
 IN MEMORY OF YURIIVANOVYCH CHUTOV



On March 6, 2005, after a serious and long illness, Yuri Ivanovych Chutov, the known expert in the field of plasma physics, Doctor of physical and mathematical sciences, Professor of the Taras Shevchenko Kyiv National University, deceased.

Yu.I. Chutov was born in the village of Orzhytsya in the Poltava region on November 23, 1937. After studying at the rural school, he entered the Faculty of Radiophysics at the Taras Shevchenko Kyiv State University and, after successful graduating from this university, began his active scientific work in 1960. His entire career was connected with the Chair of Physical Electronics of the Faculty of Radiophysics at the Kyiv University. At first, Yu.I. Chutov took up engineering and scientific posts here, and then, in 1973–1986, he was a Head of the scientific and research sector of the university and a Deputy Pro-rector for science, combining the administrative activity with teaching one and scientific researches. In 1986–2002, he was Head of the Chair of Physical Electronics.

Yu.I. Chutov considered N.D. Morgulis, an outstanding domestic physicist, the founder of the Kyiv school of physical electronics, the founder of the Chair of Physical Electronics at the Kyiv University, a Corresponding member of the Academy of Sciences of Ukraine, as his teacher and kept grateful remembrances about him through all his life. He defended his Ph.D.

thesis “Researches of physical properties of pulse mobile plasma”, written under the direction of N.D. Morgulis, in 1970 and his doctoral one “Physical properties of plasma with a movable boundary” at the Moscow Engineering Physics Institute in 1985.

When working at the Faculty of Radiophysics of the Kyiv University, Yu.I. Chutov started a number of new scientific directions. For example, these involve the experimental researches concerning a pulse plasma, shock waves in plasma, and a pulsing discharge, as well as a computer simulation of plasma processes and phenomena, in particular, physical phenomena in a dusty plasma. The results of those researches were widely recognized throughout the whole world. Yu.I. Chutov has published over 200 scientific works on physics of low-temperature plasma, gas discharge, and shock waves, more than 50 of them being published abroad.

In his early scientific researches, Yuri Ivanovych discovered the phenomenon of electric detonation upon the propagation of shock waves in a gas-discharge plasma and their acceleration at crossing the interface between the plasma and a neutral gas. A number of Yu.I. Chutov’s works was devoted to studying the dynamics of plasma bunches and their cooling owing to the expansion and interaction with a neutral gas. The formation of a cold core of plasma bunches and the intensive acceleration of ions at the bunch boundaries by an electric field were predicted in those works.

Under the direction of Yu.I. Chutov, an effective thermoemission converter of the thermal energy into the electric one with an additional pulsing discharge has been developed.

During the last decade, a series of works dealing with the computer simulation of phenomena in a dusty plasma has been carried out under the guidance of Yu.I. Chutov. On the basis of the results obtained, the essential influence of a selective charge exchange between dust particles and background electrons and ions on the physical properties of near-electrode plasma layers with dust particles was established. The effect of inhomogeneous charging of dust particles in the plasma of a radio-frequency discharge owing to a nonequilibrium distribution of electrons was revealed.

Yu.I. Chutov paid significant attention to the educational activity, teaching, and training the young

specialists. He gave the basic courses of lectures for students specializing in physical electronics. Being an admirable lecturer, he enjoyed a permanent esteem of his students. Six Ph.D. theses were defended under Yu.I. Chutov's guidance. During the complicated period of formation of the independent Ukrainian state, he managed to retain the staff of the chair, to avoid the deterioration of the expert preparation quality, to support basic groups of scientists, and even to start researches in the new direction, the physics of dusty plasma.

Yu.I. Chutov took an active participation in the international scientific cooperation, in particular, in the framework of the European scientific programs, in common scientific projects with scientists from the Eindhoven University (the Netherlands) and the Nagoya University (Japan). A manifestation of the respect that Yu.I. Chutov won of the international scientific community was his election a member of the Board of the section on dusty and colloidal plasmas of the European Physical Society in 2000.

Yu.I. Chutov was inspired with the problems of higher education in Ukraine, took the active participation in the formation of the Ukrainian Higher Education Academy of Sciences (1992), being its vice-president in 1992–1998. He was rewarded with a Diploma of Honor and a silver medal of the Exhibition of Main Economic Achievements of the USSR and was decorated with a “Sign of Honor” order.

Yurii Ivanovych Chutov, being a bright and nonordinary figure, a strong and strong-willed person, has kept those features until last days of his life. His wide scholarship and brilliant erudition spread far beyond the boundaries of the range of investigations, where he was directly engaged. His progeny and colleagues will remember him as a gifted physicist, a person who loved science sincerely and devoted his life to it.

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