

Nikolay Krasnikov
(to 60th birthday)

Nikolay Krasnikov was born on May 3, 1951, in Moscow. He got his Master degree at Physics Department of the Moscow State University and became post-graduate student there in 1974. He obtained his Ph.D. at the Moscow State University in 1977 under the supervision of A. Tavkhelidze, and immediately after that he got research position at INR. Since then, all his scientific career proceeds in our Institute. He defended his Doctor thesis here in 1987.

Nikolay Krasnikov is a renowned theoretical physicist, whose scientific interests range from quantum field theory and supersymmetry to high energy phenomenology. His seminal paper on the generation of the baryon asymmetry of the Universe, with A. Ignatiev, V. Kuzmin and A. Tavkhelidze, triggered renewed interest to this problem at the time when Grand Unified Theories were invented and baryon number non-conservation became strongly motivated. He, in collaboration with K. Chetyrkin and A. Tavkhelidze, introduced the concept of finite energy sum rules in Quantum Chromodynamics. His subsequent series of works on this topic, with K. Chetyrkin, A. Tavkhelidze, and later with A. Kataev and A. Pivovarov, are classics in the field. His observation that the effects due to heavy fermions tend to destabilize the Higgs vacuum and hence imply bounds on heavy particle masses, became an integral part of the theoretical understanding of the Standard Model and its extensions. His study of vacuum structure in gauge theories (with V. Rubakov, A. Tavkhelidze and V. Tokarev) had far reaching follow up in the Theory Division of INR. Many other N. Krasnikov's results, including the effects of analytical continuation in the study of quarkonia (with A. Pivovarov), mechanism of supersymmetry breaking in superstring theories, etc., are very well appreciated in the community.

N. Krasnikov is very open-minded and has outstanding scientific intuition. Some of his ideas gained popularity quite some time after they had been put forward. One example is the idea of extra spatial dimensions showing up at TeV energy scale. Suggested by N. Krasnikov back in 1991, this concept became extremely popular in late 90's, and is now one of the hypothetical extensions of the Standard Model studied at the Large Hadron Collider. Another example is N. Krasnikov's idea, put forward in 1994, of a particle with continuously distributed mass, whose reincarnation of 2000's is "unparticle", motivated by a possibility that some sector of a theory beyond the Standard Model may have properties similar to conformal field theory.

Presently, N. Krasnikov is a leading expert in "New Physics", i.e., physics beyond the Standard Model. His interests cover the whole area, from theoretical ideas to phenomenology to concrete collider signatures. His book "New Physics at the Large Hadron Collider" (Moscow, URSS, 2011), written together with V. Matveev, is a unique account of numerous hypotheses on extensions of the Standard Model, their predictions and discovery strategies.

No wonder, several chapters of this book are based on works of N. Krasnikov himself, who contributed substantially to the area.

N. Krasnikov keeps close contact with experimentalists. In the past, he actively collaborated with the team of NOMAD experiment. For a number of years, and still now, he is a member of CMS collaboration at the Large Hadron Collider, and leads the INR group there. He has suggested a number of lines of study at CMS and is strongly involved in data analysis. This emphasizes his genuine interest in real physics, rather than abstract theoretical constructs.

N. Krasnikov supervised a number of young colleagues, some of which became well known physicists. His role in the life of the Theory Division of INR is hard to overestimate.

N. Krasnikov meets his 60-th birthday in excellent form, he is at the height of his scientific activity. We wish him great health, happiness and exciting discoveries, both in theory and at the LHC.

V.A. Matveev, L.B. Bezrukov, E.A. Koptelov, L.V. Kravchuk, K.G. Chetyrkin, S.N. Gninenko, A.L. Kataev, V.A. Kuzmin, A.A. Pivovarov, V.A. Rubakov, A.D. Selidovkin, M.E. Shaposhnikov, I.I. Tkachev, S.V. Troitsky