IN MEMORIAM

Dimitrije Voronjec, Ph. D.

A retired full-time professor

(July 30, 1936 – September 23, 2017)

Prof. Dimitrije Voronjec, Ph. D., was born on July 30, 1936 in Belgrade, where he completed his elementary and high school education and graduated from XIV Belgrade gymnasium in 1954. Prof. Voronjec was of Russian nationality, descendant of Konstantin Voronjec, who, as a young man, emigrated from Russia together with a large group of refugees after the October Revolution, finding a new home in the Kingdom of Yugoslavia and Serbia. He was a remarkable member of the Russian society and intelligence, and with an almost invaluable human potential in the following years, he will remarkably affect the Kingdom and significantly contribute to the overall development of Serbia, primarily in the fields of science, culture and art. Among else, Konstantin and Dimitrije Voronjec, have become, through many generations, bearers of education for domestic experts in technical faculties, where many Russian scientists and university professors, such as Laskarec, Saltikov, Bilimovič, Farmakovski, Saljnikov, have worked.

He enrolled into Faculty of Mechanical Engineering of the University of Belgrade in 1954 and graduated in 1960. He defended his Magister thesis "*Temperature boundary layer at high-rotating curvilinear contours*" in 1966 on the Faculty of Science and Mathematics in Belgrade. He received his Ph. D., as a Humboldt foundation two-year scholarship holder, at the Karlsruhe University of Applied Sciences in 1969, with a Ph. D., thesis titled „*Beltrami-Stroumung auf Kugelflachen*".

He was elected assistant at the Department of Thermomechanics of the Faculty of Mechanical Engineering in Belgrade in 1962; assistant professor (docent) in 1971; associate professor in 1978; and a full-time professor in 1982. At the Faculty of Mechanical Engineering in Belgrade as well as at faculties in Podgorica, Valjevo, Kraljevo and Užice, he taught Thermodynamics, Technological operations, Dryers, Thermotechnics and the Basics of Process Chemistry at the undergraduate and graduate studies, as well as multiple subjects from the broader field of Thermodynamics at then postgraduate studies.

He was Head of the Department of Thermomechanics of the Faculty of Mechanical Engineering in Belgrade from 1983 to 2001 and Vice Dean for Education from 1985 to 1989.

Since 1990, he was Yugoslavia's delegate in European Federation for Chemical Engineering (Department of Drying); in 1993, he was named expert on behalf of the Federal Ministry of Science and Technology (Thermodynamics, Process Technology, Drying, Energy); in 1997, he received a medal from the Yugoslavian Society for KGH; and in 1998, first plaque from Yugoslavian Society for Process Technology.

Since 2000, he was a regular member of Academy of Engineering Sciences of Serbia (AESS) and in 2002, he was elected foreign member of the Russian Academy of Architecture and Constructional Sciences.

He was also a member of several scientific and professional societies – GAMM Society (Germany), Society of Drying Technology (USA), Society of Thermal Engineers of Yugoslavia and Serbia, Society of Applied Mathematics and Mechanics of Yugoslavia and Serbia.

On multiple occasions, Prof. Voronjec attended study visits in Germany, Norway, and Russia, during which he was invited to hold a series of lectures by the Institute for Fluid Dynamics, Karlsruhe – 1976-2001, Institute of thermophysics SO AN SSSR Novosibirsk (in 1980), Institute of Physics of Minerals AN SSSR, Moscow (in 1992) and by the University in Bitola, (Republic of Macedonia) (in 1996).

Prof. Voronjec's most significant scientific contribution was in the fields of theoretical and applied thermodynamics, combined heat and matter transfer in the convective drying processes, the analogy of the transfer process, the thermodynamics of multicomponent systems and chemical thermodynamics and the rational use of energy. Of significant importance is Prof. Voronjec's participation in the research program of the process of drying agricultural products, which consolidated the work of larger group of researchers in the Laboratory for thermotechnics and energy, Vinča Institute of Nuclear Science and Faculty of Mechanical Engineering. His active involvement in planning, direction and implementation of these researches in cooperation with Miodrag Stefanović, Ph. D., and in constant cooperation with the industry, significantly contributed to their successful realization.

Professor Voronjec believed that engineering, improvement of classical and especially development of new technologies must be based on fundamental research and knowledge. Although his primary interest was directed towards fundamental issues of thermodynamics, as a basis for thermotechnics and thermoenergetics, Professor Voronjec payed significant attention to the practical implementation of fundamental scientific knowledge. Hence, during his career he continually cooperated on research programs aimed at national industrial needs.

Main objective of the research of drying process in the Institute Vinča was collection of data to confirm certain theoretical approaches. During many years of research, a number of magister and Ph. D., theses have been defended under his leadership. Professor Voronjec also devised more than 50 experimental research for the purpose of graduate theses of students of the Faculty of Mechanical Engineering. Results of this research were used for the development of several new drying technologies based on completely new principals, as well as for projection, production and putting into operation dozens of industrial facilities for drying of grain and fruit. He proposed to title this twenty-year research, in the professional and scientific literature, as "Vinča School of Drying".

Results of his research – including more than 15 projects that he either managed or cooperated on, financed by the national Ministry of Science, were published in over 180 scientific and scientific-professional papers in international and national journals and proceedings of international and national congresses. Among them, the following stand out as most significant ones:

- Milojević, D., Sefanović, M., Voronjec, D., Teplo i massoperenos pri konvektivnoj suški zernastih materijalov v plotnom sloe, Termomassoobmen VI, Tom , p 120-127, Minsk, 1980.
- Stefanović, M., Kanevče, G., Voronjec, D., Kuc, P., Izotermii sorbcii i desorpcii, energija svazi vlagi model materijalov, VII Vsesojuznaja konferencija o teplo-masso obmene, SSSR, Minsk, 1984.
- Rackov, S., Voronjec, D.: Diffusion-effusion model of controlled atmosphere with evaluation of transparency coefficient in special purpose buildings, in: Heat and Mass Transfer in Building Material and Structures, pp. 71-78, Hemisphere, New York, 1990.

- Stefanović, M., Voronjec, D., Stakić, M., Urošević, M., Kozić, Dj., Some Thermodynamical Problems of Processes in a Capillary Porous Colloidal Bodies during Convective Drying, Russian Journal Engineering Thermophysics, Vol. 5, (1994) 4 347-359.
- Voronjec, D., Antonijevic, D.: Drying potential of humid air – a Thermodynamical Analysis, Int. J. Drying Technology, Vol. 14, No 7-8, pp. 1750-1762, 1996.

In his professional career, Professor Voronjec played great deal of attention to his teaching obligations and work on textbook literature. He co-authored and authored more than 17 books, including two monographies, most of which were re-issued and one was published in Russia (Д. Воронец, Ђ. Козич: Vlazhnyy vozdukh: T'ermodinamich'eskie svoystva i pr'im'in'enie – in Russian], п. 135, Енергоатомиздат, Москва, 1984).

Aside from that, Professor Voronjec dedicated a part of his pedagogical career to mentor around 170 graduate theses, 26 magister theses and 22 Ph. D., theses on many faculties across the ex-Socialist Federal Republic of Yugoslavia.

Professor Voronjec especially significantly contributed to the development of science in Serbia and Yugoslavia, due to his broad international scientific cooperation and dedication to securing scientific and professional specializations to entire generations of young assistants and scientists, which have now become carriers of educational, scientific and professional development of their faculties and institutes in Serbia as well as in many other neighboring countries, ex-Yugoslavian republics – Montenegro, Macedonia, Bosnia and Herzegovina.

However, all of the above would be mere enumeration of facts, without stating that Professor Dimitrije Voronjec was a very social person who had various interests.

He was a grand master in the game of bridge and has attended many international bridge tournaments, played tennis from an early age until recently. He loved company and was a favorite of professors as well as students, whilst graduate and Ph. D., celebrations of his Department were famous on the Faculty of Mechanical Engineering in Belgrade. Because of his teaching, scientific and social activities, he will be long remembered by his colleagues and students.

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