

Curriculum vitae

Vladimir E. Bobkov

CONTACT INFORMATION	Department of Computational Mathematics Institute of Mathematics UFRS RAS, 112, Chernyshevsky str., Ufa, Russia, 450008	Phone: +7 960 383 77 81 e-mail: bobkov@matem.anrb.ru homepage: http://vladimir-bobkov.ru
EDUCATION	2005-2011 (Graduate) Ufa State Aviation Technical University, Ufa, Russia <ul style="list-style-type: none">Major: Applied Mathematics and InformaticsDiploma thesis (Specialist degree): <i>Investigation of characteristics of random fields and homogenization of periodic differential operators</i> 2011-2014 (Postgraduate) Institute of Mathematics of Russian Academy of Sciences, Ufa, Russia <ul style="list-style-type: none">Major: Differential equationsScientific adviser: Dr. Phys.-Math. Sci., Prof. Yavdat Il'yasov 2015, May 15 Defence of the Candidate-of-sciences dissertation (PhD thesis) " <i>Critical sets of parameters and special classes of solutions for elliptic equations and systems</i> ".	
RESEARCH INTERESTS	Nonlinear and linear PDEs: elliptic problems, parabolic problems. Existence of solutions, their qualitative properties; critical values of parameters. Variational methods of nonlinear analysis	
REFEREED JOURNAL PUBLICATIONS	<ol style="list-style-type: none">Bobkov, V., Il'yasov, Y. Asymptotic behaviour of branches for ground states of elliptic systems. <i>Electronic Journal of Differential Equations</i>, (212), (2013) 1–21.Bobkov, V. E. On existence of nodal solution to elliptic equations with convex-concave nonlinearities. <i>Ufa Mathematical Journal</i>, 5(2), (2013) 18–30.Bobkov, V. Least energy nodal solutions for elliptic equations with indefinite nonlinearity. <i>Electronic Journal of Qualitative Theory of Differential Equations</i>, (56), (2014) 1–15.Bobkov, V. E., Takáč, P. A Strong Maximum Principle for parabolic equations with the p-Laplacian. <i>Journal of Mathematical Analysis and Applications</i>, 419(1), (2014) 218–230.Bobkov, V. E. On the existence of a continuous branch of nodal solutions of elliptic equations with convex-concave nonlinearities. <i>Differential Equations</i>, 50(6), (2014) 765–776.Bobkov, V., Tanaka, M. On positive solutions for (p, q)-Laplace equations with two parameters. <i>Calculus of Variations and Partial Differential Equations</i>, 54(3), (2015) 3277–3301.Benedikt, J., Bobkov, V. E., Girg, P., Kotrla, L., Takáč, P. Nonuniqueness of solutions of initial-value problems for parabolic p-Laplacian. <i>Electronic Journal of Differential Equations</i>, (38), (2015) 1–7.Bobkov, V., Il'yasov, Y. Maximal existence domains of positive solutions for two-parametric systems of elliptic equations. <i>Complex Variables and Elliptic Equations</i>, 61(5), (2016) 587–607.	

9. Bobkov, V., Drábek, P. On some unexpected properties of radial and symmetric eigenvalues and eigenfunctions of the p -Laplacian on a disk. *Journal of Differential Equations*, 263(3), (2017) 1755–1772.
10. Anoop, T. V., Bobkov, V., Sasi, S. On the strict monotonicity of the first eigenvalue of the p -Laplacian on annuli. *Transactions of the American Mathematical Society*, 370, (2018) 7181-7199.
11. Audoux, B., Bobkov, V., Parini, E. On multiplicity of eigenvalues and symmetry of eigenfunctions of the p -Laplacian. *Topological Methods in Nonlinear Analysis*, 51(2), (2018) 565-582.
12. Bobkov, V., Tanaka, M. Remarks on minimizers for (p, q) -Laplace equations with two parameters. *Communications on Pure and Applied Analysis*, 17(3), (2018) 1219-1253.
13. Bobkov, V., Parini, E. On the higher Cheeger problem. *Journal of the London Mathematical Society*, 97(3), (2018) 575–600.
14. Bobkov, V., Tanaka, M. On sign-changing solutions for resonant (p, q) -Laplace equations. *Differential Equations & Applications*, 20(2), (2018) 197–208.
15. Bobkov, V. On exact Pleijel’s constant for some domains. *Documenta Mathematica*, 23, (2018) 799-813.
16. Bobkov, V., Tanaka, M. On sign-changing solutions for (p, q) -Laplace equations with two parameters. *Advances in Nonlinear Analysis*, 8(1), (2019) 101-129.
17. Bobkov, V. Asymptotic relation for zeros of cross-product of Bessel functions and applications. *Journal of Mathematical Analysis and Applications*, 472(1), (2019) 1078-1092.
18. Bobkov, V., Drábek, P., Il’yasov, Y. On partially free boundary solutions for elliptic problems with non-Lipschitz nonlinearities. *Applied Mathematics Letters*, 95, (2019) 23-28.
19. Bobkov, V. E., Takáč, P. On maximum and comparison principles for parabolic problems with the p -Laplacian. *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas*, 113(2), (2019) 1141-1158.
20. Bobkov, V., Tanaka, M. On the Fredholm-type theorems and sign properties of solutions for (p, q) -Laplace equations with two parameters. *Annali di Matematica Pura ed Applicata (1923 -)*, 198(5), (2019) 1651-1673.
21. Bobkov, V., Kolonitskii, S. On a property of the nodal set of least energy sign-changing solutions for quasilinear elliptic equations. *Proceedings of the Royal Society of Edinburgh Section A: Mathematics*, 149(5), (2019) 1163-1173.
22. Bobkov, V., Drábek, P., Il’yasov, Y. On full Zakharov equation and its approximations. *Physica D: Nonlinear Phenomena*, 401, (2020), 132168.
23. Bobkov, V., Kolonitskii, S. On qualitative properties of solutions for elliptic problems with the p -Laplacian through domain perturbations. *Communications in Partial Differential Equations*, 45(3), (2020) 230-252.
24. Bobkov, V., Kolonitskii, S. Second-order shape derivative along Nehari manifold trajectories. *ESAIM: Control, Optimisation and Calculus of Variations*, 26(48), (2020) 29 pp.

25. Baustian, F., Bobkov, V. On asymptotic behaviour of Dirichlet inverse. *International Journal of Number Theory*, 16(6), (2020) 1337-1354.
26. Bobkov, V., Drábek, P., Il'yasov, Y. Estimates on spectral interval of validity of anti-maximum principle. *Journal of Differential Equations*, 269(4), (2020) 2956-2976.
27. Bobkov, V., Drábek, P., Hernández, J. Existence and multiplicity results for a class of semilinear elliptic equations. *Nonlinear Analysis*, 200, (2020) 112017, 25 pp.
28. Bobkov, V., Tanaka, M. Generalized Picone inequalities and their applications to (p, q) -Laplace equations. *Open Mathematics*, 18(1), (2020) 1030-1044.
29. Bobkov, V., Parini, E. On the Cheeger problem for rotationally invariant domains. *Manuscripta Mathematica*, 166, (2021) 503-522.
30. Bobkov, V., Tanaka, M. Multiplicity of positive solutions for (p, q) -Laplace equations with two parameters. *Communications in Contemporary Mathematics*, 2150008, (2021) 25 pp.
31. Anoop, T. V., Bobkov, V., Drábek, P. Szegő-Weinberger type inequalities for symmetric domains with holes. *SIAM Journal on Mathematical Analysis*, 54(1), (2022) 389-422.
32. Baustian, F., Bobkov, V. Basis properties of Fucik eigenfunctions. *Analysis Mathematica*, 48(3), (2022) 619-648.
33. Benedikt, J., Bobkov, V., Dhara R. N., Girg, P. Nonradiality of second eigenfunctions of the fractional Laplacian in a ball. *Proceedings of the American Mathematical Society*, 150(12), (2022) 5335-5348.
34. Baustian, F., Bobkov, V. Basisness of Fučík eigenfunctions for the Dirichlet Laplacian. *Electronic Journal of Differential Equations*, 2021 UNC Greensboro PDE Conference, 26, (2022) 33-43.
35. Baustian, F., Bobkov, V. Basis properties of Fučík eigenfunctions for the Neumann Laplacian. *Journal of Mathematical Analysis and Applications*, 516(1), (2022) 126466.
36. Bobkov, V., Tanaka, M. On subhomogeneous indefinite p -Laplace equations in supercritical spectral interval. *Calculus of Variations and Partial Differential Equations*, 62(1), (2023) 22.
37. Bobkov, V., Kolonitskii, S. Improved Friedrichs inequality for a subhomogeneous embedding. *Journal of Mathematical Analysis and Applications*, 527(1), (2023) 127383.
38. Bobkov, V., Tanaka, M. On the antimaximum principle for the p -Laplacian and its sublinear perturbations. *Partial Differential Equations and Applications*, 4, (2023) 21.

PREPRINTS
(SUBMITTED,
AVAILABLE IN
ARXIV)

1. Benedikt, J., Bobkov, V., Dhara R. N., Girg, P. Nonuniqueness for fractional parabolic equations with sublinear power-type nonlinearity. (2023), arXiv:2302.06363.
2. Bobkov, V., Tanaka, M. Abstract multiplicity results for (p, q) -Laplace equations with two parameters. (2023), arXiv:2308.16581.

RESEARCH EXPERIENCE **Research assistant** August 2013 to August 2014
Institut für Mathematik,
Universität Rostock, Rostock, Germany

Researcher September 2014 to January 2021
Department of Computational Mathematics,
Institute of Mathematics UFRC RAS, Ufa, Russia

Junior researcher January 2016 to December 2020
Department of Mathematics and NTIS,
University of West Bohemia, Plzeň, Czech Republic

Senior researcher January 2021 to present
Department of Computational Mathematics,
Institute of Mathematics UFRC RAS, Ufa, Russia

RESEARCH VISITS University of West Bohemia, Department of Mathematics,
Pilsen, Czech Republic.
Responsible: Pavel Drábek 05.03.2014–14.03.2014

University of West Bohemia, Department of Mathematics,
Pilsen, Czech Republic.
Responsible: Petr Girg 19.05.2014–01.06.2014

Tokyo University of Science, Department of Mathematics,
Tokyo, Japan.
Responsible: Mieko Tanaka 05.10.2015–25.10.2015

Institut de Mathématiques de Marseille, Aix-Marseille University,
Marseille, France.
Responsible: Enea Parini 14.03.2017–15.04.2017

Tokyo University of Science, Department of Mathematics,
Tokyo, Japan.
Responsible: Mieko Tanaka 16.05.2017–27.05.2017

Institut für Mathematik, Universität Rostock,
Rostock, Germany.
Responsible: Peter Takáč, 21.10.2018–3.11.2018

Institut de Mathématiques de Marseille, Aix-Marseille University,
Marseille, France.
Responsible: Enea Parini 30.06.2019–14.07.2019

Indian Institute of Technology – Madras, Department of Mathematics,
Chennai, India.
Responsible: T.V. Anoop 05.12.2022–19.12.2022

TALKS ON CONFERENCES & WORKSHOPS • III International school “Fundamental Mathematics and Applications in Natural Sciences”,
Ufa, Russia October 14–18, 2012
• IV International Conference on differential equations and applications dedicated to

- Ya.Lopatinsky,
Donetsk, Ukraine November 15-17, 2012
- BMS Intensive Course on Evolution Equations and their Applications,
Berlin, Germany November 27-29, 2013
 - The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications,
Madrid, Spain July 7-11, 2014
 - XXVII Autumn Crimean Mathematical School (KROMSH 2016),
Laspi-Batiliman, Crimea September 17-29, 2015
 - 137 Kagurazaka Seminar on Analysis,
Tokyo, Japan October 24, 2015
 - 30th Seminar in Differential Equations,
Ostrov, Czech Republic May 30 - June 3, 2016
 - Emerging issues in nonlinear elliptic equations: singularities, singular perturbations
and non local problems,
Bedlewo, Poland June 18-24, 2017
 - Equadiff 2017,
Bratislava, Slovakia July 24-28, 2017
 - The 8th International Conference on Differential and Functional Differential Equations
(DFDE-2017),
Moscow, Russia August 13-20, 2017
 - Differential Equations and Applications (DiffEq[&]App-2017),
Brno, Czech Republic September 4-7, 2017
 - 31th Seminar in Differential Equations,
Velehrad, Czech Republic May 21-25, 2018
 - The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications,
Taipei, Taiwan July 5-9, 2018
 - 2019 Nonlinear Analysis,
Plzeň, Czech Republic March 7, 2019
 - Conference in honor of Peter Takáč's birthday,
Toulouse, France June 6-8, 2019
 - Complex analysis, mathematical physics, and nonlinear equations,
Lake Bannoye, Russia March 15-19, 2021
 - St. Petersburg Conference in Spectral Theory dedicated to the memory of M.Sh.Birman,
St.-Petersburg, Russia June 23-26, 2021
 - Seminar Series on Differential Equations (online),
IIT Jodhpur, India July 5-13, 2021
 - Complex analysis, mathematical physics, and nonlinear equations,
Lake Bannoye, Russia March 14-18, 2022
 - O.A. Ladyzhenskaya centennial conference on PDE's,
St. Petersburg, Russia July 16-22, 2022
 - 2nd Conference of Mathematical Centers of Russia,
Moscow, Russia November 7-11, 2022
 - 37th Annual Conference of Ramanujan Mathematical Society,
Kalavakkam, Chennai, India December 6-8, 2022
 - Complex analysis, mathematical physics, and nonlinear equations,
Lake Bannoye, Russia March 13-17, 2023
 - III International Conference "Mathematical Physics, Dynamical Systems, Infinite-
Dimensional Analysis",
Moscow Region, Dolgoprudny, Russia July 5-13, 2023
 - 2023 UNC Greensboro PDE Conference,
Greensboro, USA, Virtual Conference June 9-11, 2023
 - Mini-conference of young scientists devoted to A.I. Nazarov 60 years anniversary,
St. Petersburg, Russia, Virtual Conference May 8, 2023

TALKS ON
SEMINARS

- The Analysis Seminar,
University of West Bohemia, KMA,
Plzeň, Czech Republic December 16, 2013
- Seminar on computational mathematics and related questions,
Institute of Mathematics UFRC RAS,
Ufa, Russia December 25, 2013
- Applied Analysis Seminar,
Institut für Mathematik, Universität Rostock,
Rostock, Germany April 7, 2015
- Seminar on differential equations of mathematical physics,
Institute of Mathematics UFRC RAS,
Ufa, Russia February 10, 2015
- The Analysis Seminar,
University of West Bohemia, KMA,
Plzeň, Czech Republic April 8, 2016
- The Analysis Seminar,
University of West Bohemia, KMA,
Plzeň, Czech Republic November 25, 2016
- Seminar on computational mathematics and related questions,
Institute of Mathematics UFRC RAS,
Ufa, Russia December 26, 2016
- Séminaire Analyse Appliquée (AA),
Institut de Mathématiques de Marseille,
Marseille, France April 4, 2017
- Seminar on differential equations of mathematical physics,
Institute of Mathematics UFRC RAS,
Ufa, Russia December 19, 2017
- Mathematisches Forschungskolloquium,
Institut für Mathematik, Universität Rostock,
Rostock, Germany October 30, 2018
- Seminar on Partial Differential Equations,
Institute of Mathematics of CAS,
Prague, Czech Republic April 16, 2019
- V.I. Smirnov Seminar on Mathematical Physics,
V.A. Steklov Mathematical Institute,
online, *St.-Petersburg, Russia* May 4, 2020
- Seminar on differential equations of mathematical physics,
Institute of Mathematics UFRC RAS,
online, *Ufa, Russia* June 9 & 16, 2020
- Analysis Seminar,
Institute of Mathematics and Statistics of the Federal University of Goiás,
online, *Goiás, Brazil* April 1, 2021
- Seminar on differential equations of mathematical physics,
Institute of Mathematics UFRC RAS,
online, *Ufa, Russia* November 29, 2022
- Seminar at IIT Mardas,
Chennai, India December 15, 2022
- Seminar on nonlinear problems of Math. Physics and PDE,
online, *RUDN, Moscow, Russia* February 14, 2023
- Scientific seminar on the differential and functional differential equations,
Nikol'skii Mathematical Institute of RUDN, Moscow, Russia March 28, 2023

RESEARCH
PROJECTS/GRANTS

- Russian Foundation for Basic Research (RFBR), Grant No. 13-01-00294 "Development of variational methods for investigation of special classes of solutions for nonlinear

boundary value problems”.

Coordinator: Prof. Il'yasov Ya.Sh. 2013 - 2015

- Russian Foundation for Basic Research (RFBR), Grant No. 14-01-31054 "Stability of resonance effects in nonlinear models".

Coordinator: Dr. Sultanov O.A. 2014 - 2015

- Czech Ministry of Education, Youth and Sports, Project LO1506 "Podpora udržitelnosti centra NTIS – Nové technologie pro informační společnost". 2016 - 2019

- Grant Agency of the Czech Republic (GAČR), Grant No. 18-03253S "Diferenciální rovnice se speciálními typy nelinearit".

Coordinator: prof. RNDr. Pavel Drábek, DrSc. 2018 - 2019

- Russian Science Foundation (RSF), Grant No. 22-21-00580 "Nonlinear analysis of differential operators: critical phenomena, new approaches and applications".

Coordinator: Prof. Il'yasov Ya.Sh. 2022 - 2023