

Curriculum Vitae

Igor Burmistrov

AFFILIATION AND OFFICIAL ADDRESS

L. D. Landau Institute for Theoretical Physics RAS
 142432, Russia, Moscow region, Noginsky district
 Chernogolovka, acad. Semenov prosp., 1a
 tel.: +007 495 7029317
 fax: +007 495 7029317
 e-mail: burmi@itp.ac.ru
 URL: <http://burmi.itp.ac.ru>

PERSONAL INFORMATION

Name: Igor Sergeevich Burmistrov
 Date of Birth: 1 February, 1979
 Place of Birth: Moscow (USSR)
 Sex: Male
 Marital status: married, 2 daughters
 Citizenship: Russian Federation
 Language: English (fluent), Russian (native speaker)

RESEARCH INTERESTS

Low-D disordered strongly-correlated electron systems
 Topological insulators
 Anderson-Mott transitions
 Integer and fractional quantum Hall effects
 Coulomb blockade in low-dimensional structures
 Non-equilibrium phenomena in disordered electron systems

EMPLOYMENT

01/19 – present Deputy Head, L.D. Landau Institute for Theoretical Physics
 01/18 – present Leading researcher, L.D. Landau Institute for Theoretical Physics
 09/17 – present Professor (part time), Faculty of Physics, National Research University Higher School of Economics
 06/16 – present Leading researcher (part time), Condensed Matter Physics Lab., National Research University Higher School of

Economics

02/14 – 09/18 Leading researcher (part time), Lab. of Top. Quan. Phen. in Supercond. Sys., Moscow Institute of Physics and

Technology

07/12 – 01/18 Senior researcher, L.D. Landau Institute for Theoretical Physics
 12/06 – 07/12 Researcher, L.D. Landau Institute for Theoretical Physics
 06/06 – 12/06 Junior researcher, L.D. Landau Institute for Theoretical Physics
 09/05 – 12/10 Teaching assistant (part time), Department of Theoretical Physics, Moscow Institute of Physics and Technology
 06/04 – 06/06 Post-doctoral researcher, L.D. Landau Institute for Theoretical Physics

EDUCATION

09/95 – 06/01 Moscow Institute of Physics and Technology
 B.A. in physics (cum laude)
 Bachelor thesis: *Attenuation of an optical wave propagating in a waveguide, formed by layers of a semiconductor heterostructure, owing to scattering on inhomogeneities*
 Supervisor: Prof. Dr. A.P. Bogatov (Lebedev Physical Institute, Russia)

- 09/99 – 06/01 Moscow Institute of Physics and Technology
 Master degree (cum laude) in Physics and Mathematics
 Master thesis: *Metal-insulator transition near two dimensions*
 Supervisor: Dr. M.A. Baranov (RRC Kurchatov Institute, Russia)
- 09/01 – 06/04 Ph.D. student in L.D. Landau Institute for Theoretical Physics
 Ph.D. degree in Physics and Mathematics
 Ph.D. thesis (in Russian): *Interacting two-dimensional electrons in a random potential on high Landau levels*
 Supervisors: Dr. M.A. Baranov (RRC Kurchatov Institute, Russia)
 Prof. Dr. M.V. Feigelman (Landau Institute, Russia)
- 11/02 – 05/06 Ph.D. student in Institute for Theoretical Physics at the University of Amsterdam
 Ph.D. degree in Physics (cum laude)
 PhD thesis: *θ renormalization, super universality and electron–electron interactions in the theory of the quantum Hall effect*
 Supervisor: Prof. Dr. A.M.M. Pruisken (ITFA, Univ. van Amsterdam)
- 28/06/12 Habilitation in Theoretical Physics (Doctor of Sciences degree)
 L.D. Landau Institute for Theoretical Physics
 Thesis (in Russian): *Transport in low-dimensional electron systems and nanostructures: the effect of electron–electron interaction*

AWARDS AND PERSONAL GRANTS

- 09/99 – 09/00 Scholarship of the President of Russian Federation for undergraduates
 01/02 – 12/04 Landau Scholarship from Forschungszentrum Juelich for Ph.D. students
 01/04 – 12/04 Dynasty Foundation Scholarship for Ph.D. students
 01/05 – 12/06 Russian Science Support Foundation Scholarship for young scientists
 09/05 – 12/06 Grant of the President of Russian Federation for young scientists
 2005 Laureate of the Academia Europaea competition for young Russian scientists
 09/07 – 12/08 Grant of the President of Russian Federation for young scientists
 01/07 – 12/09 CRDF BRHE Award
 01/07 – 12/09 Dynasty Foundation Scholarship for young scientists
 01/09 – 12/11 Grant of the President of Russian Federation for young scientists
 01/12 – 12/13 Grant of the President of Russian Federation for young scientists
 01/13 – 12/15 Dynasty Foundation Scholarship for senior scientists
 01/13 – 12/14 Grant of the President of Russian Federation for young scientists
 01/13 – 12/16 Dynasty Foundation Scholarship for senior scientists
 09/17 – 09/20 Humboldt fellowship for experience researchers by Alexander von Humboldt Foundation

PARTICIPATION IN GRANTS

- 01/99 – 12/01 INTAS Grant #99-1070, researcher
 01/02 – 12/04 RFBR Grant #03-02-168-64a, *Strongly correlated spatially inhomogeneous gases*, researcher
 01/02 – 12/04 RFBR Grant #03-02-16677, *Interaction of superconductivity and ferromagnetism in mesoscopic hybrid structures*, researcher
 01/06 – 12/06 RFBR Grant #06-02-17519-a, *Quantum transport in arrays of long superconducting junctions*, researcher
 01/06 – 12/08 RFBR Grant #06-02-16708-a, *Metal-insulator transition in strongly correlated two-dimensional electron system*, researcher
 01/07 – 12/09 RFBR Grant #07-02-00998-a, *Spin-transport in mesoscopics superconducting junctions* researcher
 02/09 – 02/11 RFBR Grant #09-02-92474-MHKC-a, *Electrons in zero-dimensional systems: the interplay of charge, spin, and non-equilibrium*, **Co-principal investigator**
 01/09 – 12/11 RFBR Grant #09-02-00247-a, *Quantum ground states of strongly interacting electrons in 2D systems*, researcher
 01/09 – 12/10 RFBR Grant #09-02-12206, *Coherent and non-coherent quantum dynamics of strongly-correlated electrons in nanostructures, low-dimensional and anisotropic materials*, researcher
 05/10 – 11/12 Russian Ministry of Education and Science, contract #P926, *Quantum transport in nanostructures: the interplay of charge, spin, and non-equilibrium*, **Principal investigator**

- 01/11 – 12/12 RFBR Grant #11-02-12126 *Quantum low-temperature physics of strongly correlated electrons in nanostructures, low-dimensional and layered materials*, researcher
- 01/11 – 12/12 RFBR Grant #11-02-92470, *Equilibrium and non-equilibrium phenomena in strongly correlated electrons in quantum dots*, **Co-principal Investigator**
- 09/12 – 12/13 Russian Ministry of Education and Science, contract #8385
Quantum coherence and quantum transport in low dimensional electron systems and nanostructures, RESEARCHER
- 09/12 – 12/13 Russian Ministry of Education and Science, contract #8678
Quantum transport and electron states in mesoscopic nanostructures, RESEARCHER
- 01/12 – 12/14 RFBR Grant #12-02-00579,
Quantum ground states of strongly correlated electrons in two- and one-dimensional systems, RESEARCHER
- 01/14 – 12/16 RFBR Grant #14-02-00333,
Multifractality of electron states in low-dimensional disordered electron systems with Coulomb interaction, PRINCIPAL INVESTIGATOR
- 09/14 – 12/18 Russian Science Foundation Grant # 14-42-00044,
Superconductor-insulator and metal-insulator transitions in interacting disordered systems RESEARCHER
- 09/14 – 12/16 Russian Science Foundation Grant # 14-12-00898,
Topological order and quantum coherent phenomena in nanostructures RESEARCHER
- 09/14 – 12/16 Russian Science Foundation Grant # 14-12-00879,
Spin properties of correlated and topological low-dimensional electron systems RESEARCHER
- 01/15 – 12/16 RFBR Grant #15-32-20176,
Metal-insulator transitions in new and traditional low dimensional disordered interacting electron systems, PRINCIPAL INVESTIGATOR
- 09/15 – 02/18 RFBR Grant #15-52-06005,
Topology and quantum phase transitions on the edge, PRINCIPAL INVESTIGATOR
- 01/16 – 12/17 Russian Federation President Grant MD-5620.2016.2 for senior scientists, PRINCIPAL INVESTIGATOR
- 02/17 – 12/19 RFBR Grant #17-02-00541,
Adiabatic transport and quantum Hall effect in disordered 2D electron systems with finite curvature, PRINCIPAL INVESTIGATOR

PROFESSIONAL EXPERTISE

I am a referee for Physical Review Letters, Physical Review B, Europhysics Letters, Journal of Physics A: Mathematical and Theoretical, Journal of Physics: Condensed Matter, Journal of Physics D: Applied Physics, New Journal of Physics, Nanotechnology, Superconductor Science and Technology, Journal of Experimental and Theoretical Physics Letters, Journal of Experimental and Theoretical Physics.

04/12 – 09/16 member of the Editorial Board of the Journal of Experimental and Theoretical Physics.

ADMINISTRATIVE TASKS

- 06/13 – present member of the Scientific Council of L.D. Landau Institute for Theoretical Physics
- 09/17 – present member of the Academic Council of Education of Faculty of Physics, National Research University Higher School of Economics
- 01/19 – present Deputy Head of L.D. Landau Institute for Theoretical Physics

Papers published in referred journals and proceedings

1. A. P. Bogatov and I. S. Burmistrov
Attenuation of an optical wave propagating in a waveguide, formed by layers of a semiconductor heterostructure, owing to scattering on inhomogeneities
Quantum Electronics **29**, 500 (1999) [Kvantovaya Elektronika **27**, 223 (1999)].
2. I. S. Burmistrov
Two-dimensional electron liquid with disorder in a weak magnetic field
JETP **95**, 132 (2002) [ZhETF **122**, 150 (2002)].
3. M. A. Baranov, I. S. Burmistrov, and A. M. M. Pruisken
Non-Fermi-liquid theory for disordered metals near two dimensions
Phys. Rev. B **66**, 075317 (2002).
4. I. S. Burmistrov and M. A. Skvortsov
On the effect of far impurities on the density of states of two-dimensional electron gas in a strong magnetic field
JETP Letters **78**, 156 (2003) [Pis'ma v ZhETF **78**, 188 (2003)].
5. N. M. Chtchelkatchev and I. S. Burmistrov
Andreev conductance of a domain wall
Phys. Rev. B **68**, R01338 (2003).
6. I. S. Burmistrov and M. A. Baranov
Mean-field phase diagram of two-dimensional electrons with disorder in a weak magnetic field
Phys. Rev. B **68**, 155328 (2003).
7. I. S. Burmistrov
The anisotropic conductivity of two-dimensional electrons on half-filled high Landau level
JETP Lett. **79**, 177 (2004) [Pis'ma v ZhETF **79**, 212 (2004)]
8. I. S. Burmistrov
Anisotropic conductivity tensor on a half-filled high Landau level
Phys. Rev. B **71**, 035331 (2005).
9. A. M. M. Pruisken and I. S. Burmistrov
The instanton vacuum of generalized CP^{N-1} models
Ann. of Phys. (N.Y.) **316**, 285 (2005).
10. A. M. M. Pruisken, M. A. Baranov, and I. S. Burmistrov
Non-Fermi liquid theory of the quantum Hall effects
JETP Lett. **82**, 150 (2005) [Pis'ma v ZhETF **82**, 166 (2005)].
11. I. S. Burmistrov and N. M. Chtchelkatchev
Domain wall effects in ferromagnet-superconductor structures
Phys. Rev. B **72**, 144520, (2005).
12. A. M. M. Pruisken and I. S. Burmistrov
Comment on "Topological oscillations of the magnetoconductance in disordered GaAs layers"
Phys. Rev. Lett. **95**, 189701 (2005).
13. I. S. Burmistrov and N. M. Chtchelkatchev
Crossover behavior of disordered interacting two-dimensional electron systems in a parallel magnetic field
JETP Lett. **84**, 656 (2006) [Pis'ma v ZhETF **79**, 775 (2006)]
14. D. A. Knyazev, O. E. Omel'yanovskii, V. M. Pudalov, and I. S. Burmistrov
Critical behavior of transport and magnetotransport in 2D electron system in Si in the vicinity of the metal-insulator transition
JETP Lett. **84**, 662 (2006) [Pis'ma v ZhETF **79**, 780 (2006)]
15. A. M. M. Pruisken and I. S. Burmistrov
 θ renormalization, electron-electron interactions and super universality in the quantum Hall regime
Ann. of Phys. (N.Y.) **322**, 1265 (2007)

16. N. M. Chtchelkatchev and I. S. Burmistrov
Conductance oscillations with magnetic field of a two-dimensional electron gas – superconductor junction
Phys. Rev. B **75**, 214510 (2007)
17. D. A. Knyazev, O. E. Omel'yanovskii, V. M. Pudalov, and I. S. Burmistrov
Metal-Insulator Transition in Two Dimensions: Experimental Test of the Two-Parameter Scaling
Phys. Rev. Lett. **100**, 046405 (2008)
18. A. M. M. Pruisken and I. S. Burmistrov
Non-Fermi liquid criticality and super universality in the quantum Hall regime
JETP Lett. **87**, 220 (2008)
19. I. S. Burmistrov and N. M. Chtchelkatchev
Electronic properties in a two-dimensional disordered electron liquid: Spin-valley interplay
Phys. Rev. B **77**, 195319 (2008)
20. N. M. Chtchelkatchev and I. S. Burmistrov
Energy relaxation in the spin-polarized disordered electron liquid
Phys. Rev. Lett. **100**, 206804 (2008)
21. I. S. Burmistrov and A. M. M. Pruisken
Coulomb blockade and super universality of the theta-angle
Phys. Rev. Lett. **101**, 056801 (2008)
22. N. M. Chtchelkatchev and I. S. Burmistrov
Conductance oscillations with magnetic field of a two-dimensional electron gas–superconductor junction
in "Electron Transport in Nanostructures", pp. 281–292, ed. by J. Bonca and S. Kruchinin, NATO Science for Peace and Security B: Physics and Biophysics, Springer, The Netherlands, 2008
23. I. S. Burmistrov and A. M. M. Pruisken
The problem of true macroscopic charge quantization in the Coulomb blockade
in "Electron Transport in Nanostructures", pp. 59–68, ed. by J. Bonca and S. Kruchinin, NATO Science for Peace and Security B: Physics and Biophysics, Springer, The Netherlands, 2008
24. I. S. Burmistrov and A. M. M. Pruisken
The Problem of Macroscopic Charge Quantization in the Coulomb Blockade
AIP Conference Proceedings 1134, 101 (2009)
25. Ya. I. Rodionov, I. S. Burmistrov, A. S. Ioselevich
Charge relaxation resistance in the Coulomb blockade problem
Phys. Rev. B **80**, 035332 (2009)
26. I. S. Burmistrov and A. M. M. Pruisken
The Problem of "Macroscopic Charge Quantization" in Single Electron Devices
Phys. Rev. B **81**, 085428 (2010) [marked as suggestion by Editors]
27. I. S. Burmistrov, Yuval Gefen, M. N. Kiselev
Spin and Charge Correlations in Quantum Dots: An Exact Solution
Pis'ma v ZhETF **92**(3), 202 (2010)
28. Ya. I. Rodionov, I. S. Burmistrov, N. M. Chtchelkatchev
Relaxation dynamics of the electron distribution in the Coulomb blockade problem
Phys. Rev. B **82**, 155317 (2010)
29. Ya. I. Rodionov, I. S. Burmistrov
Out-of-Equilibrium Admittance of Single Electron Box Under Strong Coulomb Blockade
Pis'ma v ZhETF **92**(10), 766 (2010)
30. I. S. Burmistrov, S. Bera, F. Evers, I. V. Gornyi, and A. D. Mirlin,
Wave function multifractality and dephasing at metal-insulator and quantum Hall transitions,
Annals of Physics (N.Y) **326**, 1457 (2011).

31. I.S. Burmistrov, I.V. Gornyi, and K.S. Tikhonov,
Disordered electron liquid in double quantum well heterostructures: Renormalization group analysis and dephasing rate,
Phys. Rev. B 84, 075338 (2011).
32. I.S. Burmistrov, I.V. Gornyi, A.D. Mirlin,
Enhancement of the critical temperature of superconductors by Anderson localization,
Phys. Rev. Lett. 108, 017002 (2012).
33. A.U. Sharafutdinov and I.S. Burmistrov,
Co-tunneling current through a two-level quantum dot coupled to magnetic leads: A role of exchange interaction,
J. Phys.: Condens. Matter 24, 155301 (2012).
34. I.S. Burmistrov, Y. Gefen, M.N. Kiselev,
An exact solution for spin and charge correlations in quantum dots: The effect of level fluctuations and Zeeman splitting,
Phys. Rev. B 85, 155331 (2012).
35. A. Saha, Y. Gefen, I.S. Burmistrov, A. Shnirman and A. Altland,
A quantum dot close to Stoner instability: The role of the Berry's phase,
Ann. Phys. (N.Y.) 327, 2543 (2012).
36. E.J. Koenig, P.M. Ostrovsky, I.V. Protopopov, I.V. Gornyi, I.S. Burmistrov and A.D. Mirlin,
Interaction and disorder effects in 3D topological insulator thin films,
Phys. Rev. B 88, 035106 (2013).
37. I.S. Burmistrov, I.V. Gornyi, A.D. Mirlin,
Multifractality at Anderson transitions with Coulomb interaction,
Phys. Rev. Lett. 111, 066601 (2013).
38. I.S. Burmistrov, I.V. Gornyi, A.D. Mirlin,
Tunneling into the localized phase near Anderson transitions with Coulomb interaction,
Phys. Rev. B 89, 035430 (2014)
39. D.S. Lyubshin, A.U. Sharafutdinov, I.S. Burmistrov,
Statistics of spin fluctuations in quantum dots with Ising exchange,
Phys. Rev. B 89, 201304(R) (2014)
40. E.J. Koenig, P.M. Ostrovsky, I.V. Protopopov, I.V. Gornyi, I.S. Burmistrov and A.D. Mirlin,
Half-integer quantum Hall effect of disordered Dirac fermions at a topological insulator surface,
Phys. Rev. B 90, 165435 (2014).
41. A.U. Sharafutdinov, D.S. Lyubshin, I.S. Burmistrov,
Spin fluctuations in quantum dots,
Phys. Rev. B 90, 195308 (2014)
42. I.S. Burmistrov,
Introduction to the theory of the Integer Quantum Hall Effect,
Interdisciplinary Center for Fundamental Research, Moscow Institute of Physics and Technology (2015) [In Russian]
43. Y. Tupikov, A.Yu. Kuntsevich, V.M. Pudalov, I.S. Burmistrov,
Temperature derivative of the chemical potential and its magnetooscillations in two-dimensional system,
JETP Lett. 101, 131 (2015)
44. I.S. Burmistrov, I.V. Gornyi, A.D. Mirlin,
Multifractality and electron-electron interaction at Anderson transitions,
Phys. Rev. B 91, 085427 (2015)
45. A. Shnirman, Y. Gefen, A. Saha, I.S. Burmistrov, M.N. Kiselev, A. Altland,
Geometric quantum noise of spin,
Phys. Rev. Lett. 114, 176806 (2015)
46. A.Yu. Kuntsevich, Y.V. Tupikov, V.M. Pudalov, I.S. Burmistrov,
Strongly correlated two-dimensional plasma explored from entropy measurements,
Nature Commun. 6, 7298 (2015)

47. I.S. Burmistrov, I.V. Gornyi, A.D. Mirlin,
Superconductor-insulator transitions: Phase diagram and magnetoresistance,
Phys. Rev. B 92, 014506 (2015) [Editors' Suggestion]
48. A.U. Sharafutdinov, I.S. Burmistrov,
Tunneling density of states in quantum dots with anisotropic exchange,
Phys. Rev. B 92, 035439 (2015)
49. E.V. Repin, I.S. Burmistrov,
Surface states in a 3D topological insulator: The role of hexagonal warping and curvature,
JETP 148, 584 (2015)
50. V.M. Pudalov, A.Yu. Kuntsevich, I.S. Burmistrov, M. Reznikov,
Thermodynamic Studies of Two-Dimensional Correlated Electron Systems,
J. of Low Temp. Phys. 181, (2015)
51. I.S. Burmistrov, Ya.I. Rodionov,
Charge relaxation resistance in the cotunneling regime of multichannel Coulomb blockade: Violation of Korrington-Shiba relation,
Phys. Rev. B 92, 195412 (2015)
52. E. J. König, A. Levchenko, I. V. Protopopov, I. V. Gornyi, I. S. Burmistrov, A. D. Mirlin,
Berezinskii-Kosterlitz-Thouless transition in homogeneously disordered superconducting films,
Phys. Rev. B 92, 214503 (2015) [Editors' Suggestion]
53. I.S. Burmistrov, I.V. Gornyi, V.Yu. Kachorovskii, M.I. Katsnelson, A.D. Mirlin,
Quantum elasticity of graphene: Thermal expansion coefficient and specific heat,
Phys. Rev. B 94, 195430 (2016) .
54. P.D. Kurilovich, V.D. Kurilovich, I.S. Burmistrov,
Indirect exchange interaction between magnetic impurities in the two-dimensional topological insulator based on CdTe/HgTe/CdTe quantum wells,
Phys. Rev. B 94, 155408 (2016)
55. I.S. Burmistrov, I.V. Gornyi, A.D. Mirlin,
Local density of states and its mesoscopic fluctuations near the transition to a superconducting state in disordered systems,
Phys. Rev. B 93, 205432 (2016) [Editors' Suggestion]
56. E.V. Repin, I.S. Burmistrov,
Inelastic electron scattering off a quantum dot in the cotunneling regime: The signature of mesoscopic Stoner instability,
Phys. Rev. B 93, 165425 (2016)
57. A. Shnirman, A. Saha, I.S. Burmistrov, M.N. Kiselev, A. Altland, Y. Gefen,
 $U(1)$ and $SU(2)$ quantum dissipative systems: The Caldeira-Leggett vs. the Amegaokar-Eckern-Schön approaches,
JETP 149, 666 (2016)
58. I.S. Burmistrov, *Two-loop renormalization of the Finkel'stein theory: The specific heat*,
Annals of Physics (N.Y.) 364, 120 (2016)
59. E.V. Repin, I.S. Burmistrov,
Mesoscopic fluctuations of the single-particle Green's function at Anderson transitions with Coulomb interaction,
Phys. Rev. B 94, 245442 (2016)
60. T. Ludwig, I.S. Burmistrov, Y. Gefen, A. Shnirman, *Strong non-equilibrium effects in spin torque systems*,
Phys. Rev. B 95, 075425 (2017)
61. I.S. Burmistrov,
Two-instanton approximation to the Coulomb blockade problem, Low Temp. Phys. 43, 115 (2017)
62. P.D. Kurilovich, V.D. Kurilovich, I.S. Burmistrov, M Goldstein,
Helical edge transport in the presence of a magnetic impurity,
Pis'ma v ZhETF 106, 575 (2017)

63. I.S. Burmistrov, I.V. Gornyi, A.D. Mirlin,
Mesoscopic fluctuations of the local density of states in interacting electron systems,
Pis'ma v ZhETF 106, 252 (2017)
64. I.S. Burmistrov, K.S. Tikhonov, I.V. Gornyi, A.D. Mirlin,
Entanglement entropy and particle number cumulants of disordered fermions,
Ann. Phys. (N.Y.) 383, 140 (2017)
65. V.D. Kurilovich, P.D. Kurilovich, I.S. Burmistrov,
Indirect exchange interaction between magnetic impurities near the helical edge,
Phys. Rev. B 95, 115430 (2017)
66. I.S. Burmistrov,
Transport in a two-dimensional disordered electron liquid with isospin degrees of freedom, pp.65 – 116 in *Strongly Correlated Electrons in Two Dimensions*, Ed. S.V. Kravchenko, Pan Stanford Publishing (2017)
67. I.S. Burmistrov, M.A. Skvortsov,
Magnetic disorder in superconductors: Enhancement by mesoscopic fluctuations,
Phys. Rev. B 97, 014515 (2018)
68. I.S. Burmistrov, I.V. Gornyi, V.Yu. Kachorovskii, M.I. Katsnelson, J.H. Los, A. D. Mirlin,
Stress-controlled Poisson ratio of a crystalline membrane: Application to graphene,
Phys. Rev. B 97, 125402 (2018)
69. I.S. Burmistrov, E.V. Repin,
Quantum corrections to conductivity of disordered electrons due to inelastic scattering off magnetic impurities,
Phys. Rev. B 98, 045414 (2018)
70. I.S. Burmistrov, V. Yu. Kachorovskii, I.V. Gornyi, A.D. Mirlin,
Differential Poisson's ratio of a crystalline two-dimensional membrane,
Annals of Physics (N.Y.) 396, 119 (2018)
71. V.D. Kurilovich, P.D. Kurilovich, I.S. Burmistrov, M. Goldstein,
Helical edge transport in the presence of a magnetic impurity: the role of local anisotropy,
Phys. Rev. B 99, 085407 (2019)
72. T. Ludwig, I.S. Burmistrov, Y. Gefen, A. Shnirman,
A thermally driven spin-transfer-torque system far from equilibrium: enhancement of the thermoelectric current via pumping current,
Phys. Rev. B 99, 045429 (2019)
73. I.S. Burmistrov, P.D. Kurilovich, V.D. Kurilovich,
Comment on "Noise in the helical edge channel anisotropically coupled to a local spin", *Pis'ma v ZhETF* 109, 639 (2019)
74. I.S. Burmistrov, M. Goldstein, M. Kot, V.D. Kurilovich, P.D. Kurilovich,
Dissipative and Hall viscosity of a disordered 2D electron gas,
Phys. Rev. Lett. 123, 026804 (2019)
75. P.D. Kurilovich, V.D. Kurilovich, I.S. Burmistrov, Y. Gefen, M. Goldstein,
Unrestricted electron bunched at the helical edge, *Phys. Rev. Lett.* 123, 056803 (2019)

Preprints

1. T. Ludwig, I.S. Burmistrov, Y. Gefen, A. Shnirman,
Current noise geometrically generated by a driven magnet,
arxiv:1906.02730
2. I.S. Burmistrov,
Finkel'stein nonlinear sigma model: interplay of disorder and interaction in 2D electron systems,
arxiv:1901.10412

3. A.M.M. Pruisken, I.S. Burmistrov,
Comment on "Scaling in Plateau-Plateau Transition: A Direct Connection of Quantum Hall Systems with Anderson Localization Model"
arxiv:0907.0356
4. A.M.M. Pruisken, I.S. Burmistrov, R. Shankar,
Massless excitations at $\theta=\pi$ in the $CP(N-1)$ model with large values of N
cond-mat/0602653
5. I.S. Burmistrov,
On magnetic susceptibility of a spin- S impurity in nearly ferromagnetic Fermi liquid
cond-mat/0602650
6. A.M.M. Pruisken, M.A. Baranov, and I.S. Burmistrov,
Localization, Coulomb interaction, topological principles and the quantum Hall effect
cond-mat/0104387

Invited Talks

1. Workshop Flux, Charge, Topology, and Statistics (Amsterdam, The Netherlands, July, 2003)
Instanton and interaction effects in the quantum Hall physics
2. Lebedev Physical Institute, seminar on solid state physics theory (Moscow, Russia, May, 2005)
Theta-renormalization, electron-electron interactions and super universality in the quantum Hall effect
3. Institute of Nuclear Research (Moscow, Russia, May, 2005)
The instanton vacuum of generalized $CP^{(N-1)}$ models
4. Institute of Theoretical and Experimental Physics (Moscow, Russia, March, 2006)
Massless excitations at $\theta = \pi$ in the $CP^{(N-1)}$ model with large values of N
5. Lebedev Physical Institute, seminar on solid state physics theory (Moscow, Russia, June, 2006)
Instanton oscillations in 2D electron systems
6. Lebedev Physical Institute, seminar on solid state physics theory (Moscow, Russia, February, 2007)
Disordered interacting 2D electron system in parallel magnetic field
7. Institute of High Pressure Physics (Troitsk, Russia, March, 2007)
Disordered interacting 2D electron system in parallel magnetic field
8. Symposium on Theoretical and Mathematical Physics (Saint-Peterburg, Russia, July, 2007)
Coulomb blockade in a single electron transistor (circular brane model) and superuniversality of the θ -angle
9. Fine Theoretical Physics Institute, University of Minnesota (Minnesota, USA, November, 2007)
Energy relaxation in the spin-polarized disordered electron liquid
10. L.D.Landau Memorial Conference "Advances in Theoretical Physics" (Chernogolovka, Russia, June, 2008)
The Problem of True Macroscopic Charge Quantization in Coulomb Blockade
11. ARW "Fundamentals of electronic nanosystems" (Saint-Peterburg, Russia, July, 2008)
Energy relaxation in the spin-polarized disordered electron liquid
12. The 3-d Russian school for young scientists, "Micro-, nanotechnology and their applications" (Chernogolovka, Russia, November, 2008)
Metal-insulator transition in strongly correlated disordered two-dimensional electron liquid
13. Landau-Weizmann Workshop on Theoretical Physics (Rehovot, Israel, November 2008)
The problem of macroscopic charge quantization in Coulomb blockade
14. Symposium on Theoretical and Mathematical Physics (Saint-Peterburg, Russia, July, 2009)
Interplay of spin and charge channels in the tunneling density of states of zero-dimensional systems
15. The Institute of Nanotechnology FZK (Karlsruhe, Germany, July, 2009)
Electronic properties in a two-dimensional disordered electron liquid: Spin-valley interplay
16. Institute for Theory of Condensed Matter, University of Karlsruhe (Karlsruhe, Germany, July, 2009)
Charge relaxation resistance in the Coulomb blockade problem
17. Russian 35th conference on Low Temperature Physics (Chernogolovka, Russia, September, 2009)
Electronic properties in a two-dimensional disordered electron liquid: Spin-valley interplay
18. XVIII Ural winter school on semiconductor physics (Ekaterinburg, February, 2010)
Metal-insulator transition in a two-dimensional disordered electron liquid: Spin-valley interplay
19. Physics department, Ben-Gurion University (Beer-Sheva, Israel, March 2010)
Theta-renormalization and Coulomb blockade in single-electron transistors
20. Physics department, Sami Shamoon College of Engineering (Beer-Sheva, Israel, March 2010)
Theta-renormalization and Coulomb blockade in single-electron transistors

21. Nano/pico seminar, Low Temperature Laboratory, Aalto University (Espoo, Finland, April 2010)
Macroscopic charge quantization in single-electron transistors: Theta-renormalization and Coulomb blockade
22. Lebedev Physical Institute, seminar on solid state physics theory (Moscow, Russia, June, 2010)
Macroscopic charge quantization in single electron devices: Theta-renormalization and Coulomb blockade
23. ARW "Fundamentals of electronic nanosystems" (Saint-Peterburg, Russia, July, 2010)
Spin and Charge correlations in Quantum Dots: An Exact Solution
24. The 4th Russian school for young scientists "Micro-, Nanotechnologies and their application" (Chernogolovka, Russia, November, 2010)
Spin and Charge correlations in Quantum Dots: An Exact Solution
25. Institute of Nuclear Research (Moscow, Russia, January, 2011)
Macroscopic charge quantization in single-electron transistors: Theta-renormalization and Coulomb blockade
26. Physics department, Sami Shamoon College of Engineering (Beer-Sheva, Israel, March 2011)
Enhancement of superconductivity by Anderson localization
27. Condensed matter seminar, Physics Department, Bar-Ilan University (Ramat-Gan, Israel, March 2011)
Enhancement of superconductivity by Anderson localization
28. Seminar of Condensed matter and Statistical Physics group, ICTP (Triest, Italy, April 2011)
Enhancement of superconductivity by Anderson localization
29. Symposium on Theoretical and Mathematical Physics (Saint-Peterburg, Russia, July, 2011)
Spin and Charge correlations in Quantum Dots: An Exact Solution
30. XIX Ural winter school on semiconductor physics (Ekaterinburg, Russia, February, 2012)
Enhancement of superconductivity by Anderson localization
31. Ginzburg Conference on Physics (Moscow, Russia, June, 2012)
Enhancement of superconductivity by Anderson localization
32. Institute for Theory of Condensed Matter, Karlsruhe Institute of Technology (Karlsruhe, Germany, July, 2012)
Spin and Charge correlations in Quantum Dots
33. The 5th Russian school for young scientists "Micro-, Nanotechnologies and their application" (Chernogolovka, Russia, November, 2012)
Interaction and disorder effects in 3D topological insulator thin films
34. Lebedev Physical Institute, seminar on solid state physics theory (Moscow, Russia, December, 2012)
Spin and Charge correlations in Quantum Dots
35. Theoretical physics and quantum technology department, National University of Science and Technology MISIS (Moscow, Russia, April, 2013)
Interaction and disorder effects in 3D topological insulator thin films
36. I.E. Tamm Theory Department, Lebedev Physical Institute (Moscow, Russia, May, 2013)
Mesoscopic Stoner instability in quantum dots
37. Symposium on Theoretical and Mathematical Physics (Saint-Peterburg, Russia, July, 2013)
Multifractality at Anderson transitions with Coulomb interaction
38. I.E. Tamm Theory Department, Lebedev Physical Institute (Moscow, Russia, February, 2014)
Multifractality at Anderson transitions with Coulomb interaction
39. XX Ural winter school on semiconductor physics (Ekaterinburg, February, 2014)
Interaction and disorder effects in 3D topological insulator thin films
40. Moscow International Symposium on Magnetism (Moscow, Russia, July, 2014)
Interaction and disorder effects in 3D topological insulator thin films
41. Landau Days Conference (Chernogolovka, Russia, June, 2014)
Superconductor-metal/insulator transition in 2D electron systems with strong spin-orbit coupling

42. Conference on Recent Progress and Perspectives in Scaling, Multifractality, Interactions, and Topological Effects near Anderson Transitions, (MPIPKS, Dresden, Germany, March, 2014)
Multifractality at Anderson transitions with Coulomb interaction
43. XVII Symposium "Nanophysics and Nanoelectronics", (Nizhnii Novgorod, Russia, March 2015)
Superconductor-insulator transitions: Phase diagram and magnetoresistance
44. I.E. Tamm Theory Department, Lebedev Physical Institute (Moscow, Russia, May, 2015)
Superconductor-insulator transitions: Phase diagram and magnetoresistance
45. XIV Workshop on Problems of Solid State Physics and High Pressures, (Sochi, Russia, September 2015)
Multifractality at Anderson transitions with Coulomb interaction
46. Condensed Matter Group, Radboud University of Nijmegen, (Nijmegen, The Netherlands, October, 2015)
Spin correlations in quantum dots
47. V International conference "Fundamental problems of high temperature superconductivity", (Malakhovka, Russia, October 2015)
Superconductor-insulator transitions: Phase diagram and magnetoresistance
48. Condensed Matter Seminar, Physics Department, Bar Ilan University, (Ramat Gan, Israel, November 2015)
Superconductor-insulator transitions: Phase diagram and magnetoresistance
49. Condensed Matter Seminar, Physics Department, Weizmann Institute of Science, (Rehovot, Israel, November 2015)
Superconductor-insulator transitions: Phase diagram and magnetoresistance
50. Seminar at the Institute of Solid State Physics, Physics Department, Tel Aviv University, (Tel Aviv, Israel, November 2015)
Superconductor-insulator transitions: Phase diagram and magnetoresistance
51. XXI Ural winter school on semiconductor physics, (Ekaterinburg, Russia, February 2016)
RKKY interaction in 2D topological insulators based on HgTe quantum wells
52. XVIII Symposium "Nanophysics and Nanoelectronics", (Nizhnii Novgorod, Russia, March 2016)
Mesoscopic fluctuations of the local density of states near the transition to superconducting state
53. Disorder, Interactions and Coherence: Warps and Delights, (Dresden, Germany, July 2016) *Mesoscopic fluctuations of the single-particle Green's function at Anderson transitions with Coulomb interaction*
54. Eastmag-2016, (Krasnoyarsk, Russia, August 2016)
Geometric quantum noise of spin
55. Anderson Localization in Topological Insulators, (Daejeon, South Korea, September 2016)
Mesoscopic fluctuations of the single-particle Green's function at Anderson transitions with Coulomb interaction
56. Superconducting hybrid nanostructures: Physics and application, (Dolgoprudny, Russia, September 2016) *Mesoscopic fluctuations of the local density of states near the transition to superconducting state*
57. Seminar at I.E. Tamm Theory Department, Lebedev Physical Institute, (Moscow, Russia, September, 2016)
Mesoscopic fluctuations of the single-particle Green's function at Anderson transitions with Coulomb interaction
58. XIX Symposium "Nanophysics and Nanoelectronics", (Nizhnii Novgorod, Russia, March, 2017)
Magnetic disorder in superconductors: Enhancement by mesoscopic fluctuations
59. Condensed Matter Seminar, Physics Department, Weizmann Institute of Science, (Rehovot, Israel, May 2017)
Magnetic disorder in superconductors: Enhancement by mesoscopic fluctuations
60. Condensed Matter Seminar, Physics Department, Bar Ilan University, (Ramat Gan, Israel, May 2017)
Magnetic disorder in superconductors: Enhancement by mesoscopic fluctuations
61. Ginzburg Conference, (Moscow, Russia, May 2017)
Magnetic disorder in superconductors: Enhancement by mesoscopic fluctuations
62. Moscow International Symposium on Magnetism, (Moscow, Russia, July 2017)
Magnetic disorder in superconductors: Enhancement by mesoscopic fluctuations

63. IV International Conference on Mesoscopic Structures: Fundamentals and Applications, (Listvyanka, Russia, July 2017)
Magnetic disorder in superconductors: Enhancement by mesoscopic fluctuations
64. Condensed Matter Seminar, Institute for Theoretical Condensed Matter Physics, Karlsruhe Institute of Technology (Karlsruhe, Germany, October 2017)
Magnetic disorder in superconductors: Enhancement by mesoscopic fluctuations
65. XXI Ural winter school on semiconductor physics, (Ekaterinburg, Russia, February 2018)
Current and noise in 2D topological insulators with magnetic impurities
66. Condensed Matter Seminar, Physics Department, Weizmann Institute of Science, (Rehovot, Israel, April 2018)
Current and noise in 2D topological insulators with magnetic impurities
67. Condensed Matter Seminar, Physics Department, Ben Gurion University, (Beer Sheva, Israel, 2018)
Current and noise in 2D topological insulators with magnetic impurities
68. Russian workshop Strongly correlated electron systems and quantum criticality, (Troisk, Russia, 2018)
Current and noise in 2D topological insulators with magnetic impurities
69. Condensed Matter Seminar, Physics Department, Tel Aviv University, (Tel Aviv, Israel, 2018)
Quantum and classical elasticity of graphene
70. Localization, Interactions, and Superconductivity, (Chernogolovka, Russia, 2018)
Anomalous elasticity of graphene
71. Physics Department, Regensburg University, (Regensburg, Germany, 2018)
Anomalous elasticity of graphene
72. Anderson localization and interactions, (Dresden, Germany, 2018)
Quantum corrections to conductivity of disordered electrons due to inelastic scattering off magnetic impurities
73. The Superconductor-Insulator Transition and Low-Dimensional Superconductors, (Villard De Lans, France., 2018)
Magnetic disorder in superconductors: Enhancement by mesoscopic fluctuations
74. Euler Symposium on Theoretical and Mathematical Physics, (Saint-Petersburg, Russia, 2019)
Dissipative and Hall viscosity of a disordered 2D electron gas
75. Conference on the Theory of Solid State (Saint-Petersburg, Russia, 2019) *Dissipative and Hall viscosity of a disordered 2D electron gas*
76. Modern Trends in Condensed Matter Physics ? Lev Gor'kov Memorial Conference, (Chernogolovka, Russia, 2019)
Dissipative and Hall viscosity of a disordered 2D electron gas
77. Random geometries and multifractality in condensed matter and statistical mechanics, (Natal, Brazil, 2019)
Multifractality in interacting disordered electron systems
78. Colloquium, Physics Department, Bar Ilan University, (Ramat Gan, Israel 2019)
Quantum and classical elasticity of graphene

Conference organization

1. *The Science of Nanostructures: New Frontiers in the Physics of Quantum Dots*
Chernogolovka, September 20-24, 2010
<http://qd2010.itp.ac.ru>
Co-organizer
2. *International conference in honor of G.M. Eliashberg and V.F. Gantmakher*
"Frontiers in Condensed Matter Physics"
October 8-10, 2010 Chernogolovka
<http://eliashberg80.itp.ac.ru> a member of organizing committee
3. *Russian school for young scientists on nanophysics and nanoelectronics*
Chernogolovka, June 12-19, 2012
<http://school12.itp.ac.ru>
a member of local organizing committee
4. *ARW "MESO-2012" Non-equilibrium and coherent phenomena at nanoscale*
Chernogolovka, June 17-23, 2012
<http://meso12.itp.ac.ru>
a member of local organizing committee
5. *The Science of Nanostructures: New Frontiers in the Physics of Quantum Dots*
Chernogolovka, September 10-14, 2012
<http://qd2012.itp.ac.ru>
Co-organizer
6. *Winter workshop/school on Localization, Interactions, and Superconductivity*
Chernogolovka, December 22 - 25, 2014
<http://intgroup.itp.ac.ru/conf2014.html>
Co-organizer
7. *International workshop "Localization, Interactions, and Superconductivity"*
Chernogolovka, June 29 - July 3, 2015
<http://intgroup.itp.ac.ru/conf2015.html>
Co-organizer
8. *Winter workshop/school on Localization, Interactions, and Superconductivity*
Chernogolovka, Russia, December 21 - 24, 2015
<http://intgroup.itp.ac.ru/conf2015w.html>
Co-organizer
9. *International workshop "Localization, Interactions, and Superconductivity"*
Chernogolovka, Russia, June 27 - July 1, 2016
<http://intgroup.itp.ac.ru/conf2016.html>
Co-organizer
10. *Winter workshop/school on Localization, Interactions, and Superconductivity*
Chernogolovka, Russia, December 19 - 22, 2016
<http://intgroup.itp.ac.ru/conf2016w.html>
Co-organizer
11. *Landau Days 2017*
Chernogolovka, Russia, June 26 - 29, 2017
<http://landaudays.itp.ac.ru>
Co-organizer
12. *Winter workshop/school on Localization, Interactions, and Superconductivity*
Chernogolovka, Russia, December 18 - 21, 2017
<http://intgroup.itp.ac.ru/conf2017w.html>
Co-organizer

13. *International workshop "Localization, Interactions, and Superconductivity"*

Chernogolovka, Russia, June 30 – July 4, 2018

<http://intgroup.itp.ac.ru/conf2018.html>

Co-organizer

14. *Modern Trends in Condensed Matter Physics ? Lev Gor'kov Memorial Conference*

Chernogolovka, Russia, June 24 – June 27, 2019

<http://gorkovconf.itp.ac.ru/gorkov2019/>

Co-organizer

Current

- EVGENII REPIN, PhD student 09/16 – 06/20
PhD project: *Kondo effect in disordered metals*, Landau ITP and HES, expected 06/2020 Master thesis: *Mesoscopic fluctuations of single-particle Green's function at Anderson transitions with interactions*, Landau ITP, 2016
Bachelor thesis: *Landau levels at the surface of 3D topological insulator: The role of trigonal warping and finite mass*, Landau ITP 2014

Former

- PAVEL KURILOVICH
Master project: *Magnetic impurity at the edge of a two-dimensional topological insulator: the full counting statistics of backscattering current*, Landau ITP 2018
Bachelor thesis: *Magnetic impurity near the edge of 2D topological insulator*, Landau ITP 2016
- VLADISLAV KURILOVICH
Master project: *Helical edge transport in the presence of a magnetic impurity: the effect of local anisotropy*, Landau ITP, 2018
Bachelor thesis: *RKKY interaction near the edge of 2D topological insulator*, Landau ITP 2016
- YURII BIKTairov
Bachelor thesis: *Mesoscopic fluctuations of particle number variance*, Landau ITP 2018
- AZAT SHARAFUTDINOV
PhD thesis: *Spin correlations in quantum dots and nanoparticles*, Landau ITP 2015
Bachelor thesis: *Co-tunneling current through a two-level quantum dots with exchange*, Landau ITP 2012
Master thesis: *Spin susceptibility of quantum dot with anisotropic exchange interaction*, Landau ITP 2010
- NIKITA GUK
Master thesis: *Optical conductivity of graphene: Role of Coulomb interaction*, Landau ITP 2012
- YAROSLAV RODIONOV PhD thesis: *Equilibrium and non-equilibrium transport in single-electron devices* , Landau ITP 2010
current position: researcher, Institute for Theoretical and Applied Electromagnetics RAS

TEACHING

IGOR BURMISTROV

- *Semester lecture course on the Integer Quantum Hall Effect*
Chair "Problems in Theoretical Physics", Moscow Institute of Physics and Technology, master students
- *Semester lecture course on the Quantum Phenomena in Nanostructures*
Chair "Physics and Technology of Nanostructures", Moscow Institute of Physics and Technology, master students
- *Semester lecture course on the Approximate Methods of Analytical Computations*
Faculty of Physics, National Research University Higher School of Economics