (i.e., under real conditions), contrary to the widely accepted view that this is the case only when the gas pressure is lower than atmospheric pressure by a factor of several hundreds and there is no self-heating. The nonisothermal theory of chain processes developed by the scientist is a significant contribution to Academician Semenov's isothermal theory of chain reactions. It has provided a unified explanation for the laws of gas-phase combustion and explosion, most of which were not understood before. The investigation of the general features of these processes that have been predicted and observed by Azatyan—the existence of two different regimes of developed chain combustion; new critical phenomena; and the effect of admixtures on combustion, explosion, and detonation—has evolved into a rapidly progressing branch of science and technology. Azatyan has laid the scientific foundations and has developed methods for the chemical control of all gas-phase combustion regimes, including explosion cumulation and detonation breakdown (2002–2005). He has solved the problems of controlling combustion, explosion, and detonation by chemical means, including the problem of explosion prevention, which are among the

main challenges in hydrogen power engineering. He has developed new process control methods as well as inexpensive inhibitors much more effective than their universally known counterparts. These methods and inhibitors have been successfully used in joint projects executed by academic and specialized research institutes. Combustion parameters were found to be strongly affected by minor components, and it was demonstrated that the kinetics, macrokinetics, and gas dynamics of combustion can be controlled by varying the molecular structure of the admixture.

Azatyan's pioneering works on the identification of atoms and radicals and of their reactions in flames (which use optical spectroscopy, EPR spectroscopy, laser magnetic resonance spectroscopy, mathematical modeling, and quantum chemical calculations) are well known and have gained wide recognition. This research has been extended to fast reactions in which atomic reactants displace atoms from molecules and to the role of these reactions in combustion and pyrolysis processes.

Azatyan is the author of over 400 scientific works, including two monographs, and is the holder of over 20 patents and inventor's certificates. He is an active science manager and pedagogue, sitting on the bureau of the Combustion and Explosion Council of the Russian Academy of Sciences; IUPAC; Science and Technology Council of the All-Russia Research Institute of Fire Prevention, Ministry of Emergency Situations; and the editorial boards of *Zhurnal Fizicheskoi Khimii* (Russian Journal of Physical Chemistry), *Kinetika i Kataliz* (Kinetics and Catalysis), and the international journal *Self-Propagating High Temperature Synthesis*. Azatyan has been the supervisor for 20 candidates of sciences, and six of his followers have received a doctoral degree.

Continuing his active and fruitful research, Azatyan is big with new ideas. The editorial board of *Kinetika i Kataliz* heartily congratulates Azatyan on his birthday and wishes him good health and every success in his activities.