

## TO THE 100TH ANNIVERSARY OF YURY MIKHAILOVICH KAZARINOV



**Professor Yu. M. Kazarinov**  
(1920–2017)

On the 23rd of November in 2020, the Saint Petersburg Electrotechnical University "LETI" celebrated the 100th anniversary of Yuri Mikhailovich Kazarinov, Professor Emeritus, Honoured Scientist and Doctor of Sciences in Engineering.

Yu. M. Kazarinov was admitted to LETI in 1938. After the 3rd year of study, in 1941, he went to an artillery school to undergo accelerated training. Already in the spring of 1942, Yuri Mikhailovich was sent to take command of a battery in the battles near Kharkiv. In June of the same year, he was wounded for the first time, but managed to quickly return to service to take part in bloody battles in the North Caucasus. After a serious injury in 1943, he was demobilized in the rank of captain. In 1944, Yuri Mikhailovich continued his education at LETI. As a student

having participated in military action, he supervised the return of the university from evacuation after the liberation of Leningrad from the blockade. He graduated from LETI with honours in 1948 with a degree in Radiolocation from the first in the USSR Department of Radiolocation.

Since 1948, Yu. M. Kazarinov had been working at the Department of Radio Systems. During his impressive 69-year professional career in LETI, Yuri Mikhailovich earned the degrees of Candidate of Science in Engineering (1951), Associate Professor (1952), Doctor of Sciences in Engineering (1963), Professor (1964), Honoured Professor of Science and Technology of the Russian Federation (1979), Emeritus Professor of the Saint Petersburg Electrotechnical University "LETI" (2003), Emeritus Professor of the Yaroslavl-the-Wise Novgorod State University. For 36 years (1953–1989), he was chairing the Department of Radio Systems.

Professor Kazarinov was the founder and permanent leader of the LETI School of Electronic Systems for Positioning Moving Objects. His track record included scientific supervision over dozens of governmental R&D projects devoted to contemporary theoretical and technological problems of radar, radio navigation and air traffic control. The fundamental basis of such accomplishments was formed by the most advanced ideas at that time in information theory, statistical radio technology, management theory, digital microelectronics, etc. As the head and coordinator of scientific research, Yuri Mikhailovich always encouraged colleagues to tackle large-scale tasks related to avant-garde trends in their professional spheres. His organizational talent was clearly manifested in the skilful formation of research teams under the leadership of bright scientists. As a result, high-profile projects were implemented at the Department and its applied research laboratories in partnership with the country's leading enterprises. Thus, in 1960–70, prototypes for the first domestic digital receivers of land-based long-range radio navigation systems were created. The breakthrough nature of this achievement was explained by the fact that all domestic equipment at that time was based exclusively on analogue technologies. Moreover, foreign projects

aimed at creating digital navigators were launched only when the LETI devices had already been undergoing full-scale field tests. Remarkably, the proposed technique was not just a series of model prototypes, but was actually used as a coordinate referencing instrument in geological, geophysical, exploration and hydrographic expeditions in the regions of the Atlantic and Pacific Oceans, Mediterranean Sea and continental shelves. Upon the advent of satellite navigation, the Department started active research in this field. At the end of the 1980s, these attempts brought about the development of an original GPS/GLONASS receiver, which was further transferred to industrial testing and refinement.

Important research studies were carried out in the field of near-navigation, aircraft drive, aircraft landing and radio avionics. Interesting ideas advanced during the pursuit of this direction found practical application, e.g. in a navigation complex installed at the Soviet space shuttle Buran.

Professor Kazarinov always considered promotion of his team's scientific achievements a priority, encouraging their publication activity in every way possible. In the 1960–80s, hundreds of scientific articles appeared in leading all-union journals, departmental collections and conference proceedings. During that period, a number of scientific monographs under the editorship and authorship of Yuri Mikhailovich were issued by leading publishing houses in the USSR. Thus, in 1975, *Sovetskoe Radio* published the monograph *Finding, Detection and Measuring Parameters in Radio Navigation Systems* edited by Yu. M. Kazarinov (V.P. Ipatov, Yu. M. Kazarinov, Yu. A. Kolomensky, Yu. D. Ulyanitsky). This prominent work generalised the authors' research in the field of statistical synthesis of digital algorithms for processing signals of ground-based long-distance navigation systems. The books *Dynamic Systems Resistant to Failure* (Yu. P. Grishin, Yu. M. Kazarinov, the *Radio i Svyaz* publishing house) and *Designing Radio Signal Filtration Devices* (Yu. M. Kazarinov, A.I. Sokolov, Yurchenko Y.S., the *Izdatelstvo LGU* publishing house), which appeared in 1985, integrated the authors' long-term research into optimization of data collection and data integration in airfield navigation and landing systems.

The second half of the 1970s was marked by revolutionary advances in the field of digital microelectronics, such as the emergence of microprocessors. Prof. Kazarinov was among the first to grasp the po-

tential of their integration into radio-technical instruments, encouraging the respective initiatives of his subordinate teams. This search resulted not only in prototypes of various electronic information devices, but also in the book *Microprocessors in Radio-Engineering systems* (Yu. P. Grishin, Yu. M. Kazarinov, V.M. Katikov, the *Radio i Svyaz* publishing house, 1982). Further research in this direction led to the emergence of two books by the author's team of Yu. M. Kazarinov, V. N. Nomokonova and F. V. Filippov: *Use of Microprocessors and MicroECM in Radio-Engineering Systems* and *Microprocessor Kit K1810* (Vysshaja Shkola, 1988 and 1990, respectively).

After the dissolution of the Soviet Union, many professional printed resources were discontinued, including the world-renowned scientific journal *Izvestiya Vuzov SSSR. Radioelektronika* published in Kiev. The 1990s that followed turned out to be a period of stagnation for Russian science. In this unfavourable context, Prof. Kazarinov's idea to revive a radio-technical journal on the basis of LETI raised many sceptical questions. However, thanks to the persistence and enthusiasm of Yu. M. Kazarinov himself and his colleagues, in 1998, the journal *Izvestiya Vysshikh Uchebnykh Zavedenii Rossii. Radioelectronics (Journal of the Russian Universities. Radioelectronics)* was established. Since then, the journal has been regularly published for more than twenty years, continuously gaining authority and expertise among the scientific community.

Prof. Kazarinov's accomplishments in training highly qualified scientists are impossible to overestimate. Dozens of his alumni, both candidates and doctors of sciences, have headed university departments and research centres across the country, successfully passing on their knowledge and expertise to younger generations.

Yuri Mikhailovich's scientific activity was always closely intertwined with pedagogical endeavours. Many generations of LETI graduates remember the strict, logically consistent and expressive style of his lectures. It comes as no surprise that the bright teaching gift of Yu. M. Kazarinov was embodied in a whole series of textbooks published by distinguished publishing houses in the USSR and then Russia. Thus, in the 1960s, collective textbooks on the calculation of pulsed and digital radio engineering devices under the editorship of Yu. M. Kazarinov were published.

In 1968, the first textbook in the USSR entitled *Radio Engineering Systems* appeared (*Radio i Svyaz*), which for years was serving as the main educational resource for radio students throughout the country. Some years later, the publishing houses *Vyshshaja Shkola* (1990) and *Akademia* (2007) released updated versions of the textbook, the authorship of which invariably included Prof. Kazarinov.

The career path of Yu. M. Kazarinov was deservedly marked with high governmental awards, both-military (Order of the Red Star, Order of the Patriotic War) and labour (Order of Lenin, Order of the Red Banner of Labour, Order of the Badge of Honour), numerous medals and badges of honour. Such governmental recognition was amplified by enormous respect and unquestionable authority, which Prof. Kazarinov invariably enjoyed among his colleagues, students and followers.

Editorial team