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Address:

Brookhaven National Laboratory

Division of Condensed Matter Physics and Materials Science, bldn. 734

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Nationality: USA, British.

Fellowships and Awards:

Alexander von Humboldt prize 2014

Brookhaven Science and Technology Award 2006

American Physical Society Fellow 2002

Education

Sept 1971 June 1977 : Undergraduate, Moscow Physical-Technical Institute.

July 1977 May 1980 : Postgraduate studies at Institute for High Pressure Physics of Academy of Sciences of USSR.

March 1980 : Ph. D. in theoretical physics

Professional Record

Dec. 2014- June 2015, on leave at University of Dusseldorf and Ludwig Maximilian University (Munich).

Feb.-March 2005, on leave at Princeton University.

Since 4 April 2001 - Senior Research Staff member, Brookhaven National Laboratory, Upton.

March - June 2000, Visiting Fellow Commoner in Trinity College, Cambridge

Since Sept. 1, 1992 till Apr. 4, 2001 - Lecturer (from July 28/97 - Professor) in Physics in Department of Physics, University of Oxford and a tutorial fellow in Brasenose College, Oxford.

1 March - August 30 1992 Department of Physics, Harvard University, visiting scholar,
August 1991 - February 1992 Department of Physics, Princeton University, visiting research staff member.

September 1989 - August 1991; Institute of Fundamental Theory fellow in University of Florida, Gainesville, FL.

May 1982 - February 1996; Permanent scientific staff member, Landau Institute for Theoretical Physics, Moscow.

May 1980 - May 1982 : Scientific staff member, Institute for High Pressure Physics, Moscow.

Carreers of Former Graduate Students

1. Paul de Sa - DPhil. 95, 1995-96 - Kennedy Scholar at MIT, then a postdoc at Harvard School for Government. Senior Analyst, Bernstein Research.
2. David G. Shelton - DPhil. 96, 1 year postdoc at Sherbrooke (Canada), 1/2 year postdoc at Oxford. He left physics and now has a high ranking position in Citygroup.
3. Andrew G. Green - DPhil. 97, a full professor at University College, London. [http : //www.researchperspectives.org/person/ - 79438/Professor - AG - Green - University - College - London](http://www.researchperspectives.org/person/-79438/Professor-AG-Green-University-College-London)
4. Jean-Sebastien Caux - DPhil 98, spent one year as a postdoc with I. Affleck at UBC, then JRF at All Souls College (Oxford). Now is a professor of physics in University of Amsterdam. [https : //staff.fnwi.uva.nl/j.s.caux/](https://staff.fnwi.uva.nl/j.s.caux/)
5. Chris Hooley - DPhil 99. EPSRC Fellow at University of St. Andrews, [https : //www.st - andrews.ac.uk/physics/PHPGlobal/StaffInfo.php?id = 311](https://www.st-andrews.ac.uk/physics/PHPGlobal/StaffInfo.php?id=311)
6. Davide Controzzi - DPhil 2000, a postdoc at Princeton funded by Rotary Foundation Scholarship; moved to ICTP (Trieste) and then to University of Amsterdam. Now works at UBS bank in London.
7. Emiliano Papa - DPhil 2001, held a postdoctoral position at University of Texas, Austin; after the 2nd postdoc in University of Virginia left physics and now works at Australia National Bank.
8. Joe M. Bhaseen - DPhil 2001, from Sept. 2012 - a Lecturer at Kings College, London. [https : //kclpure.kcl.ac.uk/portal/joe.bhaseen.html](https://kclpure.kcl.ac.uk/portal/joe.bhaseen.html)
9. Sam Carr - DPhil 2003, postdoc at ICTP Trieste, since 2012 - a Lecturer at University of Kent, UK. [https : //www.kent.ac.uk/physical - sciences/staff/profiles/sam - carr.html](https://www.kent.ac.uk/physical-sciences/staff/profiles/sam-carr.html)
10. Sebastian Reyes - PhD 2006, now a professor at Pontifical Catholic University, Santiago (Chili). [https : //www.researchgate.net/profile/Sebastian_Reyes](https://www.researchgate.net/profile/Sebastian_Reyes)

Visits by Invitation to other Institutions

Aug. 5 - Aug. 26 1990 Ohio State University.

Oct. 1 - Oct. 10 1990 University of Miami.

Dec. 5 - Dec. 15 1990 Ohio State University.

April 1994, Tekhnion, Haifa, Israel.

March 17 - Apr. 5 1995 NEC Research Institute, Princeton.

March 18 - June 22 1996 Institute for Theoretical Physics, University of California, Santa Barbara.

Aug. 25 - Sept. 28 1996 Fellow of Japanese Society for Promotion of Science with a base in Institute for Solid State Physics, University of Tokyo.

January 4 - 17 1997 International Center for Theoretical Physics, Trieste, Italy.

March 26 - Apr. 24 1997 Visiting Professor in L'Ecole Normale Supérieure, Paris.

March 15 - March 30 1998 Visiting Professor in Rutgers University.

Apr. 1 - Apr. 24 1998 Visiting Professor in University Paris-Sud, Orsay.

Jan. 6 - Jan. 16 1999, Lecture Course (Troisième Cycle de la Physique) in Institut de Physique Théorique, Lausanne.

Apr. 5 - 23 1999, Centro Atomico di Bariloche, Argentina.

May. 1 - 31 1999, Visiting Professor in University of Pierre and Marie Curie, Paris.

Lecture Course on Conformal Field Theory (6 lectures) given at ESQN-99 (Windsor), Aug. 1999

Dec. 19 1999 - Jan 2. 2000 - Weizmann Institute of Physics, Israel.

Jan. 10-15, 2000 - CEA Saclay, France.

March 25 - June 31, 2000; Isaac Newton Institute for Mathematical Sciences, Cambridge, UK

August 5 - 27, 2000; MPIPKS Dresden Germany - a conference organizer.

Dec. 9- 16, 2002, Theoretical Physics Institute, University of Minnesota.

May 16-June 27, 2002, Abdus Salam ICTP, Trieste, Italy.

Dec 6- Dec. 19, 2002, Abdus Salam ICTP, Trieste, Italy.

July 9 - July 24, 2004, Abdus Salam ICTP, Trieste, Italy.

Oct. 3- Oct. 14, 2005, Abdus Salam ICTP, Trieste, Italy.

Nov 26. 3- Dec. 16, 2006, Abdus Salam ICTP, Trieste, Italy.

May 19-June 22, July 7-14, Institute Henri Poincaré, Paris, France.

June 2012, Institute Henri Poincare, Paris, France.

May 2012, Institute of Galileo Galilei, Florence.

May 2016, Institute of Galileo Galilei, Florence.

Presentations at Professional Conferences and Meetings

“Novel treatment of the spin-1 Heisenberg chain”, presented at USA-USSR Conference on Frontiers in Condensed Matter Theory , CUNY Graduate Center, NY. December 1989.

“Novel treatment of the spin-1 Heisenberg chain”, presented on March 1990 Meeting of American Physical Society.

“Long wavelength properties of spiral magnetic phases” presented on March 1990 Meeting of American Physical Society.

“Effects of topological excitations in disordered magnetic (RVB) state”, presented on the University of Miami Workshop on: Electronic Structure and Mechanisms for High Temperature Superconductivity, Jan. 3 Jan. 9, 1991

“Effects of topological excitations in disordered magnetic (RVB) state”, presented on the NATO Advanced Research Workshop Program, the University of Miami , Jan. 8 Jan. 11, 1991

“Non-traditional magnetic states in highly correlated electronic systems”, presented on March 1991 Meeting of American Physical Society (invited talk).

“Observation of non-Fermi liquid behavior in $U_{0.2}Y_{0.8}Pd_3$ and VAu alloys”, National High Magnetic Field Laboratory Conference, May 15 18, 1991.

”Simple models with parafermionic statistics”, presented on March 1992 Meeting of American Physical Society.

”Novel Approach to Kondo Lattice Problem” - Dec. 1992 Meeting of Royal Physical Society, Sheffield.

”Phenomenological Theory of Non-Fermi-liquid Heavy Fermion Alloys”, - July 1993, workshop in strongly correlated materials, ICTP, Trieste, Italy.

”Exact results for (2 +1)-dimensional Dirac electrons in a random gauge potential”, workshop on strongly correlated low-dimensional systems, Nordita, Copenhagen, June 1994.

”Exact solution of the Kondo chain model at half filling”, Laue Langevine Institute conference, the Alps, April 1994.

”Non-Fermi-liquid properties of Uranium compounds”, workshop on strongly correlated low-dimensional systems, Nordita, Copenhagen, June 1995.

”Non-Fermi-liquid properties of Uranium compounds”, July 1995, ICTP, Trieste, Italy.

”Non-Fermi-liquid properties of Uranium compounds”, July 1995, Telluride workshop on Quantum Critical Phenomena, Telluride, Colorado.

”Superconductivity in Doped Spin-Ladder Chains”, ”Gaps d’energie...” conference in Grenoble, France, January 1996 (invited talk).

”Superconductivity in Doped Spin-Ladder Chains”, workshop on Non-Fermi-liquid phenomena, Institute for Theoretical Physics, University of California at Santa Barbara, April, 1996.

”The Liouville theory as a Theory of Prelocalized States in Disordered Conductors”, workshop on Quantum Chaos and Mesoscopic Phenomena, Institute for Theoretical Physics, University of California at Santa Barbara, April, 1996.

”Coherence-Incoherence Transition between Fermi and Luttinger liquids”, workshop on strongly correlated low-dimensional systems, Nordita, Copenhagen, Dec. 12, 1996.

”Properties of Spin Ladders”, invited talk on the March Meeting of the American Physical Society, March 1997, Kansas City.

”Excitations and Correlation functions in 1D systems”, Conference in University of Leiden, May 12 1998.

”Excitations and Correlation functions in 1D systems”, Conference in Statistical Physics, ICTP, Trieste, June 22-27 1998.

”Excitations and Correlation functions in 1D systems”, Claude Itzykson Conference, Paris, July 25-28 1998.

”Correlation functions in 1D systems with spectral gaps, application to Copper Benzoate”, Max Plank Institute conference in magnetism, Dresden, Oct. 15, 1998.

”Exactly solvable model with Haldane’s exclusion statistics”, invited talk on “Flux, Charge and Statistics” conference in Amsterdam, July 1999.

”Some interesting problems in condensed matter physics”, invited talk on MBX conference, Sept. 11-14, 1999, Seattle.

"The Chern-Simons Theory of the Pfaffian Quantum Hall State", invited talk on David Thouless conference, Sept. 15-19, 1999, Seattle.

"Towards a Conformal Field Theory of Plateau Transition", Conference in King's College, London, Dec. 4, 1999.

"Towards a Conformal Field Theory of Plateau Transition", workshop in the University of Montreal, June 5 -June 10, 2000.

"Critical Theories of Disorder", 4th Annual TMR Conference, ENS, Paris, Sept. 9-13, 2000.

'Mott-insulator–Metal transition in Quasi-1D systems', University of Oxford, Oriel College, Institute of Physics conference, March 30, 2001.

'Marriage of Three Different Approaches in Critical models of Disorder', NATO Advanced Research Workshop in Statistical Field Theories, lake Como, June 18-23, 2001.

'Mott-insulator–Metal transition in Quasi-1D systems', Amsterdam Summer Workshop 'Flux, Charge, Topology and Statistics', June 25-30, 2001.

'Applications of Conformal Field Theory to Integer Quantum Hall transition', Workshop on Applications of Conformal Field Theory in IPAM, UCLA, Oct. 14-20, 2001.

'Statistics of Wave Functions at Integer Quantum Hall Plateau Transition", J. Simons Conference on Random Matrix Theories, SUNY Stony Brook, Feb. 20-23, 2002.

'Single electron Green's function for 1D CDW state', Conference in Interactions and Chaos in Mesoscopic Systems, University of Minnesota, Minneapolis, May 2002.

'2D realization of RVB spin liquid - non-perturbative results' workshop on Mesoscopics, ICTP, Trieste, Italy, June 24, 2002.

'2D realization of RVB spin liquid - non-perturbative results', Gordon Conference on Correlated Electron Systems, Colby College, June 28-July 4, 2002.

'Spinons in higher dimensions- non-perturbative results', Workshop in Strongly Correlated and Emergent Materials, Aug.4 - 17, ICTP, Trieste, Italy.

'Spinons in higher dimensions- non-perturbative results', International Workshop on Progress in Condensed Matter Theory, Dresden, Germany, Nov. 1, 2002.

“A blueprint for RVB - Confederate Flag Magnet”, workshop on “Quantum Criticality in Correlated Matter”, invited talk, Columbia University, March 20-23, 2003.

“Propagating spinons beyond 1D”, invited talk, APS March meeting, Austin, Texas 2003.

“Propagating spinons beyond 1D”, invited talk, workshop on Quantum Criticality, Lorentz Center, Leiden, May 10-24, 2003.

“Propagating spinons beyond 1D”, invited talk, International Heraeus workshop on Quantum Field Theory in Condensed Matter and Particle Physics, MPIPKS Dresden, June 2-6, 2003.

“How spin-1/2 imitates incommensurability”, workshop on “Flux, Charge, Topology and Statistics”, invited talk, University of Amsterdam, June 30- July 5, 2003.

“Spinons beyond one dimension”, invited talk, ICM-2003, Rome, July 26-Aug. 1, 2003.

“Spinons beyond one dimension”, invited talk, The conference in tribute of Ian Kogan: Circumferencing Physics: from Fields to Strings, Oxford, Jan 8-10, 2004.

“Mott insulating physics of Carbon nanotubes”, invited talk, International Workshop on Evolution of Quantum Effects from the Nano to the Macroscale, May 17-22, 2004, Cargese, France.

“Mott insulating physics of Carbon nanotubes”, invited talk, “Fundamentals of Electronic Nanosystems”, June 28 -July 4, 2004, St.-Petersburg, Russia.

“Mott insulating physics of Carbon nanotubes”, invited talk, workshop on Strongly Correlated Systems, ICTP, Trieste, July 11- July 23, 2004.

”Strong coupling perturbation theory: an example of 2 Hubbard chains”, Apr. 4, 2005, MECO30 Conference, Cortona, Italy.

”Strong coupling perturbation theory: an example of 2 Hubbard chains”, Apr. 14, 2005, TD-70 Conference, Moscow, Russia.

”Finite temperature correlation functions in integrable systems”, workshop on Integrable Models, Universite Pierre et Marie Curie, Paris, May 2, 2005.

“Finite temperature universal dynamics in integrable systems”, workshop in Fundamentals of Electronic Systems, St.Petersburg, Russia, July 28, 2005.

“Finite temperature universal dynamics in integrable systems”, conference on Strongly Correlated Systems on Nanoscale, ICTP, Trieste, Aug. 8-12, 2005.

“Doped spin liquids: Luttinger sum rule and superconductivity”, International Argonne Fall Workshop on Nanophysics V: Nanoscale Superconductivity and Magnetism, Nov. 14-18, 2005.

“Virial expansion for the Quantum Ising model correlation functions”, A. Larkin memorial conference, Minneapolis, May 4-7, 2006.

“Virial expansion for the Quantum Ising model correlation functions”, C. Itzykson memorial conference, Saclay, June 21-23, 2006.

“Exact solution of a model of Fermionic cold atoms”, workshop in Fundamentals of Electronic Systems, St.Petersburg, Russia, June 25-29, 2006.

”A special limit of the Anisotropic Principal Chiral Field”, workshop in Affine Hecke Algebras, the Langlands program, Conformal Field Theory and Matrix models, CIRM, Luminy, Marseilles, July 9-14 2006.

“Applications of Bethe ansatz in Condensed Matter Physics”, workshop in Integrability in Gauge and String Theory, Potsdam, Germany, 24-28 July 2006.

“Virial expansion for the Quantum Ising model correlation functions”, workshop on Stable and Unstable States of Quantum Matter, ICTP, Trieste, Italy, Aug. 14-25, 2006

“Phenomenological model for underdoped cuprates”, conference on Frustrated Magnetism and 1D Systems, ICTP, Trieste, Aug. 1-17, 2007.

“Exciton condensation in graphene initiated by the magnetic field”, Mesoscopic workshop, Mojacar, Spain, Sept. 10-13, 2007.

“ $PSL(2|2)$ WZNW theory as a possible theory for Plateau Transition in IQHE”, “Fields, Lattices and Condensed Matter”, a symposium in honour of John Cardy’s 60th birthday, Dec. 14-15, 2007, Oxford.

Lectures on 1D correlation functions, the 4th Capri School on Transport in Nanostructures, 30 March - April 7, 2008, Capri, Italy.

Lectures on Disordered Models with Gauge Potential Disorder, Hereus Workshop, Bremen, July 2008.

“Experimental Realization of $SU_2(2)$ Kac-Moody algebra”, Low-Dimensional Field Theories and Applications, Sept. 8-14, 2008, GGI Florence.

“A phenomenological theory of high- T_c superconductivity”, G. Shlyapnikov’s 60-ties anniversary conference, Ecole Normale Superiere, Paris, Sept. 15-16, 2008.

“Virial expansion for the 1D Quantum Ising model correlation functions”, GGI mini-workshop, Florence, Oct. 1, 2008.

“Condensed matter applications of SUSY sigma models”, Workshop on applied 2d Sigma models, DESY Hamburg, Germany, Nov. 10-14, 2008.

“Spin-1 Cold atoms in $D=1,2,3$ ”, ITAMP/CUA workshop, Harvard Jan. 26-28, 2009.

“Confinement of Fractional Quantum Number Particles in a Condensed Matter System: Example of $CaCu_2O_3$ ”, workshop on Strong Correlated Physics in ICTP, Trieste, July 2009.

“Confinement of Fractional Quantum Number Particles in a Condensed Matter System: Example of $CaCu_2O_3$ ”. Conference “Heisenberg model: Past, Present and Future”, Brasilia, July 2009.

“Influence of Thermal Fluctuations on Spectral Function of 2D Superconductors”, workshop Fermions 2009, Obergurgl, Austria, Oct. 2009.

“Influence of Thermal Fluctuations on Spectral Function of 2D Superconductors”, workshop “Novel states in correlated condensed matter – from model systems to real materials”, Harnack House, Berlin, March 2-4, 2010. Org. by Michael Lang.

“New results for 2-leg ladders”, Workshop on Emergence of New States of Matter in Magnetic Systems and Beyond, Trieste, 5 - 9 July 2010.

Physics of 1D high spin bosons”, Les Houches summer school in cold atoms, July 2010.

“New results for 2-leg ladders”, University of Royal Holloway summer school, London, July 2010.

“New results for 2-leg ladders”, APCTP-Postech AMS workshop “Metal-Insulator Transitions in Disordered and Magnetic Systems”, Pohang, Korea, Sept. 9, 2010.

“Zero energy Majorana modes in spin-1/2 ladders”, the 5th Asia-Pacific workshop on Quantum Information Science, May 2011, Singapore.

Polar phased of spinor condensates, Conference at Texas A and M University, College Station, December 2011.

. "Universal Dynamics of Generalized Gibbs Ensemble, Workshop on Non equilibrium Systems. CUNY, March 2012.

"Universal Dynamics of Generalized Gibbs Ensemble, Galileo Galilei Institute workshop, May 2012, Florence.

"Universal Dynamics of Generalized Gibbs Ensemble, Institute Henri Poincare workshop, June 2012.

"Universal Dynamics of Generalized Gibbs Ensemble, "Dynamics and Frustrated Magnetism", August 2012, ICTP, Trieste.

"2-channel Kondo model realization in a Y-junction of three Ising chains", P. Wiegmann's 60-ties anniversary conference, Simons Center ofr Geometry and Physics, SUNY-YSB, Jan.21-27, 2013.

"A tractable theory of bad metals", "Low-D Quantum Condensed Matter", Amsterdam, July 2013.

"Parafermion excitations in superfluid of quasi-molecular chains", Majorana Physics in Condensed Matter", Erici, Sicily, July 2013.

"A tractable theory of bad metals", Quantum Dynamics of Low-Dimensional Systems workshop, Adilet Imambekov's memorial conference, Harvard, Sept. 21-22, 2013.

"Universal Dynamics of Generalized Gibbs Ensemble, Feb. 24-27, 2014, Simons Center for Geometry and Physics, SUNY-YSB.

"Topological Kondo effect", Integrability, Conformal Field Theory and Topological Quantum Computation, Natal, Brasil, March 24-April 6, 2014.

"Topological Kondo effect", workshop in Transport in Nanostructures, Capri, Italy, April 27-May 3, 2014.

"Topological Kondo effect", "New frontiers for Majorana fermions from condensed to dark matter", Frascati, Italy, 5-6 May 2014.

"Topological Kondo effect", Integrable Systems and Quantum Symmetries, Prague, June 23-29, 2014.

"Composite order in the pseudogap phase of the cuprates: a condensation of coupled CDW/PDWs". PI's meeting, Materials Sciences and Engineering Division, Office of Basic Energy Sciences, US DOE, Aug. 11-13, 2014

Conference on Field Theory Methods in Low-D Strongly Correlated Quantum Sys-

tems, Trieste, 25-29 Aug. 2014

"Non-Abelian bosonization and Topological Kondo effect", SSPCM'14, Rzeszow, Sept. 1-6, 2014.

Colloquium in Queens College, New York, Sept. 29, 2014.

Colloquium at University of Karlsruhe, May 14, 2015.

Colloquium at Appleton Rutherford Lab, June 24, 2015.

"Ballistic Transport in Kondo Chains", 6th Hubbard Theory Consortium London Summer Program, University of Royal Holloway, London, June 23, 2015.

"Ballistic Transport in Kondo Chains", CDQM2015, July 13-15, Cambridge, UK.

"SU(2n) spin ladders", Workshop: Beyond integrability. The mathematics and physics of integrability and its breaking in low-D strongly correlated quantum phenomena", July 13-17, Montreal, 2015.

"Ballistic Transport in Kondo Chains", Dresden Max Plank workshop, Sept. 14-18, 2015.

"Ballistic Transport in Kondo Chains", Isaak Newton Institute workshop, Jan 13, 2016,

"SU(2n) spin ladders", Simons Center for Geometry and Physics workshop, Feb. 29, 2016.

"Fractionalized Fermi liquid in Kondo-Heisenberg model", Condensed Matter and Beyond, Symposium for J. Chalker's 60-th birthday, Oxford, July 1-2, 2016.

"SU(2n) spin ladders", Exotic States of Matter with SU(N) symmetry, Yukawa Institute for Theoretical Physics, July 2016.

"A review of nonperturbative results for SU(N) models I", Exotic States of Matter with SU(N) symmetry, Yukawa Institute for Theoretical Physics, July 2016.

"Particle formation and ordering in a model of QCD2", "New trends in integrable models", International Institute of Physics, Natal, Brazil, Sept. 5, 2016,

"Composite orders in strongly correlated systems", workshop in Entanglement in Quantum Spin Systems: Oct. 3-7, Simons Center, SUNYSB.

"Particle formation and ordering in a model of QCD2", "Quarkyonic, from theory to experiment" workshop, Central China Normal University, Wuhan, China, Oct. 24-28, 2016.

Participation in Research Programs

Nov. 2 - Dec. 1 1990 participation in the research program in high-T superconductivity, organized by the Institute of Scientific Interchange, Villa Gualino, Turin, Italy.

June 20 - July 9, 1993, mini-workshop in strongly correlated electronic systems, ICTP, Trieste, Italy.

July 3 - July 15, 1995, mini-workshop in strongly correlated electronic systems, ICTP, Trieste, Italy.

March 18 - June 25, 1996, workshop in strongly correlated systems and quantum critical phenomena, ITP, Santa Barbara.

July 14 - July 25, 1997, workshop in strongly correlated electronic systems, ICTP, Trieste, Italy.

September 15 - 19, 1997, workshop in mesoscopics and chaos, Newton's Institute, Cambridge, UK.

July 25 - Aug. 15, 1999, workshop on New Quantum States, Aspen, Colorado.

March 25-June 30, 2000, a program in Strongly Correlated Electron Systems, Isaac Newton Institute, Cambridge.

Aug 5-27, 2000, a program on Non-Perturbative Methods in Disordered Systems, MPIPKS Dresden.

May 20-June 20, 2007, "Gaz Quantique", Institute for Andre Poincare, Paris.

Galileo Galilei Institute workshop in Integrable Systems, Florence, Italy, Sept. 7-Oct. 6, 2008.

Galileo Galilei Institute workshop in Integrable Systems, Florence, Italy, May 2012.

June, 2012, Program "Disordered Quantum Systems", Institute for Andre Poincare, Paris.

Galileo Galilei Institute workshop in $d > 2$ conformal field theories, Florence, Italy, May 2016.

Publications

Books

1. "Quantum Field Theory in Condensed Matter Physics", published by Cambridge University Press (1995), second reprint and paperback editions (1996); reprinted in China in 2001, Russian translation published in 2002, second edition in 2003.
2. "The bosonization approach to strongly correlated systems", with A. Gogolin and A. Nersesyan, Cambridge University Press (1998); paperback (2005).
3. Editor of the book "New Theoretical approaches to strongly correlated systems", NATO Science Series, Kluwer Academic (2001).

Papers

1. "Renormalisation of Sound Velocity at Mixing-Valence Transitions" (with A. F. Barabanov) JETP 48, 153 (1978).
2. "Metal-Insulator Phase Transitions with Mixing of Valency" (with A. F. Barabanov) JETP 49, 558 (1979).
3. "On the Indirect Exchange Between Localized Moments of Rare-Earth Ions" , JETP 49, 1142 (1979).
4. "Localized Degrees of Freedom in Ferromagnetic with Resonant Impurities" (with M. V. Feigelman) JETP 50, 2524 (1979).
5. "Appearance of Kondo-type Singularity in the $4 - f$ Metals" (with A. F. Barabanov) Sov. Solid State Physics 21, 3214 (1979).
6. "Spin-glass Phase Transition" (with M.V. Feigelman) JETP 50, 2524 (1979).
7. "Thermodynamics of the $s - d$ Model" (with V. M. Filyov and P. B. Wiegmann) Phys. Lett. 81A, 175 (1980). *
8. "Exact Solution of the Degenerate Exchange Model" (with P. B. Wiegmann) J. Phys. C 15, 1707 (1982).
9. "Exact Solution of the Symmetric Anderson Model at $T = 0$ " (with V. M. Filyov and P. B. Wiegmann) JETP Lett. 35, 77 (1982).
10. "Exact Solution of the Asymmetric Anderson Model at $T = 0$ " (with P. B. Wiegmann) JETP Lett. 35, 100 (1982).
11. "Thermodynamics of the Symmetric Anderson Model" (with V. M. Filyov and P. B. Wiegmann) Phys. Lett. 89A, 157 (1982).

12. “Thermodynamics of the Asymmetric Anderson Model” (with P. B. Wiegmann) Phys. Lett. 89A, 368 (1982).
13. “On the Hidden Supersymmetry in the Dissipative Stochastic Mechanics” (with M. V. Feigelman) JETP 83, 1430 (1982).
14. “Exact Solution of the Anderson Model (I-II)” (with P. B. Wiegmann) J. Phys. C 16, 2281; 2321 (1983).
15. “Exact Solution of the Degenerate Anderson Model” (with E. I. Ogievetsky and P. B. Wiegmann) J. Phys. C 16, L797 (1983).
16. “The Exact Results for Magnetic Alloys” (with P. B. Wiegmann) Adv. Phys. 32, 331 (1983).
17. “Solution of the Kondo problem for an Orbital Singlet”, with Wiegmann P. B. JETP Letters **38**, 591 (1983),
18. “Exact Solution of the Multi-Channel Kondo Problem; Scaling and Integrability” (with P. B. Wiegmann) J. Stat. Phys. 38, 125 (1985).
19. “Solution of the N -channel Kondo Problem (Scaling and Integrability)” (with P. B. Wiegmann) Z. fur Phys. B54, 201 (1984).
20. “Thermodynamics of the Degenerate Anderson Model,” J. Phys. C17, 2299 (1984).
21. “Thermodynamics of the Multi-Channel Kondo Problem”, J. Phys. C 18, 159 (1985).
22. “Semimetallic Properties of a Heterojunction” (with F. V. Kusmartsev) JETP Lett. 42, 257 (1985).
23. “Heisenberg Magnet with an Arbitrary Spin and the Anisotropic Chiral Field” (with H. M. Babudjian) Nucl. Phys. B265, 24 (1986).
24. “Two-dimensional Models of Disordered Systems with a Relativistic Spectrum : Exact Results and $1/N$ -Expansion”, JETP 64, 1046 (1986).
25. “1 + 1-dimensional Non-Linear Sigma Model at Finite Temperatures”, JETP 66, 221 (1987).
26. “Exact Solution of a Model of One-dimensional Fermions with the $SU(N) \otimes SU(M)$ Symmetry, JETP 66, 754 (1987).
27. “Spectrum of Conformal Dimensions of Lattice Integrable Models of Magnetics” (with S. V. Pokrovsky) JETP 66, 1275 (1987).
28. “Exact Solutions of One-Dimensional Supersymmetric Models”, Sov. J. Nucl. Phys. (Yad.Fis.) 47, 172 (1988).*
29. “Exact Solution of 2D Z_n -invariant Statistical Models”, JETP 67, 247 (1988).

30. The extended variant with the same title in Nucl. Phys. B305, 675 (1988).
31. “Integrable ‘Magnetic’ Chains and Bosonic-Parafermionic Conformally Invariant Field Theories” (with S. V. Pokrovsky) , Nucl. Phys. B320, 696 (1989).
32. “Exact Solution of Models of 1D Magnetics with Interactions of the Next-Nearest Neighbours”, JETP Lett. 49, 117 (1989).
33. “Incommensurate Phases of Quantum 1D Magnetics”, Phys. Rev. B42, 779 (1990).
34. “Field theory Treatment of the Heisenberg Spin-1 Chain: Application to $Ni(C_2H_8N_2)_2NO_2(ClO_4)$ in Proceedings of the US-USSR Conference on Frontiers in Condensed Matter Theory , Annals of the NY Academy of Sciences , 581 232 (1989) , ed. by M. Lax, L. P. Gorkov and J. L. Birman; Phys. Rev. B42, 10499, (1990)
35. “The Transport Properties of Magnetic Alloys with Multi-Channel Kondo Impurities”, J. Phys.: Condensed Matter 2 , 2833 (1990).
36. “Topological Effects in Disordered Phase of Two-dimensional Magnets”, with M. Reiser; in *Proceedings of the University of Miami Workshop on Electronic Structure and Mechanisms for High Temperature Superconductivity*, Jan. 1991
37. “(1 + 1)-dimensional $O(3)$ Nonlinear Sigma Model in Magnetic Field Magnetization and Effective potential”, with N. Nicopoulos, Phys. Rev. B44, 9385 (1991)
38. “Observation of non-Fermi liquid behavior in $U_{0.2}Y_{0.8}Pd_3$ ” with B. Andraka, Phys. Rev. Lett. 67, 2886 (1991).
39. “Two Weakly Coupled Heisenberg Chains - Solution in Continuous Limit”, Mod. Phys. Lett. B5, 1973 (1991).
40. “Spectrum of Magnetic Excitations in Spin-Peierls State”, Phys. Rev. B45, 486 (1992).
41. ”Influence of Quenched Disorder on Commensurate- Incommensurate Transition: Exact Results”, Phys. Rev. Lett. 68, 3889 (1992).
42. ”New Fermionic Description of Quantum Liquid State”, Phys. Rev. Lett. 69, 2142 (1992).

1993 publications.

43. ”Neutron Scattering in 1D Magnets”, together with R. Cowley *et al.*, Physica A**194**, 280 (1993).
44. ”Possible Realization of Odd Frequency Pairing in Heavy Fermion Compounds”, together with P. Coleman and F. Miranda, Phys. Rev. Lett. **70**, 2960 (1993).

- 45. "Phenomenological Theory of Non-Fermi-liquid Heavy-Fermion Alloys", together with M. Reiser, Phys. Rev. **B48**, Rapid Comm. 9887, (1993).
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