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CONDENSED MATTER PHYSICS

***Personalia***

# The 70th Birthday of Professor Mykola Lebovka

Professor Mykola Lebovka, an outstanding Ukrainian scientist in the field of physical chemistry of condensed matter, head of the Laboratory of Physical Chemistry of Disperse Minerals in F. D. Ovcharenko Institute of Biocolloidal Chemistry of National Academy of Sciences of Ukraine, the Editorial Board member of the Condensed Matter Physics journal, turns 70 on May 15, 2024.

Mykola Lebovka spent his childhood and youth in Kyiv. Since childhood, he was craving for knowledge, and his parents trained him to insistent work. He was especially interested in history, physics and mathematics. The final two years of his secondary education he studied in famous Kyiv school No. 145 specialized in physics and mathematics. In 1976, Mykola Lebovka graduated from the Taras Shevchenko University of Kyiv with Honour Diploma of the Physics Faculty in specialty "Optics and Spectroscopy". In 1986, he received his Ph. D. degree in Molecular Physics having defended the thesis entitled "Structure of Boundary Water Layers". In 1995, he got his Dr. Hab. in Physics of Colloids. His thesis was entitled "Distribution of Random Fields in Heterogeneous Systems".

Professor M. Lebovka is an author of over 300 scientific publications in the Scopus journals (and over 500, totally). He published a number of review chapters in monographs as well as 15 monographs as an Author and/or Editor. He is an author of 5 patented inventions. All his publications attract substantial interest of scientific community worldwide and are highly cited by researchers over the world (his Scopus h-index is 57). The scope of his scientific activities is incredibly broad. He is a highly skilled mathematician, theoretical physicist, outstanding experimentalist and successful chemical and food industry engineer. His major scientific interests are related to physics and chemistry of soft condensed matter; interfaces and colloids; statistical and computational physics; quantum effects and structural self-organization in functional nano-materials; application of pulsed electric fields for treatment of plant tissues including the cell membranes, killing pathogenic bacteria and activating yeasts, membrane separation of proteins.

The first experimental studies of Mykola Lebovka were concerned with the behavior of water vapors and aqueous systems by using NMR spectroscopy technique. He made an important contribution into

NMR application for the studies of liquid crystals and the structure of liquid systems near the interface and in the spatially-confined systems. A substantial part of experimental studies, conducted by professor M. Lebovka, is related to the investigation of the principles of control of the permeability of biological cell membranes using pulsed electric fields. The results of these studies allowed to accelerate the processes of drying the food materials and to enhance the extraction of useful substances from the tissues of plant origin. The theoretical works by Mykola Lebovka deal with the application of computer simulation methods for the study of aggregating and ordering colloidal systems. Moreover, much attention in his work is focused on percolation in composite systems filled with highly anisotropic particles (plates or rods). His computer simulations created a basis for studying a variety of composite systems filled with nanotubes. M. Lebovka discovered the effect of electrical memory in liquid crystal composites filled with organo-modified montmorillonite and multilayered carbon nanotubes. As a member of a research team, in 2011 Mykola Lebovka was awarded a State Prize of Ukraine in Science and Engineering for Quantum Effects and Structural Self-Organization in Novel Multi-Functional Nano-Materials. Common scientific interests unite Mykola Lebovka with researchers from different countries. He frequently participates in various international projects of research collaboration, as well as in organizing scientific conferences, schools, seminars, etc.

Professor M. Lebovka contributes a lot of efforts into eductional activities and training of young scientists. During many years he was lecturing in a number of key Kyiv universities, including the National University of Kyiv-Mohyla Academy, the National Technical University of Ukraine 'Kyiv Polytechnic Institute' and the National Aviation University of Ukraine, where he was delivering such special subjects as Software Instruments for Solving Physical Problems, Simulation of Physical and Biological Media, Physics of Disordered Media, Fractals in Natural Sciences, etc. He also taught courses "Application of High Electric Fields for Treatment of Biomaterials" in the Universite de Technology de Compiègne, France. At present, M. Lebovka continues his educational activities at Molecular Physics Department of Taras Shevchenko National University of Kyiv. He is a great lecturer. Many people get to understand various sophisticated concepts in maths and physics due to attending his lectures. M. Lebovka pays much attention to training the postgraduate students. All 11 his postgraduates successfully got their Ph. D. degrees under his guidance. They continue working in different prestigious scientific institutions in Ukraine and Europe.

Professor M. Lebovka actively takes part in organizational and social scientific activities in Ukraine and abroad. He is a member of several Specialized Scientific Councils for Ph. D. and D.Hab. degrees; member of Scientific Council for Physics of Soft Matter (Physics and Astronomy Department of the National Academy of Sciences of Ukraine). He is a member of Scientific Council of National Research Foundation of Ukraine and Ukrainian committee, 2018 award L'Orèal-UNESCO for Women in Science. For many years, he represented Ukraine in the Council of Association International pour l'Étude des Argiles (AIPEA, International Association for the Study of Clays).

He is a member of the International Society for Electroporation-Based Technologies and Treatments, an invited guest editor and a member of editorial boards of different international scientific journals.

Colleagues and friends congratulate Mykola Lebovka with his jubilee and wish him to be in good health and get inspiration for new results, discoveries and inventions.