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**OBITUARY**

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**Yuri V. Mitrishkin**  
**(1946–2024)**

Doctor of Engineering, Professor Yuri Mitrishkin suddenly passed away on January 22, 2024, at the age of 86. He was an outstanding scientist and a remarkable teacher with half a century of experience, a full professor at Moscow State University, and a chief researcher at the Trapeznikov Institute of Control Sciences, the Russian Academy of Sciences (ICS RAS).

Yuri Mitrishkin, in full Yuri Vladimirovich Mitrishkin, was born in Kuibyshev (presently Samara) on November 26, 1946. In 1970, he graduated from Kuibyshev Polytechnic Institute (presently Samara State Technical University) with a degree in industrial electronics. His path in science began in 1972 with enrolling in the postgraduate program of ICS. In 1978, Yuri defended his candidate's dissertation on tuning control systems by the automatic search method (in the field of technical cybernetics and information theory). In 1982, he graduated from the Faculty of Mechanics and Mathematics (Moscow State University) with a degree in applied mathematics. In 2003, at the Kurchatov Institute, Mitrishkin defended his doctoral dissertation on the comprehensive development and application of adaptive auto-oscillatory and robust plasma control systems in fusion plants. He had worked at ICS for almost fifty years, from 1975 until the last day of his life.

Even during his first postgraduate studies, Yuri became interested in the problem of controlled thermonuclear fusion, which was just emerging at that time. An engineer in automatic control systems and electronic devices, he focused on applying his skills to the development of plasma control systems in tokamaks. The plasma in tokamaks is a very complex object from the standpoint of automatic control theory. Mitrishkin devoted his life to this problem and became the leading plasma control expert in Russia. His works are well-known throughout the world. Mitrishkin and his groups carried out R&D works and created plasma control systems in open magnetic traps OGRA-2 and OGRA-3 as well as in tokamaks TUMAN-3, TVD, TSP, T-11, T-15, Globus, Globus-M, IGNITOR, KTM, and Globus-M2.

For several years Yuri worked at the Culham Centre for Fusion Energy (UK) on the JET tokamak (1994–1995) and also at the Japan Atomic Energy Research Institute in the central team of the international ITER tokamak project (1995–1998). In addition, he was a visiting professor at the University of Tokyo. Mitrishkin wanted to see the day when the first fusion power plant would work or at least get the first plasma discharge in the ITER tokamak. Unfortunately, this did not happen, what a pity.

Yuri was an active reviewer for numerous journals and a guest editor of Mathematics (MDPI, Q1), with several hundred papers reviewed during his lifetime. Mitrishkin regularly participated in international conferences, including several IFAC World Congresses, and was an IEEE member. He left behind over 200 scientific publications, including a multi-part survey on plasma control in tokamaks (journal *Problemy Upravleniya*), 12 monographs on the theory of automatic control and design of magnetic plasma control systems in tokamaks, and 23 patents for inventions.

Mitrishkin had always avoided administrative work and preferred to discuss scientific problems with colleagues and students rather than participate in various meetings. He had a very strong-willed character and could tirelessly, for several years, promote the same issue before administrations of any level, eventually receiving the necessary funds for research. He expressed his point of view on all issues openly, as it was, without softening or minimizing the problems.

Yuri taught at the Moscow Institute of Physics and Technology (Department of Technical Cybernetics) and at Bauman Moscow State Technical University (Department of Automatic Control Systems). He had been a full professor at the Department of Physical and Mathematical Methods of Control (Faculty of Physics, Moscow State University) since the very establishment of this department (2009) until the last day of his life.

There had always been many students around Mitrishkin. Every student who, like him, was interested in the problem of controlled thermonuclear fusion, could get a task from Yuri. Having solved it, the student was admitted to start working with him on the merits of the case. Mitrishkin taught posing and solving scientific problems independently as well as was able to assess the results of R&D works comprehensively and at face value and congratulate with an original way to obtain the next scientific result. He was very tactful in communication, had an original sense of humor, and was able to find a common language and spark interest in a new task. Yuri was very respectful to his students: never refused in questions and helped to understand complex things. Scientific issues could be discussed with him on weekends and holidays, and Yuri worked actively until the last day of his life. Mitrishkin had always stood for his students and never been aside from their problems, no matter in what sphere they arose. He helped sincerely and unselfishly.

Mitrishkin liked to talk about history, especially national history, and was very worried about Russian science, army, navy, and the whole country. He used to repeat: “In some issues, we are 40 years behind the advanced developments, and we need to reduce this gap very quickly.” Yuri applied every effort to do so.

Yuri made long-term plans, followed them, and achieved his goals. He energized his students with confidence in the feasibility of plans. Mitrishkin organized a scientific school on plasma control in tokamaks, which will continue its work and further develop his ideas.

For us, Yuri has always been and will remain a Teacher.

*Students of Yuri V. Mitrishkin,  
researchers of ICS RAS:  
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