

Curriculum Vitae of Alexander S. VODOPYANOV

Place of work: Laboratory of High Energy Physics
Joint Institute for Nuclear Research
Joliot Curie 6, Dubna, Moscow region, Russia 141980

Date and place of birth: 15 October 1946, Tselinograd, USSR

Education:

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| 1970 | Master of Science | Tomsk Polytechnic University (Tomsk), Physical-Technical Faculty, Profession: «Experimental Nuclear Physics»; |
| 1981 | Ph.D.
(Phys. & Math.) | Joint Institute for Nuclear Research
("Investigation of pion and kaon electromagnetic form factors at 100 and 250 GeV") |
| 1987 | Senior researcher | Joint Institute for Nuclear Research
"Experimental physics" |
| 1993 | Doctor of Science
(Phys. & Math.) | Joint Institute for Nuclear Research
("Investigation of hadrons structure and particle channeling using precision drift chambers") |

Professional career:

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| 1970 – 1984 | Researcher, Laboratory of High Energies; |
| 1984 – 1986 | Head of JINR staff members at CERN (CERN, Geneva) |
| 1986 – 1990 | Senior researcher, Laboratory of High Energies; |
| 1990 – 1992 | Head of sector, Laboratory of High Energies; |
| 1992 – 2008 | Head of department, Laboratory of High Energies; |
| 2008 – 2009 | Head of department appointed, Laboratory of High Energy Physics |
| Since 2009 | Head of department, Laboratory of High Energy Physics; |
| Since 2010 | Head of division, Laboratory of High Energy Physics |
| Since 2010 | Deputy Director, Laboratory of High Energy Physics; |

Professional experience:

Particle Physics Experiments

Research Scientist, Laboratory of High Energies, JINR

- Design and construction of Cherenkov lead glass spectrometer for first joint USSR-USA pion-electron scattering experiment on 70 GeV proton accelerator at IHEP (Protvino);
- Participation in the data taking; Software development for the event reconstruction; Physics analysis for first joint USSR-USA pion-electron scattering experiment on 70 GeV proton accelerator at IHEP (Protvino);

- Design and construction of high-resolution drift chambers for the USA – JINR joint pion-electron (E216) and kaon-electron scattering (E456) and high energy channeling experiments on 400 GeV proton accelerator at FNAL (Batavia, USA);
- Participation in the data taking; Software development for the event reconstruction; Physics analysis for joint USA – JINR pion-electron scattering and kaon-electron scattering experiments on 400 GeV proton accelerator at FNAL (Batavia, USA);
- Participation in the setup construction for first experiment on the bending of extracted proton beam by the bent Si crystal on JINR synchrotron;
- Participation in the software development for the data analysis of electrons and positrons in channeling in the crystals;
- Design and construction of the hadron calorimeter for DELPHI experiment at CERN LEP;
- Responsible person for the design and creation of the USSR first computer link between CERN and JINR;
- Responsible person for the creation of JINR graphics center for DELPHI experiment data analysis;
- JINR Coordinator on computing, networking and data analysis in SDC project for SSC collider (Dallas, USA);

Team Leader, Laboratory of High Energies, JINR

- Cerenkov radiation experiment on the extracted lead ion beam of CERN SPS; Studying of Cerenkov and Transition radiation of lead ions;
- Head of LHE JINR group in PANDA Collaboration “Strong Interaction Studies with Antiprotons” (FAIR, GSI, Darmstadt, Germany). Responsibility: design of the magnet system consisting of split-coil superconducting solenoid magnet; design and prototyping of Cerenkov DIRC detector; Physics program preparation;
- Coordinator of the design of PANDA superconducting split-coil solenoid;

High Energy Heavy Ion Physics Experiments

Team Leader, Laboratory of High Energies and Laboratory of High Energy Physics, JINR

- Head of JINR group in WA98 experiment on study of lead-lead interactions on CERN SPS accelerator. Responsibility: the design and construction of Zero Degree Hadronic Calorimeter, Time-of-Flight Wall and Veto detector;
- Head of JINR group in ALICE experiment on study of high-energy heavy ion collisions on Large Hadron Collider. Responsibility: the design and construction of very large dipole magnet for forward muon spectrometer, participation in PHOS electromagnetic calorimeter, computing, physics simulation and data analysis;
- Coordinator of the design of the large superconducting solenoid magnet for MPD NICA project.

Memberships:

1983 –1984 Scientific secretary of JINR Committee on Electronic Experiments
 Since 1983 Member of organizing committees of international workshops and conferences;

1992 - 1996	JINR contact person and team leader in WA98 CERN (SPS) experiment.
Since 1992	JINR contact person and team leader in ALICE CERN (LHC) Experiment;
Since 1993	Member of JINR Dissertation Council;
1994 – 2006	Member of JINR LHE Scientific-Technical Council;
1998	Corresponding Member, Russian Academy of Natural Sciences;
Since 2002	LHE and LHEP group leader for the design of apparatus for PANDA (GSI, FAIR) experiment;
2007	Academician (Full Member), Russian Academy of Natural Sciences;
Since 2008	Member of JINR LHEP Scientific-Technical Council;
Since 2008	Deputy Chairman, Dubna branch of Russian Academy of Natural Sciences;
Since 2009	Member of the Technical Board of PANDA collaboration;
Since 2012	Member of International Advisory and Organization Committees of a number of conferences;
2010 - 2016	Coordinator for the design of the magnet system of the PANDA setup at FAIR;

Teaching:

Scientific supervisor of one Doctor of Sciences thesis and three Ph.D. theses.

Scientific interests:

Experimental high-energy physics: electromagnetic interactions, Cherenkov radiation, high-energy heavy ion interactions. Particle detectors.

Scientific publications:

Author of more than 500 papers

JINR Scientific Awards for the following works:

- 1975 – "Development and construction of multichannel drift chamber system for experiments on elastic scattering of pions and kaons on electrons".
- 1983 - "Measurements of π and K mesons form factors in π -e and K-e elastic scattering experiments".
- 1987 - "Experimental investigation of electromagnetic radiation of relativistic electrons and positrons in crystals".
- 2006 - "Methodology and experimental studies of radiation hardness of polymer materials used for accelerators and particle detectors".

LIST OF SELECTED PUBLICATIONS
of
Alexander S. Vodopyanov

№	Title of the publication	Type of publication	Date-out	Number of pages	Coauthors
1	2	3	4	5	6
1	Λ_c + production in Pb–Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV	article	Physics Letters B, Volume 793, 212-223, 2019 ISSN:0370-2693, eISSN:1873-2445, Elsevier Science Limited	12	S. Acharya, F.T. Acosta, D. Adamova et al.
2	Direct photon	article	Physical Review C,	19	S. Acharya, F.T.-. Acosta, D.

	production at low transverse momentum in proton-proton collisions at $\sqrt{s} = 2.76$ and 8 TeV		Volume 99, 2019, ISSN:0556-2813, eISSN:1089-490X, American Physical Society		Adamova et al.
3	Jet fragmentation transverse momentum measurements from di-hadron correlations in $\sqrt{s} = 7$ TeV pp and $\sqrt{s_{NN}} = 5.02$ TeV p-Pb collisions	article	J. High Energ. Phys. (2019) Volume: 169, Springer Berlin Heidelberg	21	S. Acharya, F. T.-. Acosta, D. Adamova, et al.
4	Study of J/Ψ azimuthal anisotropy at forward rapidity in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV	article	Journal of High Energy Physics, JHEP 1902 (2019) 012 ISSN:1029-8479, Springer, 2019	26	S. Acharya, F. T.-. Acosta, D. Adamova et al.
5	Measurement of dielectron production in central Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV	article	Physical Review C, v.99 (2019) no.2 ISSN:0556-2813, eISSN:1089-490X, American Physical Society, 2019	26	S. Acharya, F. T.-. Acosta, D. Adamova, et. al.
6	Charged-particle pseudorapidity density at mid-rapidity in p-Pb collisions at $\sqrt{s_{NN}} = 8.16$ TeV	article	Eur.Phys.J. C79 (2019) no.4, 307	23	S. Acharya, F.-T. Acosta, D. Adamova et al.
7	Medium modification of the shape of small-radius jets in central Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV	article	JHEP10(2018)139, Springer Berlin Heidelberg	28	S. Acharya, F. T.- Acosta, D. Adamova, et al.
8	Charged jet cross section and fragmentation in proton-proton collisions at $\sqrt{s} = 7$ TeV	article	Phys. Rev. D 99, 012016 (2019)	23	S. Acharya, D. Adamova, A. Adler et al.
9	Anisotropic flow of identified particles in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV	article	JHEP, Springer Berlin Heidelberg, 1809, 006, 2018	40	Acharya S, Acosta FT, Adamová D, et. al.
10	Dielectron and heavy-quark production in inelastic and high-multiplicity proton-proton collisions at $\sqrt{s} = 13$ TeV	article	Phys.Lett. B, 788, 505-518, 2018	14	S. Acharya, F. Torales-Acosta, D. Adamová et al.
11	Transverse momentum spectra and nuclear modification factors of charged particles	article	JHEP, Springer Berlin Heidelberg, 1811, 013, 2018	27	S. Acharya, F. Torales-Acosta, D. Adamová et al.

	in pp, p-Pb and Pb-Pb collisions at the LHC				
12	J/ψ production as a function of charged-particle pseudorapidity density in p-Pb collisions at $\sqrt{s} \text{ NN} = 5.02$	article	Phys.Lett. B, 776, 91-104, 2018	15	D. Adamová, M. M. Aggarwal, G. Aglieri et al.
13	Constraining the magnitude of the Chiral Magnetic Effect with Event Shape Engineering in Pb-Pb collisions at $\sqrt{s} \text{ NN} = 2.76 \text{ TeV}$	article	Phys.Lett. B, 77, 151-162, 2018	12	S. Acharya, J. Adam, D. Adamová et al.
14	Neutral pion and η meson production in p-Pb collisions at $\sqrt{s} \text{ NN} = 5.02 \text{ TeV}$	article	European Physical Journal C 78(8):624	25	S.Acharya, D. Adamová, J. Adolfsson et al.
15	$\Lambda + c$ production in pp collisions at $\sqrt{s} = 7 \text{ TeV}$ and in p-Pb collisions at $\sqrt{s} \text{ NN} = 5.02 \text{ TeV}$	article	Journal of High Energy Physics 2018(4):108 JHEP, Springer Berlin Heidelberg, 1804, 108, 2018	40	S. Acharya, F. T. Acosta, D. Adamová et al.
16	Centrality and pseudorapidity dependence of the charged-particle multiplicity density in Xe-Xe collisions at $\sqrt{s} \text{ NN} = 5.44 \text{ TeV}$	article	Phys.Lett. B, 790, 35-48, 2018	14	S. Acharya, F. T. Acosta, D. Adamová et al.
17	Anisotropic flow in Xe-Xe collisions at $\sqrt{s} \text{ NN} = 5.44 \text{ TeV}$	article	Phys.Lett. B, 784, 82-95, 2018	14	S. Acharya, F. T. Acosta, D. Adamová et al.
18	Υ suppression at forward rapidity in Pb-Pb collisions at $\sqrt{s} \text{ NN} = 5.02 \text{ TeV}$	article	Phys.Lett. B, 790, 89-101, 2018	12	S. Acharya, F. T. Acosta, D. Adamová et al.
19	ϕ meson production at forward rapidity in Pb-Pb collisions at $\sqrt{s} \text{ NN} = 2.76 \text{ TeV}$	article	Eur. Phys. J. C, 78, 7, 2018	15	S. Acharya, F. T. Acosta, D. Adamová et al.
20	Linear and non-linear flow mode in Pb-Pb collisions at root $\sqrt{s} \text{ NN} = 2.76 \text{ TeV}$	article	Phys. Lett. B, 773, 68-80, 2017	13	S. Acharya, D. Adamová, J. Adolfsson et al.
21	Production of π^0 and η mesons up to high transverse momentum in pp collisions at 2.76 TeV	article	Eur. Phys. J., C77, 339, 2017	25	S. Acharya D. Adamova, M.M. Aggarwal et al.
22	Insight into particle	article	Eur. Phys. J. C, 77,	17	J. Adam, D. Adamova, M.M.

	production mechanisms via angular correlations of identified particles in pp collisions at $\sqrt{s}=7$ TeV		8, 2017		Aggarwal et al.
23	Production of muons from heavy-flavour hadron decays in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV	article	Physics Letters B, Elsevier, 770, 459-472, 2017	13	S. Acharya, D. Adamova, M.M. Aggarwal et al.
24	Kaon femtoscopy in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV	article	Phys. Rev. C, 96, 6, 2017	16	S. Acharya, J. Adam, D. Adamová et al.
25	Flow Dominance and Factorization of Transverse Momentum Correlations in Pb-Pb Collisions at the LHC	article	Phys. Rev. Lett., 118, 16, 2017	12	J. Adam, D. Adamova, M.M. Aggarwal et al.
26	W and Z boson production in p-Pb collisions at $\sqrt{s_{NN}}=5.02$	article	JHEP, Springer Berlin Heidelberg, 1702, 077, 2017	24	J. Adam, D. Adamova, M.M. Aggarwal et al.
27	The Use of Silicon Photomultipliers for Improving the Time Resolution of an Electromagnetic Calorimeter Based on Lead Tungstate Crystals	article	Instruments and Experimental Techniques, ISSN:0020-4412, eISSN:1608-3180, MAIK Nauka/Interperiodica, Pleiades Publishing, Ltd, 60, 1, 28-34, 2017	7	M. S. Ippolitov, V. A. Lebedev, V. I. Manko et al.
28	Superconductor and Cold Mass Design of the 2 T Solenoid for the PANDA Detector at FAIR	article	IEEE Trans.Appl.Supercond., 26, 4, 2016	4	<i>Gabriella Rolando ; Alexey Dudarev ; Helder Pais Da Silva ; A. Vodopyanov ; Lars Schmitt ; Herman H. J. ten Kate</i>
29	Perspective Study of Charmonium and Exotics above the D-D Threshold	article	Physics of Atomic Nuclei, ISSN:1063-7788, Pleiades Publishing, Ltd., 79, 1, 126-129, 2016	4	M.Y.Barabanov, A.S.Vodopyanov, A.I.Zinchenko, S.L.Olsen
30	Study of doubly strange systems using stored antiprotons	article	Nuclear Physics A: Nuclear and Hadronic Physics, Elsevier, 954, 323-340, 2016	18	Erni B., Singh W., Krusche B., et al.
31	Production of light nuclei and anti-nuclei in pp and Pb-Pb collisions at energies available at the CERN Large Hadron Collider	article	Physical Review C, American physical society, C93, 2, 024917, 2016	20	J. Adam, D. Adamová, M.M. Aggarwal et al.
32	Higher harmonic flow coefficients of identified hadrons in Pb-Pb collisions at	article	Journal of High Energy Physics, ISSN:1029-8479, Springer, 1609,	40	J. Adam, D. Adamova, M.M. Aggarwal et al.

	$\sqrt{s_{NN}} = 2.76$ TeV		164, 2016		
33	Feasibility studies of time-like proton electromagnetic form factors at PANDA at FAIR	article	European Physical Journal A, Springer-Verlag, 52, 10, 325, 2016	23	B. Singh, W. Erni, B. Krusche et al.
34	Study of doubly strange systems using stored antiprotons.	article	Nuclear Physics A, ISSN:0375-9474, eISSN:1873-1554, Elsevier B.V., 954, 323-340, 2016	8	B. Singh, W. Erni, B. Krusche et al.
35	Charged jet cross sections and properties in proton-proton collisions at $\sqrt{s}=7$ TeV	article	Phys. Rev. D, APS, 91, 112012-11, 2015	33	B. Abelev, J.Adam, D.Adamova et al.
36	Experimental access to Transition Distribution Amplitudes with the PANDA experiment at FAIR	article	The European Physical Journal A, ISSN:1434-6001, eISSN:1434-601X, Springer Berlin Heidelberg, 51, 8, 107, 2015	19	B. P. Singh, W. Erni, I. Keshelashvili et al.
37	Thermal analysis of the cold mass of the 2T solenoid for the PANDA detector at FAIR	article	IOP Conf.Ser.Mater.Sci. Eng. 101 (2015) no.1, 012151, 101, 1, 2015	4	G. Rolando, H.H.J. ten Kate, A. Dudarev, H.Pais Da Silva, A. Vodopyanov, L. Schmidt
38	Event-by-event mean p_T fluctuations in pp and Pb-Pb collisions at the LHC	article	European Physical Journal, C74, 10-31, 2014	21	B.Abelev, J.Adam, D.Adamova et al.
39	Measurement of quarkonium production at forward rapidity in pp collisions at $s\sqrt{=7}$ TeV	article	European Physical Journal C - Particles and Fields, ISSN:1434-6044, eISSN:1434-6052, Springer-Verlag,74, 2974-8, 2014	21	B. Abelev, J.Adam, D.Adamova et al.
40	Performance of the ALICE Experiment at the CERN LHC	article	International Journal of Modern Physics A, ISSN:0217-751X, eISSN:1793-656X, World Scientific, 29, 1430044, 2014	120	B. Abelev, J.Adam, D.Adamova et al.
41	Measurement of electrons from semileptonic heavy-flavor hadron decays in pp collisions at $\sqrt{s}=2.76$ TeV	article	Physical Review D, APS, 91, 1-18, 2014	18	B.Abelev, J.Adam, D.Adamova et al.
42	Measurement of charged jet suppression in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV	article	Jour. High Ener. Phys., 1403, 013-45, 2014	14	B.Abelev, J.Adam, D.Adamova et al.