

## IN MEMORY OF NIKOLAY N. ZALOGIN

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On May 31, 2023, at the age of 88, Nikolay Nikolayevich Zalogin, Leading Researcher of Physical Fundamentals of Nanocomposite Materials for Information Technologies Laboratory of the Physical Fundamentals of Nanoelectronics Department of V.A. Kotelnikov Institute of Radioengineering and Electronics of the Academy of Sciences of the Russian Federation, a well-known specialist in the field of generation of microwave noise oscillations, their application in radio electronic warfare, radar and broadband signal processing based on dynamic chaos.

A descendant (6th generation) of the old merchant family of the Zalogins from Bogorodsk (now – Noginsk) near Moscow, Nikolai Nikolayevich was born on August 6, 1935 in Moscow. Father – Zalogin Nikolai Georgievich (1902-1978), engineer, specialist in flue gas cleaning at thermal power plants in Moscow. During the war, he was awarded the Order of the Red Star for the creation of a system for masking smoke in the infrared range.

Mother – Bauman Lyudmila Nikolaevna, researcher, laboratory head.

After graduating from secondary school in 1953, N.N. Zalogin on the second attempt, in 1954 entered the Moscow Institute of Physics and Technology. Since 1957, after the 3rd year, he passed basic and then undergraduate practice at the Institute of Radioengineering and Electronics (IRE) of USSR Academy of Sciences.

In 1960, he was hired at the IRE as a junior researcher to the Microwave Electronics Department under the direction of Academician of USSR Academy of Sciences Nikolai Dmitrievich Devyatkov, to the Electronic Generators Laboratory, led by Technical Sciences Doctor Chernov Z.S. In 1961, during the reorganization of the structure of the department, N.N. Zalogin is transferred to a laboratory led by Ph.D. V.Ya. Kislov, and, accordingly, the direction of the work performed by him changes. Initially, the Kislov laboratory was engaged in the study of the possibility of creating O-type plasma devices in the centimeter wavelength range. The successful development of this direction, as expected, made it possible to get rid of small-sized slow-wave systems in the millimeter wavelength range. Working in this direction as an experimenter, N.N. Zalogin was the first to discover (1962) the generation of microwave noise in a plasma-electron flow system (in a backward-wave plasma lamp). According to the application for the invention of the noise generator (authors N.N. Zalogin and V.Ya. Kislov), Authorship Certificate No. 28547 was received with priority dated April 15, 1963.

Since 1963 N.N. Zalogin is a correspondence post-graduate student at IRE, USSR Academy of Sciences. The dissertation work "Plasma Noise Generator" for the title of Technical Sciences Candidate, completed in 1967 with a successful defense, was devoted to the study of the generation of noise oscillations in the plasma-electron flow system as a result of its longitudinal interaction with a backward electromagnetic wave in the 10 mm wavelength range propagating along the plasma waveguide. The scientific adviser of the postgraduate

student Zalogin N.N. was the 16th Department head, Academician of USSR Academy of Sciences N.D. Devyatkov.

Since 1970, Nikolai Nikolaevich has been a senior researcher. In 1970, together with other laboratory workers, V.Ya. Kislov was transferred to the Fryazinsky branch of IRE in the lab. 166. In 1975 he was transferred back to the IRE Moscow part, but continued to work on the "noisetron" themes with the lab. 166. These works were awarded in 1980 by the USSR State Prize in science and technology (on a closed topic) to the team of authors of the IRE of USSR Academy of Sciences – Kislov V.Ya., Zalogin N.N. and Myasin E.A.

After the discovery of the effect of generation of noise oscillations in systems based on traveling-wave tubes with delayed feedback, the main subject of N.N. Zalogina was associated with this developing area of research – the generation of chaotic oscillations with a level exceeding the level of the system's own noise, that is, due to the properties of nonlinearity and delay effects, implemented, in particular, in systems with delayed feedback: research and development in the field of microwave generation broadband noise oscillations; research and creation of electron-wave devices in the microwave range; research and development of microwave noise signal generators based on solid-state semiconductor devices.

Together with other employees of the IRE, N.N. Zalogin repeatedly took part in field work and testing of the developed systems in various regions of the USSR from Kamchatka to Astrakhan, from Voronezh to Sevastopol.

Since 1999 N.N. Zalogin is a leading researcher at the V.A. Kotelnikov IRE of RAS.

The results of the scientific work of N.N. Zalogin published in more than 120 articles in various journals and presented at dozens of national and international conferences. When the group of co-authors collected material for publication, then the question "Who will write?" – followed the answer: "N.N. Zalogin, of course". He has 4 copyright Inventions Certificates, winner of two Awards of the USSR Council of Ministers (1984 and 1989). He is author of the monograph "Broadband Chaotic Signals in Radio Engineering and Information Systems" (Moscow, Radiotekhnika Publ., 2006), written in an amazing language for a scientific

monograph, reflecting the author's rare literary gift with his sharp, imaginative, always ironic tone.

N.N. Zalogin is a participant in a number of international and republican conferences, schools on systems with chaotic oscillations. He was the responsible executor of work under the Government Decrees, as well as under numerous grants from the ISTC and RFBR. Nikolai Nikolaevich is a member of the A.S. Popov Russian Scientific and Technical Society of Radioengineering, Electronics and Communications since its inception in 1991. In 1997 he was awarded the honorary title of Labor Veteran; he was awarded the medal "In Commemoration of the 850th Anniversary of Moscow", the badge "Honorary Radio Operator" of the Russian Federation Ministry of Radio Industry.

Wife Zalogina (née Shidlovskaya) Elena Alexandrovna (1937-1999), chemist, employee of the Research Institute of Chemical Reagents and Highly Pure Chemical Substances. Sons (7th generation of the Zalogin family) Alexander (1961) – Candidate of Physical and Mathematical Sciences (children – Alexey, Tatyana, Maria, Andrey), and Vladimir (1964) – a specialist in the field of computer networks (son Ivan, 1998).

Since 1993, he lived in the Dunino village, Odintsovo district, Moscow region. The whole village went to him for help and advice on everything from technical to family matters. In the Dunino M.M. Prishvin Museum Nikolai Nikolaevich has always been a welcome participant in all key events in the museum life, almost a freelancer. In addition, being the grandson of the last owner of the Fryanovo estate near Moscow, which has now become a museum, Nikolai Nikolayevich participated in equipping the museum with exhibits.

The life of Nikolai Nikolaevich is a living history of the IRE RAS, his natural intelligence, excellent scientific erudition, amazing efficiency, responsiveness, integrity and responsibility are an invaluable gift to the team of his employees.

The bright memory of you, Nikolai Nikolaevich, will warm the hearts of all who knew you, for a long time.

**Relatives, friends, colleagues  
and the Editorial Board RENSIT journal**