

**BUSHUEV****VLADIMIR ALEKSEEVICH***(TO 70 ANNIVERSARY OF BIRTH)*

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On May 13, 2017 Vladimir Alekseevich Bushuev, Doctor of Physical and Mathematical Sciences, Professor of the Department of Solid State Physics of the Physics Department of the M.V. Lomonosov Moscow State University, member of the Russian Academy of Natural Sciences, well-known specialist in the fields of X-ray optics, phase contrast tomography, X-ray diagnostics of multilayer nanostructures, photonic crystals and free-electron X-ray lasers, and distinguished Professor at Moscow University celebrated his 70th birthday.

V.A. Bushuev was born in 1947 in Moscow, to military academy cadet Alexei Efimovich Bushuev from the Pskov region and MAI student Nadezhda Trofimovna Bushueva from the Zaporozhye region. After graduating from high school in Smolensk in 1965, he entered the Physics Department of Moscow State University. Vladimir Alekseevich entered the realm of physics at a time when the Physics Faculty was making breakthroughs in nonlinear processes in all fields, especially in optics and in radiophysics. In his third year, V.A. Bushuev was assigned to the sub-faculty of Wave Processes of the department of Radiophysics of the faculty of Physics. At that time, the sub-faculty of Wave Processes, founded and headed by Academician Rem Viktorovich Khokhlov, became a powerful global research center for nonlinear optics, nonlinear acoustics, laser

physics and nonlinear spectroscopy. Here, under the guidance of his first teacher, the creator of the school of quantum optics, author of the discovery of the spontaneous parametric luminescence effect, Ph.D., David Nikolaevich Klyshko, V.A. Bushuev carried out graduate work devoted to the study of nonlinear scattering of light in crystals. Based on the results of these studies, V. Bushuev made a report at the All-Union Conference on Nonlinear Optics in 1970, which became the beginning of his scientific biography.

In 1971, V.A. Bushuev graduated from the Physics Department of Moscow State University and entered the graduate school of the Department of Solid State Physics, where the vector of his scientific interests shifted to X-ray and gamma-ray ranges. Under the guidance of Dr.Sc. D.N. Klyshko and Dr.Sc. R.N. Kuz'min, in 1975, he defended his dissertation, "Dynamic theory of inelastic scattering of X-rays in crystals," followed by a series of articles and speeches on the themes of X-ray optics and gamma-laser.

V.A. Bushuev has been a member of the Department of Solid State Physics at the Physics Department of the Moscow State University since 1974, from 1974 to 1986 as a junior researcher, from 1986 to 1988 as a researcher, from 1988 to 1993 as a senior researcher, and since 1993 as a Professor. In 1978, for his series of works "Mathematical Models of the Kinetics of a Nuclear Gamma-Laser", V.A. Bushuev (along with A.V. Andreev and O.Yu. Tikhomirov) received the First R.V. Khokhlov Prize at the competition of scientific works of young scientists of the Moscow State University.

Vladimir Alekseevich teaches the special courses "Dynamic theory of X-ray scattering", "Secondary processes in X-ray optics", "Three-crystal X-ray diffractometry", "X-ray phase contrast tomography", the course "Inelastic X-ray scattering", the faculty courses "Problems of creating X-ray and gamma lasers" and "Nonlinear X-ray optics", produces relevant monographs, and supervises undergraduate and graduate students.

In 1990, V.A. Bushuev defended his doctoral dissertation "Coherent and diffraction phenomena in inelastic X-ray scattering in crystals". In 1999, by decision of the State Committee of the Russian Federation for Higher Education, V.A. Bushuev was awarded the academic title of Professor.

The scientific interests of V.A. Bushuev include X-ray optics, diffractometry, reflectometry and phase contrast tomography, the theory of X-ray scattering in microstructures with defects, photonic crystals, and X-ray and gamma lasers. He is an expert in nonlinear optical phenomena, and the author of the principal works on the diffraction of ultrashort X-ray and laser pulses. He developed the theory of X-ray phase contrast imaging and the theory of coherent and diffuse scattering in nano-sized crystalline and porous structures. V.A. Bushuev created a statistical dynamical theory of X-ray diffraction in crystals with structural defects and the theory of second-harmonic generation and diffraction splitting of laser pulses in linear and nonlinear photonic crystals. The scientific interests of V.A. Bushuev are also associated with the creation of medical phase-contrast X-ray diagnostics, patented in 1998, about which he repeatedly spoke with interviewers on television and on the pages of the mass media.

In recent years, V.A. Bushuev has obtained results on the effect of thermal self-action on the diffraction of powerful X-ray pulses and the dynamic theory of ultracold neutron diffraction on a moving grating.

V.A. Bushuev is Laureate of the "Basic Element" Company for his series of works "Coherent and diffraction phenomena in the scattering of X-rays in amorphous, crystalline and nanoporous structures and laser radiation in nonlinear photonic crystals" (2003). His results also received recognition in the form of the Certificate of Honor of the Ministry of Education and Science of the Russian Federation (2005). Among his publications are more than 270 articles in authoritative scientific journals (the number of citations in the journals according to the Web of Science: 510, Scopus: 416). He is the co-author of several monographs and a number of books and schoolbooks devoted to various aspects of X-ray optics and diffractometry. V.A. Bushuev is a member of two dissertational councils of the Physics Department of Moscow State University, since 2003 a member and from 2008 to 2014 chairman of the Russian Foundation for Basic Research expert council for scientific discipline 02-211 "Interaction

of X-ray, synchrotron and neutron radiation with condensed matter".

V.A. Bushuev is a member of the program and organizational committees of National and International conferences, and symposiums and meetings on X-ray optics, nanophysics and nanoelectronics. For many years he has supervised the work of the "Physics" section at the International Conference of Moscow State University "Lomonosov", and also chairs the program committees of the periodic International Scientific Seminars and youth schools-seminars "Modern methods of analysis of diffraction data and actual problems of X-ray optics" in Veliky Novgorod.

V.A. Bushuev is a member of the editorial boards of the scientific journals "Crystallography Reports", "Surface: X-ray, synchrotron and neutron investigations", "Bulletin of the Moscow University: Series Physics, Astronomy", Deputy Chief Editor of the journal "Radioelectronics, Nanosystems, Information Technology (RENSIT)".

In 2006, he was awarded the honorary title of "Honored Professor of Moscow University." He was awarded the medal "To commemorate the 850th anniversary of Moscow", the Emblem "Honored Worker of Higher Professional Education of the Russian Federation" (2008), the anniversary breastplate "250 years of M.V. Lomonosov MSU".

Our portrait of V.A. Bushuev would be incomplete without mentioning his rare passion - the collection of historical video recordings of the legendary performers of the "golden age" of rock music. In this sphere of human enthusiasm, he occupies a very prominent place - his collection ranks among the top ten in the world. Vladimir Alekseevich generously shares by his recordings, bringing joy to the everyday life of numerous scientific conferences to which he is brought to participate.

His high scientific erudition, efficiency, adherence to principles and responsibility have given V.A. Bushuev deserved authority and wide popularity among the scientific community.

Friends, colleagues and students sincerely congratulate Vladimir Alekseyevich Bushuev on his birthday and wish him good health, luck, success in scientific and pedagogical activity

The Editorial Office of RENSIT magazine of the Branch of the Russian Academy of Natural Sciences cordially joins these wishes.

**Editorial board**