

IN MEMORIAM

Prof. Eng. Lubomir A. Boyadzhiev. PhD, DSc, Corresponding Member of the Bulgarian Academy of Sciences (1934-2019)



On May 14, 2019 the Corresponding Member of the Bulgarian Academy of Sciences, Prof. DSc Lubomir Boyadzhiev passed away. He was an eminent scientist and international authority in the field of chemical engineering.

Prof. Boyadzhiev was born on November 16th 1934 in Sofia, Bulgaria. He graduated from the Institute of Chemical Technology in Sofia (now: University of Chemical Technology and Metallurgy) in 1958, and worked for a couple of years as an engineer in the industry. Then, he was appointed at the Chemical Institute at the Bulgarian Academy of Sciences (BAS). Prof. Boyadzhiev defended his PhD thesis in 1968 and was promoted to associate professor the next year. During the period 1977/87 he was lecturing at the Faculty of Chemistry of the Sofia University „St. Climent Ohridski“. He specialized at the Institut du Genie Chimique (Toulouse, France, 1965) and at Washington University (Seattle, USA, 1975). After defending his „Doctor of Sciences“ (DSc) thesis in 1982 he was promoted to full professor in 1984, and in 1995 was elected as corresponding member of BAS.

Prof. L. Boyadzhiev was a scientific secretary of BAS (1979/82) and at this position he introduced the practice of planning the scientific research in BAS on the basis of research projects. Later this practice was adopted by all scientific institutions and Universities in Bulgaria. He has been a deputy-director of the United Centre for Chemistry at BAS (1985/88) and for the period 1990/92 was the Director of the Institute of Chemical Engineering at BAS.

Prof. Boyadzhiev was a member of different editorial boards of Bulgarian and foreign scientific journals. He was co-founder and president of the Bulgarian Society of Chemical Engineering (1993/99), a consultant of UNESCO for education and research on chemical engineering (1978/80), of the 12th Commission of the European Union in Brussels, of a number of foreign companies and Bulgarian enterprises. The scientific and research activities of Prof. Boyadzhiev were in the field of process engineering and, in particular, on separation and transfer processes in multiphase systems. He has published over 150 scientific papers in high impact journals, which were cited till present more than 2000 times. An evidence for the international respect to him is his inclusion in *Who's Who in the Science* (Longman Publ. London) and *Current Bibliographic Directory: Art & Science* (ISI Publ., Philadelphia).

He has delivered over 150 scientific presentations and lectures at various scientific events in Bulgaria and abroad (Europe, Asia and America). As a visiting professor he has delivered lectures at the Polytechnique in Toulouse (France, 1973, 1993/94); Ecole Polytechnique (Montreal, Canada, 1983), Université de Paris-3 and Rouen (1992 and 1998), as well as at Tokyo University (1995).

Corr. Mem. L. Boyadzhiev was a supervisor of over 50 applied projects and a co-author of over 20 inventions and two patents abroad, one of them sold to the big chemical corporation Henkel Corp. (USA).

Corr. Mem. L. Boyadzhiev had perceptive scientific intuition. Because of it, his research was in pioneering areas and consonant with the new world trends. In the first years of his career he worked in the then modern direction of intensifying the processes in chemical technology for their enhanced operation. He is a co-author of a monograph „Intensification of absorption and extraction“, published in Bulgaria (Technika, Sofia, 1968).

He was one of the first researchers in the world to begin working on liquid membrane processes and he had world-wide renowned contributions in it.

An innovative approach in this area is the development of new integrated processes for recovery of valuable products of better quality at

lower expenses. An example of this approach is the solid-liquid extraction integrated with isolation and enrichment of target compounds by the liquid membrane technique. In this process a concentration difference is continuously maintained to provoke continuous mass transfer until the complete exhaustion of the source takes place. This application is appropriate for cases of low solubility in the solvent, thus enabling the use of non-specific and harmless solvents, e.g. water. This integrated approach makes it possible to replace numerous classical operations, like multiple extraction, filtration, evaporation, etc.

The competence of Prof. L. Boyadzhiev in this field is confirmed by the authorship of two monographs, ordered and published by eminent international publishing houses for scientific literature: „Technology of Membrane Separation. Principles and Applications“, in: Handbook of Membrane Technologies (Elsevier, Amsterdam, 1995), “Liquid membranes”, in: Encyclopedia of Separation Science (Ed. I. Wilson), Academic Press, London. 2000.

Later he developed and supervised the research group for recovery of natural biologically active substances from renewable natural resources. This subject became recently very popular because of the growing interest in the pharmaceutical industry for replacement of the synthetic medicines by natural ones.

There are some industrial processes for extraction and separation of valuable or toxic substances developed by him (e.g. Aromex, Phytex, Rotex, etc.). They were applied in Bulgarian enterprises.

Prof. L. Boyadzhiev was initiator of long lasting and fruitful collaboration with the Institut du Genie

Chimique (Toulouse, France), starting from 1965. Within the framework of the cooperation many long-time research visits of young Bulgarian scientists, as well as many bi-lateral research projects supported by BAS and CNRS have been accomplished. These contacts were the background for founding a francophone courses on chemical engineering in the University of Chemical Technology and Metallurgy together with joint MSc and PhD theses.

Prof. L. Boyadzhiev was the main person also for the contacts of the Institute of Chemical Engineering (BAS) with the Institute of Chemical Process Fundamentals at the Czechoslovak Academy of Sciences in Prague (former Czechoslovakia) where many young scientists passed short scientific visits on joint research projects.

Corr. Mem. L. Boyadzhiev was awarded twice with the Sign of Honour of BAS „Prof. M. Drinov“ (1969 and 2004), as well as by numerous state rewards, including the order „Sts Cyrill and Methodius“

We and his colleagues from the Bulgarian and the international scientific community remember him as a radiant and charming personality with big erudition, profound scientific competence and a comprehensive common culture. He was an honest and polite person with a wonderful sense of humor, with open and predisposed way of contacts and equal treatment of younger colleagues.

That is why he enjoyed universal respect among the colleagues of many generations, due to his personal human qualities and his naturally developed scientific authority.

Prof. George Angelov, DSc