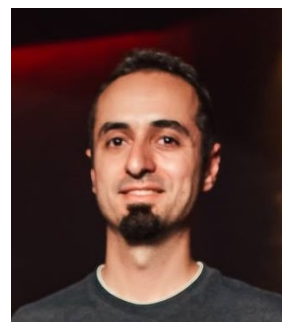


Dr. Vladimir Lotoreichik

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PERSONAL DATA

Date of birth: 10 January 1985

Place of birth: Leningrad, USSR

Citizenship: Russian Federation

RESEARCH INTERESTS

- ★ Spectral theory
- ★ Shape optimization
- ★ Mathematical physics
- ★ Partial differential equations
- ★ Spectral geometry
- ★ Non-selfadjoint operators

ACADEMIC CAREER

Nuclear Physics Institute, CAS <i>Research fellow (vědecký pracovník (V5))</i>	Czech Republic 07/2018 – present
Nuclear Physics Institute, CAS <i>Postdoc</i>	Czech Republic 04/2015 – 06/2018
Graz University of Technology <i>Postdoc</i>	Austria 04/2013 – 03/2015
Graz University of Technology <i>PhD in Mathematics</i>	Austria 06/2011 – 12/2012
– PhD thesis supervisor: Prof. Dr. Jussi Behrndt	
– 3 Dec 2012: PhD defence	

– Thesis title: *Singular values and trace formulae for resolvent power differences of self-adjoint elliptic operators*

ITMO University

Postgraduate studies in Mathematical Physics

Russia

07/2008– 06/2011

ITMO University

M.Sc. in Applied Mathematics and Informatics

Russia

09/2002 – 06/2008

– Master thesis supervisor: Prof. Dr. Igor Yu. Popov

PUBLICATIONS AND PREPRINTS

- [1] P. Exner and V. Lotoreichik, Spectral asymptotics of the Dirichlet Laplacian on a generalized parabolic layer, *submitted*, arXiv:1805.12448.
- [2] D. Krejčířík, V. Lotoreichik, and M. Znojil, The minimally anisotropic metric operator in quasi-Hermitian quantum mechanics, *submitted*, arXiv:1804.06766.
- [3] J. Behrndt, M. Langer, V. Lotoreichik, and J. Rohleder, Spectral enclosures for non-self-adjoint extensions of symmetric operators, *to appear in J. Funct. Anal.*, arXiv:1710.07542.
- [4] P. Exner, S. Kondej, and V. Lotoreichik, Asymptotics of the bound state induced by δ -interaction supported on a weakly deformed plane, *J. Math. Phys.* **59** (2018), 013501.
- [5] P. Exner, V. Lotoreichik, and A. Pérez-Obiol, On the bound states of magnetic Laplacians on wedges, *to appear in Rep. Math. Phys.*, arXiv:1703.03667.
- [6] M. Holzmann and V. Lotoreichik, Spectral analysis of photonic crystals made of thin rods, *to appear in Asymptotic Anal.*, arXiv:1701.05107.
- [7] D. Krejčířík and V. Lotoreichik, Optimisation of the lowest Robin eigenvalue in the exterior of a compact set, II: non-convex domains and higher dimensions, *submitted*, arXiv:1707.02269.
- [8] V. Lotoreichik, Spectral isoperimetric inequalities for singular interactions on open arcs, *to appear in Appl. Anal.*, arXiv:1609.07598.
- [9] J. Lipovský and V. Lotoreichik, Asymptotics of resonances induced by point interactions, *Acta Phys. Pol. A.* **132** (2017), 1677–1682.
- [10] J. Behrndt, P. Exner, M. Holzmann, and V. Lotoreichik, On the spectral properties of Dirac operators with electrostatic δ -shell interactions, *J. Math. Pures Appl.* **111** (2018), 47–78.
- [11] D. Krejčířík and V. Lotoreichik, Optimisation of the lowest Robin eigenvalue in the exterior of a compact set, *J. Convex Anal.* **25** (2018), 319–337.
- [12] D. Krejčířík and V. Lotoreichik, and T. Ourmières-Bonafos, Spectral transitions for Aharonov-Bohm Laplacians on conical layers, *to appear in Proc. Roy. Soc. Edinburgh Sect. A.*, arXiv:1607.02454.
- [13] J. Behrndt, P. Exner, M. Holzmann, and V. Lotoreichik, Approximation of Schrödinger operators with δ -interactions supported on hypersurfaces, *Math. Nachr.* **290** (2017), 1215–1248.
- [14] J. Behrndt, R. L. Frank, C. Kühn, V. Lotoreichik, and J. Rohleder, Spectral theory for Schrödinger operators with δ -interactions supported on curves in \mathbb{R}^3 , *Ann. Henri Poincaré* **18** (2017), 1305–1347.
- [15] J. Behrndt, M. Langer, V. Lotoreichik, and J. Rohleder, Quasi boundary triples and semibounded self-adjoint extensions, *Proc. Roy. Soc. Edinburgh Sect. A.* **147** (2017), 895–916.
- [16] V. Lotoreichik and J. Rohleder, Eigenvalue inequalities for the Laplacian with mixed boundary conditions, *J. Differential Equations* **263** (2017), 491–508.

- [17] P. Exner and V. Lotoreichik, A spectral isoperimetric inequality for cones, *Lett. Math. Phys.* **107** (2017), 717–732.
- [18] P. Exner, V. Lotoreichik, and M. Tater, Spectral and resonance properties of the Smilansky Hamiltonian, *Phys. Lett. A.* **381** (2017), 756–761.
- [19] V. Lotoreichik and P. Siegl, Spectra of definite type in waveguide models, *Proc. Amer. Math. Soc.* **145** (2017), 1231–1246.
- [20] M. Jex and V. Lotoreichik, On absence of bound states for weakly attractive δ' -interactions supported on non-closed curves in \mathbb{R}^2 , *J. Math. Phys.* **57** (2016), 022101.
- [21] V. Lotoreichik and T. Ourmières-Bonafos, On the bound states of Schrödinger operators with δ -interactions on conical surfaces, *Comm. Partial Differential Equations* **41** (2016), 999–1028.
- [22] J. Behrndt, G. Grubb, M. Langer, and V. Lotoreichik, Spectral asymptotics for resolvent differences of elliptic operators with δ and δ' -interactions on hypersurfaces, *J. Spectr. Theory.* **5** (2015), 697–729.
- [23] J. Behrndt, P. Exner, and V. Lotoreichik, Schrödinger operators with δ -interactions supported on conical surfaces, *J. Phys. A: Math. Theor.* **47** (2014), 355202, 16 pp.
- [24] J. Behrndt, P. Exner, and V. Lotoreichik, Schrödinger operators with δ and δ' -interactions on Lipschitz surfaces and chromatic numbers of associated partitions, *Rev. Math. Phys.* **26** (2014), 1450015, 43 pp.
- [25] V. Lotoreichik, Lower bounds on the norms of extension operators for Lipschitz domains, *Oper. Matrices* **8** (2014), 573–592.
- [26] S. Kondej and V. Lotoreichik, Weakly coupled bound state of 2-D Schrödinger operator with potential-measure, *J. Math. Anal. Appl.* **420** (2014), 1416–1438.
- [27] V. Lotoreichik and S. Simonov, Spectral analysis of the half-line Kronig-Penney model with Wigner-von Neumann perturbations, *Rep. Math. Phys.* **74** (2014), 45–72.
- [28] J. Behrndt, M. Langer, and V. Lotoreichik, Trace formulae and singular values of resolvent power differences of self-adjoint elliptic operators, *J. London. Math. Soc. (2)* **88** (2013), 319–337.
- [29] J. Behrndt, M. Langer, and V. Lotoreichik, Spectral estimates for resolvent differences of self-adjoint elliptic operators, *Integral Equations and Operator Theory* **77** (2013), 1–37.
- [30] J. Behrndt, M. Langer, and V. Lotoreichik, Schrödinger operators with δ and δ' -potentials supported on hypersurfaces, *Ann. Henri Poincaré* **14** (2013), 385–423.
- [31] V. Lotoreichik, Singular continuous spectrum of half-line Schrödinger operators with point interactions on a sparse set, *Opuscula Math.* **31** (2011), 615–628.
- [32] J. Behrndt, M. Langer, I. Lobanov, V. Lotoreichik, and I. Yu. Popov, A remark on Schatten-von Neumann properties of resolvent differences of generalized Robin Laplacians on bounded domains, *J. Math. Anal. Appl.* **371** (2010), 750–758.
- [33] I. Lobanov, V. Lotoreichik, and I. Yu. Popov, Lower bound on the spectrum of the two-dimensional Schrödinger operator with a delta-perturbation on a curve, *Theor. Math. Phys.* **162** (2010), 332–340.

CONTRIBUTIONS TO SPECIAL VOLUMES AND MONOGRAPHS (PEER REVIEWED)

- [1] J. Behrndt, M. Langer, and V. Lotoreichik, Trace formulae for Schrödinger operators with singular interactions, *The Pavel Exner Anniversary Volume, EMS* (2017), 129–152.
- [2] P. Exner and V. Lotoreichik, Optimization of the lowest eigenvalue for leaky star graphs, *to appear in the proceedings of the conference “Mathematical Results in Quantum Physics (QMath13)”*, arXiv:1701.06840.
- [3] P. Exner, V. Lotoreichik, and M. Tater, On resonances and bound states of Smilansky Hamiltonian, *Nanosystems: Physics, Chemistry, Mathematics* **7** (2016), 789–802 (*the volume devoted to the memory of B. S. Pavlov (1936–2016)*).

- [4] V. Lotoreichik, H. Neidhardt, and I. Yu. Popov, Point contacts and boundary triples, in: *Mathematical Results in Quantum Mechanics, Proceedings of the QMath12 Conference*, P. Exner, W. König, and H. Neidhardt (eds), World Scientific, Singapore, 2015, pp. 283–293.
- [5] V. Lotoreichik and J. Rohleder, Schatten-von Neumann estimates for resolvent differences of Robin Laplacians on a half-space, *Oper. Theory Adv. Appl.* **221** (2015), 471–486.
- [6] V. Lotoreichik and J. Rohleder, An eigenvalue inequality for Schrödinger operators with δ and δ' -interactions supported on hypersurfaces, *Oper. Theory Adv. Appl.* **247** (2015), 173–184.

GRANTS AND FELLOWSHIPS

13 Jan – 27 Jan 2019: recipient of the fellowship “Spectral Methods in Mathematical Physics”, Institute Mittag-Leffler, Stockholm.

2018: co-recipient of travelling fellowship of Foundation Mathematique Jacques Hadamard to collaborate with K. Pankrashkin (University Paris-Sud, Orsay)

13 Nov – 26 Nov 2017: co-recipient (jointly with A. Michelangeli) of Research-in-Pairs fellowship at CIRM Trento, Italy.

2017 – present: co-recipient of the grant 17-01706S of the Czech Science Foundation (GAČR).

01/2017 – present: co-recipient of the cooperation project N. 017022 between Czech Academy of Sciences and TU Graz.

11/2016 – 12/2016: recipient of the travelling fellowship ISR-16-37 of Czech Academy of Sciences for collaboration with Technion (Haifa).

2015 – 2016: co-recipient of the grant 14-06818S of the Czech Science Foundation (GAČR).

01/2015 – 12/2016: co-operation partner in the project 2013/11/B/ST1/03067 of Polish National Science Center.

04/2013 – 03/2015: co-recipient of the grant 25162-N26 of Austrian Science Fund (FWF).

01/2013 – 12/2014: co-recipient of the cooperation project CZ01/2013 between TU Graz and Czech Academy of Sciences.

01/2010 – 12/2011: co-recipient of the grant NK-526P/24 of the program “Scientific stuff of innovative Russia”.

01/2010 – 12/2010: recipient of the scholarship 50077360 of Leonard Euler Program (DAAD).

01/2009 – 12/2010: co-recipient of the grant 2.1.1/4215 of the program “Development of the potential of Universities in Russia”.

01/2009 – 12/2009: recipient of the grant 2.1/30-04/035 of the government of St. Petersburg.

CO-ORGANIZED WORKSHOPS AND CONFERENCES

17 – 21 Jun, 2019: AIM Workshop: Shape optimization with surface interactions, San Jose, California (<http://aimath.org/workshops/upcoming/shapesurface/>)

10 – 13 Sep 2018: DI Microconference: Analytic and algebraic methods in physics XV, Prague, Czech Republic (<http://gemma.ujf.cas.cz/lotoreichik/aamp15/>)

24 Sep 2013: Mini-workshop: Schrödinger operators with δ -interactions on manifolds, Graz, Austria.

PARTICIPATION IN CONFERENCES

14 – 18 May, 2018: Eigenvalues and Inequalities, Mittag-Leffler Center, Stockholm, Sweden.

25 – 29 Sep, 2017: Aspect17: Asymptotic analysis and spectral theory, Trier, Germany.

10 – 15 Sep, 2017: The 5th Najman conference on spectral theory and differential equations, Opatija, Croatia.

5 – 9 Jun, 2017: Mathematical aspects of the physics with non-self-adjoint operators, Luminny, France.

19 – 20 May, 2017: Workshop of the GAMM activity group applied operator theory, Hamburg, Germany.

24 – 28 Apr, 2016: Schrödinger operators and boundary value problems, Graz, Austria.

17 – 20 Dec, 2016: Operator theory and indefinite inner product spaces, Vienna, Austria.

7 – 10 Nov, 2016: Mathematical challenges of zero-range physics: rigorous results and open problems, Trieste, Italy.

14 – 15 Jul, 2016: New methods in extension theory applied to quantum mechanics, Berlin, Germany.

4 – 6 Apr, 2016: Geometric aspects of spectral theory, Bilbao, Spain.

28 – 30 Oct, 2015: Young researchers workshop on spectral theory, Bern, Switzerland.

26 – 30 May, 2015: Spectral theory and applications, Krakow, Poland.

4 – 10 Jan, 2015: Spectral theory and Weyl function, Oberwolfach, Germany.

30 Nov – 6 Dec, 2014: Eigenvalues problems in superconductivity, Oberwolfach, Germany.

14 – 18 Jul, 2014: IWOTA 2014, Amsterdam, Netherlands.

2 – 6 Jun, 2014: Modern aspects of the Titchmarsh-Weyl m -function and its multidimensional analogues, Mittag-Leffler Center, Stockholm, Sweden.

16 – 20 Sep, 2013: The 3rd Najman conference on spectral problems for operators and matrices, Biograd, Croatia.

10 – 13 Sep, 2013: QMath12, Berlin, Germany.

2 – 6 Jul, 2013: The 5th St. Petersburg conference in spectral theory, St. Petersburg, Russia.

18 – 22 Feb, 2013: System and operator realizations of analytic functions, Lorentz Center, Leiden, Netherlands.

26 – 30 Mar, 2012: The 83rd Annual Meeting of the international association of applied mathematics and mechanics, Darmstadt, Germany.

Sep, 2011: Inverse Problems Program at Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom.

30 May – 3 Jun, 2011: Days on Diffraction 2011, St. Petersburg, Russia.

14 – 17 Dec, 2010: Workshop on systems and operators, Groningen, Netherlands.

6 – 10 Sep, 2010: QMath11, Hradec Kralove, Czech Republic.

12 – 16 Jul, 2010, IWOTA 2010, Berlin, Germany.

8 – 11 Jun, 2010: Days on Diffraction 2010, St. Petersburg, Russia.

14 – 18 Dec, 2009: Boundary relations, Lorentz Center, Leiden, Netherlands.

18 – 21 Nov, 2009: Spectral problems and related questions, Moscow, Russia.

20 – 26 May, 2009: Days on Diffraction 2009, St. Petersburg, Russia.

30 Mar – 2 Apr, 2009: Modern problems of mathematics, mechanics and their applications, Moscow, Russia.

16 – 21 Feb, 2009: Third School and Workshop on Mathematical Methods in Quantum Mechanics, Bressanone, Italy.

18 – 21 Dec, 2008: 8th Workshop operator Theory in Krein Spaces and inverse Problems, Berlin, Germany.

RESEARCH VISITS

- 04/2018: Jussi Behrndt, TU Graz, Austria.
- 03/2018: Konstantin Pankrashkin, University Paris-Sud, France.
- 04/2017: Jussi Behrndt, TU Graz, Austria.
- 11/2016: Ram Band, Technion Haifa, Israel.
- 04/2016: Jiří Lipovský, University of Hradec Kralove, Czech Republic.
- 02/2016: Sylwia Kondej, University of Zielona Gora, Poland.
- 05/2015: Thomas Ourmières-Bonafos, BCAM, Bilbao, Spain.
- 11/2014: Andrii Khrabustovkyi, TU Karlsruhe.
- 05/2014: Pavel Exner, Doppler Institute, Prague.
- 08/2014: Pavel Exner, Doppler Institute, Prague.
- 01/2013: Hagen Neidhardt, WIAS, Berlin.
- 01/2013: Sylwia Kondej, University of Zielona Gora, Poland.
- 12/2011: Harald Woracek and Sergey Simonov, Vienna University of Technology.
- 05/2011: Matthias Langer, Strathclyde University, Glasgow.
- 12/2010: Jussi Behrndt, TU Berlin.
- 10/2010: Andrey Shkalikov, Moscow State University.
- 07/2010: Jussi Behrndt, TU Berlin.
- 07/2010: Johannes Brasche, TU Clausthal, Germany.
- 07/2009: Jussi Behrndt, TU Berlin.

TEACHING EXPERIENCE

Lecturer
Lecture on Partial Differential Equations

Graz University of Technology
Winter 2014

Lecturer <i>Lecture on Schrödinger operators</i>	Graz University of Technology Spring 2013
Assistant <i>Exercises in Calculus of Variations</i>	Graz University of Technology Spring 2012 and 2014
Assistant <i>Exercises in Analysis</i>	ITMO University 2009 – 2011
Assistant <i>Exercises in Mathematics for Engineers</i>	ITMO University Spring 2009
Assistant <i>Exercises in Informatics</i>	ITMO University 2008 – 2010
Assistant <i>Lecture on Informatics</i>	ITMO University Autumn 2008 and 2009

SUPERVISION OF STUDENTS

2011 – 2014: co-supervised master and bachelor theses of Dr. Markus Holzmann at Graz University of Technology.

2017 – present: co-supervising the research project of master student Jan Šmejkal at Czech Technical University in Prague.

OTHER ACTIVITIES

- AMS Reviews.
- Referee for international mathematical journals.
- Involved in the seminar on modern mathematics at Czech Technical University.
- Participation in programming contests (2001 – 2003).
- Development of tools for simulation of light propagation at Keldysh Institute of Applied Mathematics (Moscow) (2006 - 2008).
- Awards in competitions for students of technical universities, including:
 - *the 1st place* in St. Petersburg Mathematics Olympiad 2003,
 - *the 2nd place* in St. Petersburg Physics Olympiad 2002.

COMPUTER SKILLS

- Experienced user of L^AT_EX
- SageMath
- Basics of web design
- Octave and Mathematica
- Former experience in Java, C and C++
- Algorithms and data structures

LANGUAGES

- Russian - native
- English - fluent
- German - good
- Czech - good