

IN MEMORIAM

To the memory of Prof. Dr. Natasha Vaklieva-Bancheva (1951-2022)



This year we lost our dear colleague Prof. Natasha Vaklieva-Bancheva. She was born in 1951 in Breznik. She was graduated from Moscow Institute of Chemical Technology “D.

Mendeleev” with a degree in Chemical Cybernetics in 1976. After graduating, she was almost immediately employed as an engineer and then as an assistant professor at Central Laboratory of Theoretical Foundations of Chemical Engineering (which in 1986 was transformed into Institute of Chemical Engineering) at Bulgarian Academy of Sciences. Her research career took place in Process Systems Engineering laboratory of the same institute. She defended a PhD thesis in 1992 on the subject of “On the optimization of multi-assortment chemical technological systems” under the supervision of Prof. DSc Christo Boaydjiev. She was promoted as associate professor in 1999 and was elected as Full Professor in 2012. During the years of her scientific career, Prof. Vaklieva-Bancheva has had successful international collaborations with various European universities such as Pannon University, Veszprem, Hungary; Universitat Politecnica de Catalunya, Barcelona, Spain; Vrije Universiteit Brussel, Brussels, Belgium; Imperial College, London, UK. She was also a member of scientific councils like Bulgarian Society of Chemical Engineering and CAPE WP at European Federation of Chemical Engineering. She has significant contributions in development of methods for modeling and optimization of chemical and biochemical production systems and production complexes for the purpose of their energy efficiency and sustainability improvement. It includes mathematical methods of heat integration and environmental impact minimization of production systems with batch and continuous processes, optimum scheduling of batch production systems as well as the development of methods for optimal design of sustainable supply chains considering all aspects of sustainability – economic, environmental and social with application in food industry and biofuels production. Prof. Vaklieva-

Bancheva also had a significant contribution to the creation of special methods for modeling and optimization in the field of artificial intelligence. She was at the heart of developing a special genetic algorithm called BASIC (Bulgarian Academy of Sciences Institute of Chemical Engineering), which has been successfully applied to solve a number of complex chemical engineering problems. She also developed static and dynamic neural networks for modeling complex biotechnological processes like wastewater treatment and biotransformation of crude glycerol from biodiesel production. Prof. Vaklieva-Bancheva had developed a two-stage stochastic optimization approach for capturing parameters uncertainty in an autothermal thermophilic aerobic digestion system for wastewater treatment. She was an author and co-author of 100 papers, published in prestigious international journals, like Computers & Chemical Engineering, Journal of Cleaner Production, Energy, Clean Technologies and Environmental Policy, Energies, etc. She was an author of different chapters in specialized issues published by Elsevier and Springer.

Prof. Natasha Vaklieva-Bancheva delivered lectures on “Synthesis and optimization of chemical production systems - Modeling, optimal schedules and optimal design of chemical-technological objects and systems with batch processes” in University “Prof. D-r Assen Zlatarov” – Burgas. She was also the supervisor of two PhD students who successfully defended their theses and continued their scientific careers in the Institute of Chemical Engineering at Bulgarian Academy of Sciences.

Her high professionalism, dedication and broad scientific interests will be remembered and appreciated by her colleagues and friends.

We shall remember Prof. Natasha Vaklieva-Bancheva as a remarkable Bulgarian scientist in the field of chemical engineering and as a best colleague and friend.

*From the team of the
Institute of Chemical Engineering at
Bulgarian Academy of Sciences.*

