ANNIVERSARY

On the occasion of the 85th anniversary of Prof. Christo Boyadjiev

Eighty five years are the main part of human life. Prof. Christo Boyanov Boyadjiev started his scientific carreer in the Bulgarian Academy of Sciences before 60 years and 40 years of them he was a professor in the field of the chemical engineering. Before 65 years the first scientific paper by Prof. Christo B. Boyadjiev was published,

Later his scientific career and development are a sequence of the following stages.

His first research in the field of chemical engineering was on the hydrodynamics and mass transfer in a Venturi tube. Industrial equipment was built and applied for simultaneous capture of particulates and sulfur dioxide in waste gases, introduced in 1965 at the Copper Plant in Eliseina, Bulgaria.His start in theoretical research in the field of chemical engineering was in 1965, on hydrodynamics and mass transfer in flowing films. After successful cooperation in this field with V. Levich and V. Krylov from the Institute of Electrochemistry at the Soviet Academy of Sciences in Moscow he defended his PhD thesis in Bulgaria. After successful cooperation with V. Beschkov, V. Krylov and V. Levich many scientific papers were published, resulting in the monographs Chr. Boyadjiev, V. Beschkov, "Mass Transfer in Liquid Film Flows", Publ. House Bulg. Acad. Sci., Sofia, 1984 and Chr. Boyadjiev, V. Beschkov, "Mass transfer in moving fluid films", Ed. Mir, Moscow, 1988.

Prof. Chr. Boyadjiev was the founder of the scientific direction Process Systems Engineering (1976), as modeling of the set of processes in technological schemes (technologies). An interesting direction with its own mathematical (matrix) methods was developed. Large-scale research was conducted in the field of modeling and optimization of chemical-technological systems (ChTS): The following areas of this direction were developed: areas of impact and program for structural analysis of ChTS; decomposition method for optimization and software system for optimization of multi-range ChTS; optimal thermal integration and optimal synthesis of a system of heat exchangers; optimal schedules of multi-assortment ChTS; automated optimal design of multi-product ChTS; renovation of ChTS.

A theoretical research in the field of non-linear mass transfer and hydrodynamic stability started in 1983. The results were published in the monographs V. S. Krylov, Chr. Boyadjiev, "Non-Linear Mass Transfer", Institute of Thermophysics, Novsosibirsk, 1996 and Chr. Boyadjiev, V. N. Babak, "Non-Linear Mass Transfer and Hydrodynamic Stability", Elsevier, Amsterdam, 2000..

The wide base of used theoretical techniques became the basis of the monographs by Chr. Boyadjiev ″Modeling and Simulation in Chemical Engineering and Chemical Technology"(in Bulgarian), 1993; "Theoretical Chemical Engineering. Modeling and Simulation", Springer-Verlag, Berlin Heidelberg, 2010; and „Modeling and Simulation in Chemical Industry (in Bulgarian) 2017.

A new approach for modeling and simulation of mass transfer in column apparatus with creation of convective-diffusion and average-concentration models of processes of chemical reactions, absorption, adsorption and heterogeneous catalysis (2006). The results are published in the monographs by Chr. Boyadjiev, M. Doichinova, B. Boyadjiev, P. Popova-Krumova, "Modeling of Column Apparatus Processes", Springer-Verlag, Berlin Heidelberg, 2016, and by Chr. Boyadjiev, M. Doichinova, B. Boyadjiev, P. Popova-Krumova, "Modeling of Column Apparatus Processes" (Second edition), Springer-Verlag, Berlin Heidelberg, 2018.

A new approach for modeling and simulation of processes with unknown mechanism started in 2020. In one of the last works (Chr. Boyadjiev, A New Approach to Modeling and Simulation of Industrial

Processes, J. Eng. Thermophysics, 2021) the axiom “Quantitative descriptions of industrial processes are invariant by with regard to the measurement systems of quantities (of metric transformations) was formulated. According to Guchman's terminology, "metric transformations" are equivalent to "similar transformations", which he uses in proving his theorem "If the quantitative description of the process is invariant with respect to similar transformations, it can be represented as a power complex", i.e. product of the quantities on which the process depends, raised to degrees, which are determined by experimental data.

All these activities and achievements suggest high respect to the scientific contributions and skills of the jubilee. Let us congratulate and wish to Prof. Christo Boyadjiev good health and energy to follow his long and successful path in chemical engineering science.

From the Editorial Board of Bulgarian Chemical Communications