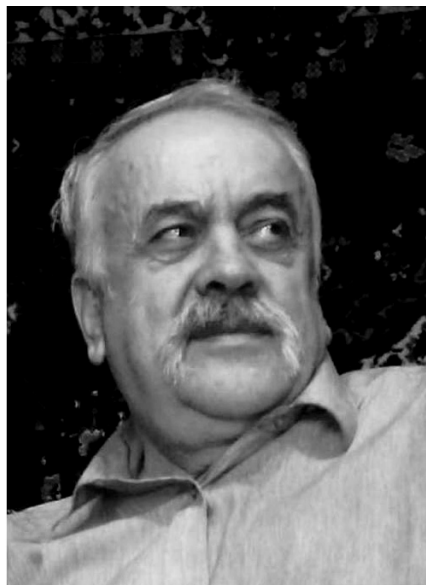

TO THE MEMORY OF VOLODYMYR PETROVYCH GACHOK



May 16, the famous scientist, physicist and mathematician, many-sided personality, Person and Patriot, Doctor of Phys.-Math. Sci., Professor Volodymyr Petrovych Gachok came into eternity at the age of 74. Persistent and thoroughly gifted Volodymyr Petrovych joined the scientific and art creativity, by purposefully obtaining bright results due to his inexhaustible diligence.

V.P. Gachok was born in the Lemkivshchyna at the village of Svyate in the L'viv region at a hard-working rural family on February 7, 1935. Already in the childhood, he was subject to the unjust forcible resettlement from the native land and the great-grandfather home. In 1945, the family of Volodymyr Petrovych was forced to move to the village of Berestok and then to the town of Zalishchyky of the Ternopil region, where he graduated from a secondary school. Already at that time, his aptitude for mathematics and the

talent to play on musical instruments were clearly revealed. He realized the strength of knowledge which will remain exclusively his property under any circumstances during the complicated unforecasted course of life.

His successes at the Zalishchyky secondary school were marked by the gold medal in 1953, and then Volodymyr Petrovych went courageously to the far unknown Kyiv city, where he entered the Mechanical-Mathematical Faculty of T.G. Shevchenko Kyiv State University.

After the University, V.P. Gachok was assigned to work as an engineer at the Institute of Mathematics of the Academy of Sciences (AS) of UkrSSR at the department of functional analysis under the guidance of Professor, Academician in the future, O.S. Parasiuk. In 1962, V.P. Gachok defended the Candidate dissertation on quantum field theory [1]. In 1966, he became the senior scientific researcher at the department of mathematical methods in theoretical physics. The Doctor dissertation was defended by Volodymyr Petrovych in 1968 [2].

During the work at the Institute of Mathematics, the quite young scientist V.P. Gachok published the significant article on axiomatic quantum field theory in the international journal "Nuovo Cimento". This work underlay his Doctor dissertation and arose a wide interest of many experts in this scientific field.

In 1966, by the initiative of the outstanding physicist-theoretician and mathematician Academician M.M. Bogolyubov and according to a decision of the Presidium of the AS of UkrSSR, the Institute for Theoretical Physics (ITP), being one of the first institutes of such a profile in the world, was established. Volodymyr Petrovych was invited to work at this institute and became its first Scientific Secretary. He practically realized the Bogolyubov's thoughts as for the development of the Institute and the

training of future scientists. By comprehending the importance of this question, Volodymyr Petrovych took the active participation in the establishment of the chair of the theory of nuclei and elementary particles at the Faculty of Physics of the Kyiv University.

As one of the talented young scientists, Volodymyr Petrovych was sent by the AS of UkrSSR to work on probation in the USA in 1969 and in Italy in 1972. By that time, he obtained and published the results of the world level, including the construction of integral representations of the vacuum averages for chronological and ordinary products of field operators in the general quantum field theory. He established the interrelations with the known American scientists A. Jaffe and J. Glimm who were the founders of constructive quantum field theory.

V.P. Gachok was the organizer of All-Union seminars and a member of the Organizing Committee of the XV-th Rochester conference held in Kyiv in 1970.

Many efforts were made by V.P. Gachok to train a group of young scientists. Then the majority of them defended Doctor dissertations, became skilled scientists, and are working now at various scientific institutions of Ukraine.

The scientific results obtained by V.P. Gachok concern with fundamental problems of quantum field theory, in particular, with constructive methods of description of interacting quantized fields, the study of operators and Markov semigroups by methods of the theory of perturbations, and their application in quantum mechanics and constructive quantum field theory. He proved the fundamental theorem on the reconstruction of self-adjoint operators of quantum field theory by the averaged values, the Whiteman's functions. The results published by V.P. Gachok in 1961–1968 were mentioned and used by such world-famous scientists as M.M. Bogolyubov, A.A. Logunov, I.T. Todorov, A.I. Oksak, and others. R.F. Streater cited the well-known Federbush–Johnson theorem with Gachok's conditions.

It is of interest that one of the theorems on axiomatic quantum field theory (about G -ergodic quantum states), which was published by V.P. Gachok in 1968, was independently reproved in some time in the theory of representations of Lie groups by the outstanding mathematician Harish-Chandra. This theorem plays a key role in the proof of the irreducibility

of infinite-dimensional representations of noncompact groups.

The results obtained were presented by V.P. Gachok in monograph [3] which received the favorable reviews of experts.

With such scientific achievements, anyone would work in the same direction, but all this was not inherent to V.P. Gachok. He permanently sought the new in science and, one day, sharply changed the direction of his scientific studies. Starting from ABC, he studied comprehensively the modern biochemistry. In 1981, he became Head of a laboratory on the theory of nonequilibrium systems. Then, in 1990, the laboratory was transformed into the department of synergetics. Its scientific direction was the development of the kinetic theory of biophysical and biochemical processes in active media. The studies covered the problems of biotechnology, medicine, and synergetics. Under the guidance of V.P. Gachok, the powerful mathematical models for the calculations of the kinetics of biochemical processes in bioreactors and biosensors were constructed, and the self-organization of biosystems and the formation of strange attractors, dissipative structures, and space-time chaos were studied. He advanced the idea to use autowave and chaotic processes in biosensors for supersensitive measurements and developed the models of homeostasis of blood-vascular and immune systems. V.P. Gachok can be considered one of the founders of the scientific trend "Synergetics of alive systems". The results on this trend were published by him in two monographs [4,5] and underlay a number of Candidate dissertations.

But all those achievements were not sufficient for him. He learned the economy in detail and studied its state with the help of mathematical models. The obtained results are presented in his monograph [6].

As a true Patriot of Ukraine, he worried about the country, saw shortcomings in its economy and policy, and took the active public participation in country's political life. He published a number of articles on the economy and policy in journals, placed them in the Internet, and sent his proposals to the secretariates of President and Prime-Minister and to the Verkhovna Rada of Ukraine.

Volodymyr Petrovych made no compromise in basic questions, though such a position made his life complicated sometimes.

Being a many-sided personality, he spent many time for drawing. The high spiritual culture of V.P. Gachok was manifested in the creation of a gallery of paintings on various themes. His each painting, irrespective of the topic, was always distinguished by distinctive colors and a profound context and forced a spectator to think, because it bears a part of painter's soul in itself. V.P. Gachok made a lot of efforts to reconstruct the initial view of the Vyshgorods'ka Virgin icon. Then he painted a copy of this icon for the Pyrohoshcha temple. The priests are thankful him for this gift.

Like rays of a far, died out star which is shining for the humanity as a pointer to the future for plenty of years, the achievements of Professor Volodymyr Petrovych Gachok will not be forgotten for a long time. Therefore, he will continue to live among us, since the memory is the main sign and a pledge of people's life. V.P. Gachok glorified the domestic science and made the respect of scientists from many countries to the people and lands of Ukraine more profound. The blessed memory of Volodymyr

Petrovych will be forever conserved by all who knew him.

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