PERSONALIA

PACS number: 01.60. + q

Viktor Anatol'evich Matveev (on his 70th birthday)

DOI: 10.3367/UFNe.0182.201201j.0119

Academician Viktor Anatol'evich Matveev, outstanding physicist, science organizer, public figure, member of the Presidium of the Russian Academy of Sciences (RAS), Secretary-Academician of the Physical Sciences Division of the RAS, Chairman of the Troitsk Scientific Center of the RAS, Director of the Institute for Nuclear Research (Moscow) and the Joint Institute for Nuclear Research (JINR) in Dubna, reached his 70th birthday on December 11, 2011.

The results of V A Matveev's research have been important contributions to the development of methods of quantum field theory, to progress in the relativistic quark models of hadrons, to the study of the dynamics of processes at high energies and large transverse momenta, to the creation of the quark theory of nuclei and the exploration of the manifestations of quark degrees of freedom of atomic nuclei, to the examination of the structure of vacuum in gauge theories and the effects caused by this structure, to the study of new physical phenomena in collider experiments, and to a number of other fields of modern theoretical physics.

V A Matveev was born in Taiga, a small township of the Krasnoyarsk Territory. In 1959, he enrolled in the Physics Department of Far Eastern State University, and in 1961 continued his education at Leningrad State University (LGU). In 1964, he graduated from V A Fock's Chair of Theoretical Physics at the Physics Department of LGU; he also successfully passed Landau's 'Theoretical minimum' exam at the Theory Department of the A F Ioffe Leningrad Physical Technical Institute in 1963.

Viktor Anatol'evich is a brilliant representative of the scientific school of N N Bogoliubov, under whose guidance he began his career in research at the Theoretical Physics Laboratory of the JINR in Dubna in 1965, where he developed his creative potential and made his first discoveries.

Here, V A Matveev, together with B V Struminskii and A N Tavkhelidze, obtained results which played a key role in the maturation of the quark theory of hadrons: they developed the quark theory of electromagnetic and weak decays of mesons and baryons, explained the electromagnetic mass splittings in isotopic hadron multiplets, suggested an interpretation of the higher-order hadron resonances as excitations of quark systems, and derived the corresponding mass formulas.

During his work in Dubna, V A Matveev made an important contribution to the progress of the relativistic approach to describing bound systems of particles in quantum field theory and to creating quantum-field methods of describing the high-energy scattering of particles.

Uspekhi Fizicheskikh Nauk **182** (1) 119–120 (2012) DOI: 10.3367/UFNr.0182.201201j.0119 Translated by V I Kisin



Viktor Anatol'evich Matveev

In 1967, V A Matveev submitted and defended his PhD thesis, "Dispersion sum rules and symmetry properties of elementary particles". His advisors were N N Bogoliubov and A N Tavkhelidze. In 1973, he submitted and defended the Habilitation thesis, "Quasipotential theory of scattering in quantum field theory".

One of the most important avenues of research conducted by V A Matveev is the search for dynamical symmetries in high-energy physics and the uncovering, using these symmetries as a basis, of general features which manifest themselves in particle interactions. V A Matveev advanced the concept of hidden color of nuclei and pointed to the key importance played by quark degrees of freedom for understanding the nucleus structure at short distances.

The widely known Matveev–Muradyan–Tavkhelidze quark counting rules which express the general features of elastic scattering of hadrons at high energies were derived in the framework of concepts of scale invariance and the model of quasiindependent colored quarks; these rules were officially certified in the State Register of Discoveries.

In 1978, V A Matveev was appointed deputy director of the RAS Institute for Nuclear Research (INR), and the Director of RAS INR in 1987. The principal fields of research at INR were significantly expanded during his directorship: neutrino physics and neutrino astrophysics, experiments using high-current proton beams, the continued construction and upscaling of unique experimental facilities, and the implementation of new projects in fundamental and applications-oriented studies.

Among the theoretical papers completed by V A Matveev while at RAS INR, we wish to specifically mention a series of papers on the structure of the ground state in gauge theories and related physical effects that manifest themselves in extreme conditions.

One of the research areas that V A Matveev has pursued in recent decades is the prediction of manifestations of new physics in experiments conducted using modern high-energy accelerators, including the Large Hadron Collider at CERN, the exploration of the possibilities of observing new particles in accelerator and nonaccelerator experiments, and the further development of novel technologies emerging in the course of fundamental physics research.

In 2011, V A Matveev was elected Director of the Joint Institute for Nuclear Research.

V A Matveev's achievements have been recognized by the scientific community. In 1991, he was elected Corresponding Member of the RAS, and in 1994 became a Full Member of the Russian Academy of Sciences.

In 1973, while still working at Dubna, V A Matveev received the Lenin Young Communist League Prize for a series of papers, "Approximate methods of quantum field theory in high-energy physics", prepared under his guidance by a team of young scientists. Viktor Anatol'evich's contribution to advancing the theory of colored quarks and the quark structure of hadrons and nuclei brought him a Lenin Prize, which was awarded to a team of authors of which he was a member, in 1988. In 1998, an author collective that included him received the Russian Federation State Prize, "For creation of the Baksan Neutrino Observatory and research in neutrino astrophysics, elementary particle physics, and the physics of cosmic rays". In 2001, V A Matveev and his colleagues won the prize of the Russian Government for the work "Design and construction of high-current proton linear accelerator".

V A Matveev pays great attention to expanding the collaborative efforts of researchers both at established nuclear-physics facilities in this country and through participation in experiments abroad. His contribution to the success of the Russian-American SAGE experiment at the galliumgermanium neutrino telescope of the Baksan Neutrino Observatory of RAS INR was invaluable; SAGE resulted in the discovery of the fundamental phenomenon of solar neutrino oscillations. He was one of the key figures in the creation of a unique deep underwater neutrino telescope in Lake Baikal. It is largely owing to his effort that ties between the Gran Sasso National Laboratory in Italy and RAS INR were strengthened; in this case, the most important area of collaboration for Russian physicists is the large-scale LVD experiment and a new avenue of research: the study of oscillations in the neutrino beam sent underground from CERN to the OPERA and ICARUS facilities. V A Matveev has made important contributions to the progress of the CMS experiment at the Large Hadron Collider in his capacity as Chairman of the CMS Council of Scientists from Russia and JINR Member States.

Since 2000, V A Matveev has headed the program of basic research of the RAS Presidium on Neutrino Physics and

Neutrino Astrophysics as Chairman of the Scientific and Technical Council of this program.

V A Matveev's role in organizing physics research in Russia and in its interaction with the rest of the world has grown in scale and importance after his election in 2008 to the post of Secretary-Academician of the Physical Sciences Division of the RAS. He is also a member of the RAS Presidium, a member of the Council on Science, Technologies and Education with the President of the Russian Federation, chairman of the Troitsk Scientific Center of the RAS, a member of the VAK Plenary Session, and a member of the Observers Council of the National Research Centre 'Kurchatov Institute'.

Viktor Anatol'evich successfully combines multifaceted research and science management activities with work on training new generations of young researchers. In 1980, he became Professor of the Physics Department, and in 2000 Honorary Professor at Lomonosov Moscow State University. In 1995, he became Head of the new Chair of Fundamental Interactions and Cosmology at the Moscow Institute of Physics and Technology. Many among V A Matveev's numerous students have become well-known scientists working successfully in research centers in Russia and abroad.

For his considerable achievements in science and science organization, V A Matveev has received the Order of Merit for the Fatherland of the Fourth Class, the Order of Honor, and other badges of honor, and is also an Honorary Citizen of the Town of Troitsk.

Viktor Anatol'evich is characterized by a highly responsible attitude toward everything he does, a devotion to science, tenacity of purpose, and an exceptional capacity for work. In his personality, these characteristics combine with his nature as a gentleman, showing kindness and a warm and responsive attitude toward people.

We wish Viktor Anatol'evich Matveev new success in his creative work, good health, prosperity, and a happy life.

A F Andreev, G V Domogatsky, V G Kadyshevsky, N V Krasnikov, V A Kuz'min, A A Logunov, G A Mesyats, Yu Ts Oganessian, V A Rubakov, O G Ryazhskaya, A N Skrinsky, D V Shirkov