SERHII VOLODYMYROVYCH PELETMINSKY
(to the 75th Anniversary of his Birthday)

On February 14, 2006, the well-known physicist-theorist Serhii Volodymyrovych Peletminsky — the main research fellow of the O.I. Akhiezer Institute for Theoretical Physics of the National Science Center "Kharkiv Institute of Physics and Technology", Academician of the National Academy of Sciences of Ukraine, Honored Worker in Science and Engineering of Ukraine – was 75 years of age.

After graduating from the Kharkiv State University in 1953 and the postgraduate studying at the KSU, S.V. Peletminsky, in 1957, entered the Ukrainian Physicotechnical Institute (UPTI, now the National Science Center "Kharkiv Institute of Physics and Technology") to the theoretical department headed by O.I. Akhiezer. Since then, the scientific activity of S.V. Peletminsky has been inseparably linked with the KIPT, where he made his career from the scientific employee to the Head of the Department of Theoretical Physics. In 1978, he was elected the Corresponding Member and, in 1990, the Academician of the National Academy of Sciences of Ukraine.

Serhii Volodymyrovych's scientific interests are connected with various branches of theoretical physics: quantum field theory, statistical mechanics, the physics of quantum liquids and crystals, and the theory of magnetic phenomena in crystals. He is the author of a number of fundamental results, which are recognized by the world scientific community.

In 1956, in a series of works carried out together with O.I. Akhiezer and V.G. Bar'yakhtar and devoted to studying the dynamical processes in magnets, S.V. Peletminsky discovered the phenomenon of magnetoacoustic resonance.

In the 1960s, V.G. Bar'yakhtar and S.V. Peletminsky developed the microscopic quantum-mechanical theory of thermo-galvano-magnetic phenomena in metals and semiconductors. Later on, for their works dealing with the theory of the dynamics and kinetics of magnets, O.I. Akhiezer, V.G. Bar'yakhtar, and S.V. Peletminsky were awarded the K.D. Sinelnikov Prize of the Academy of Sciences of Ukraine.

During the period of intense plasma-thermonuclear researches at the UPTI, S.V. Peletminsky, together with V.G. Bar'yakhtar and V.F.Aleksin, carried out a number of works triggered by O.I. Akhiezer which concern the theory of rarefied plasma in a strong magnetic field. Serhii Volodymyrovych is also the coauthor, together with I.O. Akhiezer, of the fundamental work in the theory of relativistic plasma devoted to the application of quantum-field-theory methods to studying the thermodynamic properties of the electron and photon gas. This activity was continued by O.I. Akhiezer, S.V. Peletminsky, and their disciples when investigating the quark-gluon plasma.

Statistical mechanics undoubtedly was and remains the branch of theoretical physics, where

Serhii Volodymyrovych and his numerous disciples (E.G. Petrov, O.O. Yatsenko, D. Tskhakaya, V.D. Tsukanov, V.I. Prykhod'ko, Yu.P. Virchenko, O.I. Sokolovsky, M.Yu. Kovalevsky, N.M. Lavrynenko, V.V. Krasyl'nykov, M.V. Laskin, Yu.V. Slyusarenko, O.O. Isaev, O.M. Tarasov) obtained a considerable number of essentially important results.

S.V. Peletminsky has substantially extended the method of the reduced description of nonequilibrium processes and applied it to the solution of a number of actual problems. The Peletminsky–Yatsenko equation for the statistical operator belongs to one of the significant contributions to the physical kinetics. On the basis of the method of the reduced description of nonequilibrium states, S.V. Peletminsky together with Yu.P. Virchenko, O.I. Sokolovsky, and M.Yu. Kovalevsky succeeded to solve the fundamental problem of statistical physics — the construction of the nonequilibrium coarse-grain entropy of the system of interacting particles — and to prove the symmetry properties of kinetic coefficients.

Another important application of this method and its extension onto quantum-mechanical systems were made in the works of S.V. Peletminsky and his disciples N.M. Lavrynenko, O.I. Sokolovsky, M.Yu. Kovalevsky, Yu.V. Slyusarenko, and O.M. Tarasov. This direction of research is connected with the description of different systems with spontaneously broken symmetry and revealing the asymptotic properties of their Green's functions.

The method of the reduced description of nonequilibrium states has gained a renewed impetus in the cycle of S.V. Peletminsky's works (carried out together with O.I. Sokolovsky, Yu.V. Slyusarenko, and V.I. Prykhod'ko) devoted to the construction of the kinetic theory of macroscopic fluctuations. In those works, the universal structure of the kinetic equations for fluctuations has been found, the hydrodynamical theory of long-wave fluctuations has been developed, and the power-like law of the system relaxation towards the equilibrium state have been studied.

In 1980s and 1990s, Serhii Volodymyrovych together with O.O. Yatsenko, V.V. Krasyl'nykov, and O.O. Isaev developed the approach, which generalizes the Landau—Silin theory of normal Fermi liquids and the Bardeen—Cooper—Schrieffer—Bogolyubov equations onto superfluid systems. This approach has been applied to study the superfluidity and phase transitions in nuclear matter.

In 1986, for the investigation of the systems with spontaneously broken symmetry, S.V. Peletminsky, together with P.M. Bogolyubov and I.R. Yukhnovsky, was awarded the M.M. Krylov Prize of the NAS of Ukraine.

In 1996, for the series of works "Kinetic processes in quantum liquids and crystals", S.V. Peletminsky with the group of scientists was awarded the State Prize of Ukraine in Science and Engineering. In 2002, he, together with L.A. Pastur and V.G. Kadyshevsky, was awarded the M.M. Bogolyubov Prize of the NAS of Ukraine for the series of works "The field theory and the theory of disordered systems".

Serhii Volodymyrovych pays much attention to training physicists-theorists. He has created the scientific school on statistical physics known in the whole world. Among his disciples, there are twenty Candidates in Physics and Mathematics, twelve of whom have defended their theses for a Doctor's degree.

Serhii Volodymyrovych's scientific yield comprises more than 250 scientific publications and 5 monographies published both in Ukraine and abroad. He uses his great experience, nonordinary talent, and natural gifts in full measure in his researches. His high humanities and the bright talent of the theorist gained Serhii Volodymyrovych the large authority and deep respect.

The scientific community, his colleagues, and disciples sincerely congratulate Serhii Volodymyrovych with his jubilee and wish him a sound health, happiness, and new creative successes.

V.G. Bar'yahtar, V.V. Eremenko, V.F. Zelensky, L.M. Lytvynenko, V.M. Loktev, V.G. Manzhelii, I.M. Neklyudov, V.P. Semynozhenko, I.R. Yuhnovsky, V.M. Yakovenko, V.M. Azhazha, B.V. Gryn'ov, A.G. Zagorodny, I.I. Zalyubovsky, V.F. Klepikov, E.G. Petrov, V.V. Slezov, K.M. Stepanov, V.T. Tolok, P.I. Fomin, M.F. Shul'ga, O.S. Bakai, A.M. Dovbnya, O.M. Egorov, I.M. Karnaukhov, V.I. Lapshyn, O.O. Isaev, M.Yu. Kovalevsky, Yu.V. Slyusarenko, O.Yo. Sokolovskii, O.O. Yatsenko