

## CURRICULUM VITAE OF VADIM A. BEDNYAKOV

**Vadim Alexandrovich Bednyakov**, Doctor of Physics and Mathematics, Director of the Dzhelepov Laboratory of Nuclear Problems of JINR

**Date and place of birth:** 31 October 1957; Moscow, USSR

**Citizenship:** Russian Federation

**Office Address:** Dzhelepov Laboratory of Nuclear Problems, Joint Institute for Nuclear Research, 141980 Dubna, Moscow Region, Russia.

E-mail: bedny@jinr.ru, Fax: 7-49621-66666, Phone: 7-49621-65263

### **Education and degrees:**

1975–1981 Student of the Physics Department, Moscow State University

1985 Candidate of Sciences (Physics and Mathematics), PhD Thesis: “Development of the parton picture of nucleons in deep inelastic processes”, Laboratory of Theoretical Physics, JINR (Supervisor: Prof. P.S. Isaev)

1999 Doctor of Sciences (Physics and Mathematics), Thesis: “Study of the possibility of detecting supersymmetry in the rare processes and cosmology”, Laboratory of Nuclear Problems, JINR

### **Professional career:**

1981–2001 Probation Researcher, Junior Researcher, Researcher, Senior Researcher of the Dzhelepov Laboratory of Nuclear Problems (DLNP), JINR

2001–2009 Chief of the Sector of Theoretical Studies of Interaction of Elementary Particles and Atomic Nuclei, DLNP

1993–2009 Scientific Secretary, DLNP

2009--2013 Deputy Director, DLNP

2010--2013 Deputy Chief Scientific Secretary of JINR

Since 2013 Director, DLNP

### **Scientific and organizational activity:**

2002–2007 Member of the BLTP Dissertation Council, JINR

Since 2000 Member of DLNP Dissertation Council, JINR

Since 1993 Member of the DLNP Science & Technology Council, JINR

2006–2008 Member of the LPP Science & Technology Council, JINR

2008-2013 Member of the VBLHEP Science & Technology Council, JINR  
Since 2004 Member of the Editorial Board of the journal “Physics of Atomic Nuclei”, JINR  
Since 2013 Member of the Editorial Board of the journal “Physics of Elementary Particles and Atomic Nuclei”, JINR  
1997–2005 Organizer of six conferences on the new physics in non-accelerator experiments — NANP (together with S.G. Kovalenko and V.B. Brudanin)  
Since 2012 Scientific Secretary of the Council on Neutrino Physics and Astrophysics, Russian Academy of Sciences  
2004-2013 Coordinator of JINR’s participation in the programme of physics research with the ATLAS detector  
Since 2013 Team Leader of the JINR group in the ATLAS experiment at CERN  
Since 2013 Head of the JINR Neutrino Programme

***Pedagogical activities:***

Publication of scientific and popular science literature. Translation into Russian and publication in Russia of textbooks by German scientist Prof. H.V. Klapdor-Kleingrothaus *Non-Accelerator Particle Physics* (1997) and *Astroparticle Physics* (2000).

***Scientific interests:***

Physics of elementary particles beyond the Standard Model. Physics of neutrino and rare processes. Problem of dark matter registration. Searching for the manifestations of new physics (including supersymmetry) with extremely high collider energies, and in low-energy processes and astrophysics. Conducting physics research at the Large Hadron Collider (LHC) with the ATLAS detector.

***Scientific publications:***

Author of more than 160 personal papers and reviews on elementary particle physics, dark matter problem, and neutrino physics. Co-author of about 600 papers within the ATLAS Collaboration. Author of a number of popular science articles.

***JINR prizes and State awards:***

JINR prizes for the years 1985, 1998, 2005, 2016 (two).  
2007 Veteran of Atomic Engineering and Industry  
2009 Certificate of Honour of the Russian State Corporation on Atomic Energy  
2013 Certificate of Honour and Medal of the Moscow Region Government  
2013, 2015 Certificate of Honor of the Dubna Administration

## LIST OF SELECTED PUBLICATIONS BY VADIM A. BEDNYAKOV

(2018–2013)

1. Coherency and incoherency in neutrino-nucleus elastic and inelastic scattering.  
By Vadim A. Bednyakov, Dmitry V. Naumov. ArXiv:1806.08768. Submitted to PRD.
2. JINR in the ATLAS experiment. Years 1992-2015. By V.A. Bednyakov, Yu.A. Budagov, N.A. Russakovich, A.P. Cheplakov, V.V. Kukhtin, G.A. Chelkov and E.V. Khramov. Book. 280 pp. JINR Publishing department, Dubna, 2018.
3. The Joint Institute for Nuclear Research in Experimental Physics of Elementary Particles. By V.A. Bednyakov, N.A. Russakovich. Phys.Part.Nucl. 49 (2018) no.3, 331-373.  
Объединенный институт ядерных исследований в экспериментальной физике элементарных частиц By V.A. Bednyakov, N.A. Rusakovich. Брошюра на русском.
4. Constraints on the intrinsic charm content of the proton from recent ATLAS data. By V.A. Bednyakov, S.J. Brodsky, A.V. Lipatov, G.I. Lykasov, M.A. Malyshev, J. Smiesko, S. Tokar. ArXiv:1712.09096. Submitted to PRL.
5. Prospects for identification the direct and indirect effects of extra spatial dimensions at the Large Hadron Collider. By A.A. Pankov, I.A. Serenkova, A.V. Tsytrinov, V.A. Bednyakov. Phys.Part.Nucl. 48 (2017) no.3, 415-454.
6. The Physics of Heavy Quark Distributions in Hadrons: Collider Tests  
By S.J. Brodsky, V.A. Bednyakov, G.I. Lykasov, J. Smiesko, S. Tokar. ArXiv:1612.01351, Prog.Part.Nucl.Phys. 93 (2017) 108.
7. Anomalously interacting  $Z^*$  bosons: an example of JINR's contribution to physics at LHC. By V.A. Bednyakov, I.V. Yeletskikh, M.V. Chizhov, I.R. Boyko. Phys.Usp. 59 (2016) no.4, 403-410, Usp.Fiz.Nauk 186 (2016) no.4, 425-433.
8. Probing proton intrinsic charm in photon or Z boson production accompanied by heavy jets at the LHC. By A.V. Lipatov, G.I. Lykasov, Yu. Yu. Stepanenko, V.A. Bednyakov. ArXiv:1606.04882, Phys.Rev. D94 (2016) no.5, 053011.
9. Neutrino physics and JINR. By V.A. Bednyakov, D.V. Naumov, O.Yu Smirnov. Phys.Usp. 59 (2016) no.3, 225-253.
- 10 Signatures of lower scale gauge coupling unification in the Standard Model due to extended Higgs sector. By M.V. Chizhov, V.A. Bednyakov. ArXiv:1509.07610, Phys.Atom.Nucl. 79 (2016) no.5, 721-725.
11. Effects of  $Z$ - $Z'$  mixing in double W-bosons production at the large hadron collider  
By Vasili V. Andreev, A.A. Pankov, V.A. Bednyakov. Phys.Atom.Nucl. 78 (2015) no.6, 725-739, Yad.Fiz. 78 (2015) no.9, 775-790.
12. Searches for and identification of effects of extra spatial dimensions in dilepton and diphoton production at the Large Hadron Collider. By A.A. Pankov, I.A. Serenkova, A.V. Tsytrinov, V.A. Bednyakov. Phys.Atom.Nucl. 78 (2015) no.4, 463-476, Yad.Fiz. 78 (2015) no.6, 499-513.

13. Is it possible to discover a dark matter particle with an accelerator? By Vadim A. Bednyakov. ArXiv:1505.04380, Phys.Part.Nucl. 47 (2016) no.5, 711-774.
14. Results of searches for Dubna resonance  $Z^*$  in dimuon channel in ATLAS data. By I.V. Yeletskikh, V.A. Bednyakov. Phys.Part.Nucl.Lett. 12 (2015) no.1, 29-34.
15. Search for intrinsic charm in vector boson production accompanied by heavy flavor jets. By P-H. Beauchemin, V.A. Bednyakov, G.I. Lykasov, Yu. Yu. Stepanenko. ArXiv:1410.2616, Phys.Rev. D92 (2015) no.3, 034014.
16. Hadron collider potential for excited bosons search. By M.V. Chizhov, I.R. Boyko, V.A. Bednyakov, J.A. Budagov., Phys.Part.Nucl. 45 (2014) no.3, 517-528.
17. Search for  $Z^*$  boson at ATLAS detector. By I. Yeletskikh, V. Bednyakov, M. Chizhov. Phys.Part.Nucl. 45 (2014) 254-256.
18. Neutrino Physics and Astrophysics at Joint Institute for Nuclear Research By Vadim A. Bednyakov. Nucl.Phys.Proc.Suppl. 245 (2013) 33-40.
19. The White Book: JINR NEUTRINO PROGRAM (Dubna: JINR Laboratory of Nuclear Problems). Editors Bednyakov V. A. and Naumov D. V. JINR Publishing department, 2014, 293 pp. <http://dlnp.jinr.ru/ru/neutrino-white-book>
20. Hadron collider potential for excited bosons search: A Snowmass whitepaper. By M.V. Chizhov, V.A. Bednyakov, J.A. Budagov., arXiv:1307.7274.
21. Saturation of gluon density and soft pp collisions at LHC. By G.I. Lykasov, A.A. Grinyuk, V.A. Bednyakov.. Phys.Part.Nucl. 44 (2013) 568-572.
22. Searching for intrinsic charm in the proton at the LHC By V.A. Bednyakov, M.A. Demichev, G.I. Lykasov, T. Stavreva, M. Stockton. ArXiv:1305.3548, Phys.Lett. B728 (2014) 602-606.
23. First LHC Constraints on Anomalously Interacting New Vector Bosons. By M.V. Chizhov, V.A. Bednyakov, I.R. Boyko, J.A. Budagov, M.A. Demichev, I.V. Yeletskikh. ArXiv:1110.5533.
24. On resonance search in dilepton events at the LHC. By M.V. Chizhov, V.A. Bednyakov, J.A. Budagov. ArXiv:1109.6876, Phys.Part.Nucl.Lett. 10 (2013) 144-146.
25. One needs positive signatures for detection of Dark Matter, V. Bednyakov," Phys. Part. Nucl. **44** (2013) 220-228, 1207.2899.