

Genrikh Romanovich Ivanitsky (on his seventieth birthday)

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Professor Genrikh Romanovich Ivanitsky, corresponding member of the Russian Academy of Sciences (RAS), DSc in Physics and Mathematics, and member of the editorial board of *Uspekhi Fizicheskikh Nauk* [*Physics – Uspekhi*] journal, celebrated his 70th birthday on November 8, 2006.

Ivanitsky was born in Moscow on November 8, 1936, graduated cum laude (Gold Medal) from high school there in 1954, and graduated from the radioelectronics department of the Moscow Aviation Institute in 1960. Having learnt of Norbert Wiener's ideas, he became interested in problems of biology and in the same year was invited by Academician G M Frank to work at the Institute of Biological Physics of the Academy of Sciences of the USSR.

Ivanitsky is an outstanding scientist, teacher, and science administrator. His very broad erudition and capacity for hard efficient work have enabled him to make an important contribution to many different fields of natural sciences, from physics to medicine. He has authored more than 450 publications, including 19 patents and 20 monographs and booklets. In the early 1960s he developed a novel computer-based scanning technology for studying microscopic biological phenomena. The method, which simulated vision processes, received a patent and was sold to Carl Zeiss Jena; a range of instruments called Morphoquant was manufactured, reaching for the first time the theoretical limit of optical resolution. This work was rewarded in 1978 with the USSR State Prize and its results were included in the *Handbuch der Mikroskopie* (Berlin: Herausgeber, 1973).

In the second half of the 1960s Ivanitsky developed special techniques and was able to determine the number of neurons and glial cells in various regions of the human brain. These results were included in the handbook *The Human Brain in Figures and Tables*, which was published by his scientific supervisor, professor S M Blinkov, in three languages and became an important event in neurological sciences.

In the late 1970s Ivanitsky and his colleagues discovered a *new class of waves* propagating in excitable media in biological, chemical, and physical systems and studied their properties. These waves are now known as autowaves and now their description can be found in all textbooks of physics and physiology. This work received the Lenin Prize in 1980.

In the 1980s–1990s Ivanitsky and his colleagues and students synthesized a gas-transporting blood substitute known as perftoran, a world first. Since 1997 this blood substitute has been manufactured for large-scale application in health services. In 1990 this work was awarded with the Prize of the Government of the Russian Federation, followed in 2002 with the first national Recognition Prize. At the beginning of the new century Ivanitsky and his team developed modern thermal imaging techniques in biomedical studies and built the scientific background for medical



Genrikh Romanovich Ivanitsky

thermography for early diagnostics of diseases of the vascular system.

Ivanitsky has trained several generations of experts in biophysics. Between 1971 and 2005 he wrote and published six booklets and five books on various aspects of biophysics for university and high school students and teachers, and produced eight educational films together with “Tsentr-NauchFilm” Studio on a number of problems in biophysics, many of these films receiving international recognition and awards at science film festivals. He created three science schools after 1970: computer-assisted morphometry, biosynergetics, and biothermal imaging. He has been advisor and supervisor to more than 70 master's, PhD, and DSc students and scientists.

He spends considerable time on science administration: he was Director of the Pushchino Research Center of the Academy of Sciences of the USSR from 1974 to 1987 and Director of the Institute of Biological Physics of the Academy of Sciences of the USSR between 1976 and 1987; between 1978 and 1984 he was a member of the Executive Committee of the International Union of Pure and Applied Biophysics; in 1982 he organized the 1st Congress of Russian Biophysicists and has invariably been on the organizing committees of all

subsequent congresses. Since 1974 he has sat on the Presidium of the Pushchino Research Center. Ivanitsky has been a member of the *Uspekhi Fisicheskikh Nauk* [Physics – Uspekhi] and *Biofizika* [Biophysics] editorial boards since 1986; in 2001 he became Director of the Institute of Theoretical and Experimental Biophysics of the Russian Academy of Sciences and Dean of the Educational Center Biophysics and Physiology of Pushchino State University; in 2003 he joined the Council on Science, Technology, and Innovation Policies of Moscow Region.

Ivanitsky was elected to membership of several international societies and academies and received a number of awards from the government. He is a laureate of four federal-level awards (the Lenin, State, and Government Prizes and the first national Recognition Prize).

Genrikh Romanovich Ivanitsky is full of energy, with a kind, friendly, optimistic, and open personality, who can find the right solution in any complicated situation. His friends, colleagues, and students wish him all the best from the bottom of their hearts and wish him good health, much happiness, and new wonderful achievements.

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