

ANATOLII ANDREEVICH DOLINSKII

**Director of the Institute of Engineering
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Doctor of Technical Sciences Anatolii Andreevich Dolinskii is also a Professor, Academician of the National Academy of Sciences of Ukraine, Honorary Professor of the National Technical University, Chairman of the National Committee of Ukraine on Heat and Mass Transfer, Chairman of the International Committee of CIS Countries on the Problems of Drying, Chairman of the Scientific Council for Support and Development of Industrial and Municipal Power Engineering at the Ministry of Education and Science of Ukraine, three-time winner of the State Prize of Ukraine, winner of the G. F. Proskura prize and of the V. I. Tolubinskii prize of the National Academy of Sciences of Ukraine, Honored Scientist of Ukraine. A. A. Dolinskii has been rewarded with a Diploma of the Presidium of the Supreme Soviet of Ukraine, with the orders "Friendship of the Peoples," "For Labor Achievements" (4th degree), and "For Services" (3rd degree).

In 2005 A. A. Dolinskii was awarded the International A. V. Luikov Prize by the National Academy of Sciences of Belarus for his contribution to the development of

the creative heritage and many years of basic research in the field of heat and mass transfer as well as spray drying.

A. A. Dolinskii is an authority in the field of drying. Under his guidance a large number of the energy-saving technologies and equipment have been introduced into the industry.

He developed a fundamentally new method to enhance heat and mass transfer in a discrete-pulse transformation of energy. In the Ukraine, he introduced a new trend of nanotechnologies, made a considerable contribution to the development of the theory of heat and mass transfer in disperse gas-liquid media and its computation.

A. A. Dolinskii is the author of more than 500 scientific articles and contributions.

A. A. Dolinskii has devised the technology and apparatuses for evaporative-drying equipment in the production of thermolabile solutions of antibiotics and foodstuffs.

Dolinskii's technology and equipment for dehydration of blood substitute were first introduced in Minsk, Krasnoyarsk, Penza, and Saransk. More than a hundred of evaporative-drying aggregates were also introduced into the industry of the USSR, India, Bulgaria, and Czechoslovakia.

During the years of development of space technologies, the specialists in drying came up against the problem of removing moisture from the micropores of metal articles after they underwent hydraulic tests. The modeling dependences were obtained by Dolinskii's group for estimating in practice the heat- and mass transfer coefficients on evaporation of a liquid into vacuum, the total time of drying was determined with account for the time of evacuation and heating.

In 1984 A. A. Dolinskii was the first to publish a fundamentally new method of discrete-pulse energy input into heterogeneous media (DPEI).

This has been theoretical and experimental proven by A. A. Dolinskii's school and enabled to monitor the technology at the nanolevel in different branches of industry with a 2–3-fold energy saving.

The discrete-pulse energy input is efficiently used in the processes of spray drying and concentration for preliminary mixing, homogenization, and structuring of the original product. Thus, the use of DPEI in the technology of spray drying of a substitute of unskimmed milk makes it possible to increase the quality of the product, to decrease losses in the process of drying, to prolong the cycle of continuous operation of apparatuses, etc.

The production of dry forms of bacterial preparations that now are being widely used in food and fodder processing industries is conditioned by the requirements for obtaining powders with a high biological activity which could be long preserved during storage.

The traditionally used structural additions and fillers, just as the means of their introduction, often do not satisfy such requirements. At the Institute of Thermal Engineering of the National Academy of Sciences of Ukraine a series of investigations of the effect of thermotechnological and hydrodynamic factors in preparation of a composite mixture: a cultural liquid — protein fillers on a rotor-pulsating apparatus of

DPEI for different parameters of its operation. The conditions were determined under which the following processes proceed simultaneously and most efficiently: disintegration of bacterial colonies, dissolution of a stabilizing filler in a disperse medium, homogenization of a mixture which ensures such a reforming of the structure of the original bacterial suspension at the nanolevel.

A total of 22 technologies have been developed and introduced on the basis of DPEI. For their implementation into 11 branches of industry the Institute was awarded with a Honorary Diploma of the 4th International Forum "High Technologies of the 21st Century" (Moscow, May 2005).

The theory, investigations, and the practice of introduction of DPEI have been described in three doctoral dissertations and in 109 publications on energy-saving technologies by A. A. Dolinskii and his students. The technological developments are 9 patents described in.

The investigations carried out by A. A. Dolinskii in the field of power engineering of Ukraine have made it possible to delineate the most urgent trends of energy saving and first of all in municipal power engineering where the losses in the coefficient of fuel consumption exceed 50%.

The scientific-organizational foundations of the modernization of municipal power engineering implemented in the country under the guidance of A. A. Dolinskii include the development of energy-saving technologies of joint production of heat and electric energy, thorough utilization of waste gases, systems of control of boiler operation and protection from explosion; creation of new constructions of water-heating boilers, new heat transfer surfaces, devices for diagnosing heat losses, calorificity of fuel, etc.

The Presidium of the National Academy of Sciences of Ukraine, chose A. A. Dolinskii to head the Program of Development of the Basic Foundations of Complex Modernization of the Municipal Power Engineering of the country.

For the work "Technology and Equipment for Extensive Modernization of the Production and Use of Heat" the collective of specialists headed by A. A. Dolinskii was awarded with the State prize of the Ukraine in the field of science and technology for 2004.

The scientific activity of A. A. Dolinskii, Academician of the National Academy of Sciences of Ukraine, is closely connected with the A. V. Luikov Institute of Heat and Mass Transfer of the National Academy Sciences of Belarus. As recommended by Academician A. V. Luikov, A. A. Dolinskii was entrusted to create and to head the Ukrainian Committee on Drying which in the course of 25 years convened once in four years the All-Union Conferences on Drying.

For many years A. A. Dolinskii has been a member of the Organizing Committee of the Minsk International Forums on Heat and Mass Transfer.

For joint research works carried out by the Institute of Engineering Thermophysics of the National Academy of Sciences of Ukraine and the Institute of Heat and Mass Transfer of the National Academy of Sciences of Belarus A. A. Dolinskii was

awarded in 2004 the Honorary Diploma of the National Academy of Sciences of Belarus and received the premium of the Presidents of the National Academies of Sciences of Ukraine, Belarus, and Moldavia in 2002.

A. A. Dolinskii initiated the creation of a permanent exhibition of the achievements of the Institute of Engineering Thermophysics in "Saving of Energy Resources."

For many years A. A. Dolinskii has been the Editor of the scientific journal "Industrial Thermal Engineering," whose English-language version "Industrial Heat Engineering" was published by Begell House Inc. in New York, USA, a member of editorial boards of leading journals on the problem of heat and mass transfer, of the Journal of Engineering Physics (Belarus), Journal of Drying Technology (Canada), Heat and Mass Transfer (USA), etc.

A. A. Dolinskii pays great attention to the preparation of the young generation. He chairs specialized scientific councils for the defence of doctoral and candidate dissertations. Among his pupils are tens of doctors and candidates of sciences.

A. A. Dolinskii was born in a village of Orlyanka, Vasil'kovskii Region of the Zaporozh'e district. In 1949 he finished the school and in 1954 graduated from the Kiev Polytechnic Institute, the Faculty of thermal power engineering. From 1954 to 1959 he worked as the chief engineer-technologist at the turbine plant "Pyargal" in the town of Kaunas, Lithuania.

A. A. Dolinskii began his work at the Institute of Engineering Thermophysics of the National Academy of Sciences of Ukraine in 1957, first as an engineer, then a chief of mechanics, junior scientist, senior scientist and then as the head of the Scientific Department. From 1982 he has been the Director of the Institute of Engineering Thermophysics of the National Academy of Sciences of Ukraine. From 1985 he has been deputy of the Academician-Secretary of the Department of Physical and Technical Problems of Energetics of the National Academy of Sciences of Ukraine.