

Brief Curriculum Vitae of
Dr. Vadim Alexandrovich Bednyakov

Vadim Bednyakov was born in Moscow on 31 October 1957. In 1981 he graduated with honor from the Physics Department of Lomonosov Moscow State University and joined the Dzhelapov Laboratory of Nuclear Problems (DLNP) of the Joint Institute for Nuclear Research in Dubna. He got the Candidate of Sciences degree in 1985.

During the first 10 years he worked at DLNP in the theoretical group which supported experimental research in the field of neutrino physics, in particular large experiments at the Serpukhov 70-GeV accelerator. This rich experience in working in tight connection with an experimental group greatly helped him later on when he got the position of Scientific Secretary at DLNP in 1993.

Being the Scientific Secretary of this Laboratory, he developed his ability to comprehend quickly quite complicated experimental and theoretical matters within broad research interests of the Laboratory. The administrative obligations of the Scientific Secretary did not prevent him from getting the Doctor of Sciences degree in Physics in 1999. The main topic of his dissertation concerned different possibilities of studying the Physics beyond the Standard Model (in particular Supersymmetry) in rare processes and cosmology.

In the middle of 1990 V.A. Bednyakov (together with Dr. S.G. Kovalenko) initiated systematic theoretical and experimental research on the Dark Matter problem at JINR. These long-term investigations were twice awarded the JINR Prize (1998, 2005). His analysis of the data from the DM search (experiment HDMS) got the place in the Particle data Group review. V.A. Bednyakov has translated into Russian two books of the German scientist Prof. Klapdor-Kleingrothaus *Non-Accelerator Particle Physics* (1997) and *Astroparticle Physics* (2000), which were bestsellers in Russia. He is the author of several reviews on the dark matter search problem and other hot topics.

In 2001–2009 V.A. Bednyakov was also the chief of the Sector of Theoretical Study of Interactions of Elementary Particles and Atomic Nuclei of DLNP. Since 2004 the main goal of the sector has been the analysis of ATLAS detector data from the LHC and V.A. Bednyakov has become responsible for participation of JINR in the ATLAS physics program at the LHC. Today he is also responsible for development of the neutrino physics and astrophysics program at JINR.

V.A. Bednyakov has a reputation of a very efficient, reliable, responsible and creative scientist, easy to collaborate with. He is the Scientific Secretary of the Council on Neutrino Physics and Astrophysics of Russian Academy of Sciences. For ten years he was an organizer of a series of Non-accelerator New Physics conferences (NANP) in Dubna and the editor-in-chief of the proceedings of the conferences (published in the Russian journal *Physics of Atomic Nuclei*). He is a member of the editorial boards of the Russian journals *Physics of Atomic Nuclei* and *Physics of Elementary Particles and Atomic Nuclei* and a referee of several international journals (*Physics Review*, *Physics Review Letters*, etc). V.A. Bednyakov is a member of the Dissertation Councils of DLNP (since 2000) and BLTP (2002-2007), Scientific and Technical Councils of DLNP and VBLHEP.

His scientific interests are concentrated on modern particle and neutrino physics, cosmology, and astrophysics. The administrative experience and openness of Dr. V.A. Bednyakov, his solid theoretical background and broad scientific interests allow him to fit perfectly the positions of the deputy director (in science) of DLNP, leader and coordinator of the ATLAS scientific research at JINR, and the deputy Chief Scientific Secretary of JINR.

List of some publications of V.A.Bednyakov (ATLAS publications are not included).

1. V.A.Bednyakov, H.V.Klapdor-Kleingrothaus and I.V.Krivosheina, "New constraints on spin-dependent WIMP-neutron interactions from HDMS with natural Ge and Ge-73," *Phys. Atom. Nucl.* 71 (2008) 111.
2. V.A.Bednyakov, M.A.Nazarenko and F.Simkovic, "On the importance of nuclear spin for dark matter detection," *Fizika B* 17 (2008) 99.
3. V.A.Bednyakov and H.V.Klapdor-Kleingrothaus, "Direct Search for Dark Matter - Striking the Balance - and the Future," *Phys. Part. Nucl.* 40 (2009) 583.
4. V.A.Bednyakov, "Spin in the dark matter problem," *Phys. Part. Nucl.* 38 (2007) 326.
5. V.A.Bednyakov and F.Simkovic, "Nuclear spin structure in dark matter search: The Finite momentum transfer limit," *Phys. Part. Nucl.* 37 (2006) S106.
6. V.A.Bednyakov and F.Simkovic, "Nuclear spin structure in dark matter search: The Zero momentum transfer limit," *Phys. Part. Nucl.* 36 (2005) 131
7. V.A.Bednyakov and F. Simkovic, "Nuclear target effect on dark matter detection rate," *Phys. Rev. D* 72 (2005) 035015.
8. V.A.Bednyakov, H.V.Klapdor-Kleingrothaus and H.Tu, "Higgs bosons and the indirect search for WIMPs," *Phys. Rev. D* 64 (2001) 075004.
9. V.A.Bednyakov, "On importance of dark matter for LHC physics," *Part. Nucl. Lett.* 103 (2000) 12.
10. V.A.Bednyakov, "Implications of collider experiments for detecting cold dark matter," *Phys. Atom. Nucl.* 63 (2000) 254
11. V.A.Bednyakov and H.V.Klapdor-Kleingrothaus, "SUSY spectrum constraints on direct dark matter detection," *Phys. Rev. D* 62 (2000) 043524.
12. V.A.Bednyakov and H.V.Klapdor-Kleingrothaus, "About direct dark matter detection in next-to-minimal supersymmetric standard model (NMSSM)," *Phys. Rev. D* 59 (1999) 023514
13. V.A.Bednyakov, H.V.Klapdor-Kleingrothaus and S.G.Kovalenko, "Superlight neutralino as a dark matter particle candidate," *Phys. Rev. D* 55 (1997) 503.
14. M.V.Chizhov, V.A.Bednyakov, et al. "Anomalously interacting new extra vector bosons and their first LHC constraints," *Phys. Part. Nucl.* 43 (2012) 311.
15. E.V.Khramov, A.N.Tonoyan, V.A.Bednyakov and N.A.Rusakovich, "Top quark from the Tevatron to LHC," *Phys. Part. Nucl.* 39 (2008) 74.
16. V.A.Bednyakov, N.D.Giokaris and A.V.Bednyakov, "On Higgs mass generation mechanism in

- the Standard Model," Phys. Part. Nucl. 39 (2008) 13
17. H.V.Klapdor-Kleingrothaus and V.A.Bednyakov, "Neutrinos lead beyond the desert," CERN Cour. 43N2 (2003) 29.
 18. V.A.Bednyakov, "Why an investigation of ultra-high energy cosmic rays should be performed at the earth orbit," Phys. Part. Nucl. 33 (2002) 583.
 19. V.A.Bednyakov, "On the origin of chemical elements", Phys. Part. Nucl. 33, (2002) 473.
 20. V.A.Bednyakov, V.B.Brudanin and S.G.Kovalenko, "Prospects for exploring R-parity violating SUSY in neutrinoless nuclear double beta decay experiments," Phys. Atom. Nucl. 61 (1998) 998
 21. V.A.Bednyakov and S.G.Kovalenko, "Superstring Z-prime boson at UNK energies," Sov. J. Nucl. Phys. 49 (1989) 538.
 22. Nonaccelerator new physics. Proceedings, 5th International Conference, NANP-05, Dubna, Russia, June 20-25, 2005. V.A. Bednyakov, (ed.), V.B. Brudanin, (ed.) (Dubna, JINR). 2006. 174 pp. (Phys. At. Nucl. 69 (2006) 1805-1978)
 23. Nonaccelerator new physics. Proceedings, 4th International Conference, NANP'03, Dubna, Russia, June 23-28, 2003. V.A. Bednyakov, (ed.), V.B. Brudanin, (ed.) (Dubna, JINR). 2004. 162 pp. (Phys. At. Nucl. 67 (2004) 1065-1226)
 24. Nonaccelerator new physics. Proceedings, 1st International Workshop, NANP'97, Dubna, Russia, July 7-11, 1997. V.A. Bednyakov, (ed.), V.B. Brudanin, (ed.), S.G. Kovalenko, (ed.) (Dubna, JINR). 1998.