

Curriculum Vitae

last updated May 6, 2025

Full name Irina Bobrova
Place of birth Krasnogorsk, Russia
Date of birth 15 SEP 1994
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Education

2023 *Université de Reims Champagne-Ardenne, Laboratoire de Mathématiques*, PhD
2019 – 2023 *HSE University, Faculty of Mathematics*, Differential Equations and Dynamical Systems Program, PhD
2017 – 2019 *HSE University, Faculty of Mathematics*, Mathematics and Mathematical Physics Program, Master of Science (with honors)
2015 – 2017 *Moscow Region State University, Faculty of Physics and Mathematics*, Physics Program, Bachelor of Science (with honors)
2015 – 2017 *Moscow Region State University, Faculty of Physics and Mathematics*, Pedagogical Education Program (Mathematics), Bachelor of Science (with honors)
2012 – 2015 *Moscow Region State University, Faculty of Physics and Mathematics*, Pedagogical Education Program (Mathematics and Computer Science)

PhD's degree

2023 *Non-Abelian Painlevé equations*
Advisors Valentin Ovsienko, Vladimir Rubtsov, and Vladimir Sokolov
2023 *Non-Abelian generalizations of the Painlevé IV equation*
Advisors Vladimir Poberezhny, Vladimir Rubtsov, and Vladimir Sokolov

Master's degree

2019 *Painlevé II Hierarchy: Poisson Structures, Bäcklund Transformations, and Sigma Coordinates*
Advisors Vladimir Poberezhny and Vladimir Rubtsov

Bachelor's degree

2017 *Analysis of Thermodynamic Criterion of Materials Strength*
Advisor Anatoly Bugrimov
2017 *Methodical Features of Stochastics Elements Study in Math Course of Basic School*
Advisor Maria Rassudovskaya

Scientific interests Analytical Theory of Differential Equations, Painlevé Equations, Soliton Equations, Integrable Systems and their Non-Commutative Generalizations, Poisson Structures

Languages Russian (native), English (C1), French (A1), German (A1)

Employment

nov 2023 – nov 2028 *Max-Planck-Institute for Mathematics in the Sciences*, Leipzig, Germany, *PostDoc*
mar 2023 – oct 2023 *International Laboratory of Cluster Geometry, HSE*, Moscow, Russia, Junior Research Fellow
sep 2022 – jan 2023 *Faculty of Mathematics, HSE*, Moscow, Russia, Senior Lecturer
mar 2021 – feb 2023 *International Laboratory of Cluster Geometry, HSE*, Moscow, Russia, Research Assistant
sep 2020 – aug 2023 *Department of Higher Mathematics, HSE*, Moscow, Russia, Lecturer
2019 – 2020 *Faculty of Mathematics, HSE*, Moscow, Russia, Course Assistant (Complex Analysis)

Visits

jan 2025 – mar 2025 *Institut Mittag-Leffler*, Djursholm, Sweden, Invited Researcher

dec 2022 – feb 2023 [IHES](#), Bures-sur-Yvette, France, Invited Researcher

Memberships

- 2024 – now [Association of Women in Mathematical Physics \(AWMP\)](#)
- 2024 – 2027 [Young Academy of European Mathematical Society \(EMYA\)](#)
- 2024 – now [International Society of Nonlinear Mathematical Physics \(is~mp\)](#)

Awards&Grants

- 2023 [PAUSE program](#), Université de Reims Champagne-Ardenne
- 2023 Research Grant, Russian Science Foundation (Project No. 23-41-00049)
[«Representation Theory, Knots and \(non-\)Commutative Painlevé Monodromy»](#)
- 2023 [Surcharge for Publications](#), HSE
- 2022 – 2023 [Rector's Personal Surcharge](#), HSE
- 2022 [Simons Foundation](#), IUM
- 2022 [Natanzon Scholarship](#), HSE
- 2022 – 2023 [Young Faculty Support Program \(Group of Young Academic Professionals\)](#),
Category «New Researchers», HSE
- 2022 – 2023 [Young Russian Mathematics Award](#), IUM
- 2019 – 2020 Research Grant, Russian Foundation for Basic Research, 18-01-00461 A
[«\(Non\)commutative Integrable Field-Theoretic Models: Algebras and Symmetry Groups and Their Representations»](#)
- 2015 – 2017 Nozdrev Scholarship, [MRSU](#)

Papers

- 2024 Bobrova I. [Affine Weyl groups and non-Abelian discrete systems: an application to the \$d\$ -Painlevé equations](#), Nagoya Mathematical Journal (under review), [arXiv:2403.18463](#)
- 2024 Bobrova I., Retakh V., Rubtsov V., Sharygin G. [Non-Abelian discrete Toda chains and related lattices](#), Physica D: Nonlinear Phenomena, 464: 134200, [arXiv:2311.11124](#)
- 2023 Bobrova I. [Different linearizations of non-abelian second Painlevé systems and related monodromy surfaces](#), Journal of Mathematical Physics, 64(10): 101702, [arXiv:2302.10694](#)
- 2023 Bobrova I., Sokolov V. [On classification of non-abelian Painlevé type systems](#), Journal of Geometry and Physics, 191: 104885, [arXiv:2303.10347](#)
- 2023 Bobrova I., Sokolov V. [Classification of Hamiltonian non-abelian Painlevé type systems](#), Journal of Nonlinear Mathematical Physics, 30: 646–662, [arXiv:2209.00258](#)
- 2023 Bobrova I., Sokolov V. [Non-abelian Painlevé systems with generalized Okamoto integral](#), in *The Diverse World of PDEs: Algebraic and Cohomological Aspects*, volume 789 of *Contemporary Mathematics*, pages 41–76, American Mathematical Society, [arXiv:2206.10580](#)
- 2022 Bobrova I., Retakh V., Rubtsov V., Sharygin G. [A fully noncommutative analog of the Painlevé IV equation and a structure of its solutions](#), Journal of Physics A: Mathematical and Theoretical, 55(47): 475205, [arXiv:2205.05107](#)
- 2022 Bobrova I., Sokolov V. [On matrix Painlevé-4 equations](#), Nonlinearity, 35(12): 6528(2023), [arXiv:2107.11680](#), [arXiv:2110.12159](#)
- 2022 Bobrova I. [On symmetries of the non-stationary \$P_{II}^{\(n\)}\$ hierarchy and their applications](#), Theor. and Math. Physics, 213:1, 65–94, [arXiv:2010.10617](#)
- 2021 Bobrova I., Mazzocco M. [The Sigma Form for the PII Hierarchy](#), Journal of Geometry and Physics, 166: 104271, [arXiv:2012.11010](#)

Talks

- 2025 [Around non-commutative analogs for the Painlevé monodromy manifolds](#), Geneva, Université de Genève, Séminaire Groupes de Lie et espaces de modules, April 22 (invited)
- 2025 [Around non-commutative analogs of the Painlevé monodromy manifolds](#), Barcelona, [Painlevé equations, higher Teichmüller theory and quantization](#), March 18-21 (invited)

- 2025 *Painlevé equations and double quasi-Poisson brackets*, Djursholm, Mittag-Leffler Institute, Cohomological Aspects of QFT, February 14 (invited)
- 2025 *Around non-commutative analogs for the Painlevé monodromy manifolds*, Dijon, Institut de Mathématiques de Bourgogne, Séminaire Mathématique-Physique, February 04 (invited)
- 2025 *Painlevé monodromy manifolds and related structures: towards non-commutative setting*, Barcelona, BCN-Face(t)s in Symplectic Geometry, January 28-31 (invited)
- 2024 *Around non-commutative discrete systems*, Zoom, AMS Special Session on Non-commutative birational geometry, cluster structures and canonical bases, October 26-27 (invited)
- 2024 *Towards non-commutative discrete Painlevé systems*, Göttingen, Developments in Modern Mathematics, September 02
- 2024 *Affine Weyl groups and non-abelian discrete systems*, Beijing, RTISRT-2024, July 10 (invited)
- 2024 *Affine Weyl groups and non-abelian discrete systems*, Bad Ems, OCNMP-2024, June 27
- 2024 *Affine Weyl groups and non-abelian discrete systems*, Lille, Integrable systems and automorphic forms, May 14 (invited)
- 2024 *Non-Abelian ODEs and $Q\Delta E$ s*, Zoom, Noncommutative Integrable Systems Workshop, March 05 and March 07 (invited)
- 2024 *Towards non-Abelian recurrences*, Zoom, IUM, Deformation Quantisation and Quantum Groups Seminar, February 13 (invited)
- 2024 *Painlevé equations and cluster algebras*, Leipzig, Symplectic geometry of representation and quiver varieties, February 01
- 2023 *Non-Abelian Painlevé equations and related monodromy surfaces*, Bruxelles, Forum des jeunes mathématicien-nes. Analyse. Géométrie. Application., November 23
- 2023 *On a classification of non-Abelian Painlevé equations*, Zoom, IUM, Cohomology and PDE Seminar, November 22 (invited)
- 2023 *Non-Abelian Painlevé equations and related monodromy surfaces*, MPI for MiS, Leipzig, Geometry seminar, November 21
- 2023 *Towards non-Abelian Painlevé equations*, Lyon, Institut Camille Jordan, Séminaire Physique Mathématique ICJ, October 27 (invited)
- 2023 *On the classification and study of non-Abelian Painlevé equations*, Reims, Université de Reims Champagne-Ardenne, Laboratoire de Mathématiques, July 11
- 2023 *Non-Abelian Painlevé equations*, Zoom, Laboratory of Cluster Geometry, HSE, May 18
- 2023 *Non-Abelian Painlevé equations*, Zoom, Web-seminar on Painlevé Equations and related topics, May 17 (invited)
- 2023 *Different approaches for constructing non-abelian Painlevé equations*, Zoom, BIMSA Integrable Systems Seminar, February 24 (invited)
- 2023 *On non-Abelian monodromy surfaces of the Painlevé equations*, Rennes, Institut de recherche mathématique de Rennes, Géométrie analytique Séminaire, February 16 (invited)
- 2023 *On some classes of non-abelian Painlevé equations*, Zoom, Hamiltonian Systems Seminar, February 14 (invited)
- 2022 *Non-abelian generalizations of the Painlevé-4 equation*, Angers, University of Angers, LAREMA seminar, December 5 (invited)
- 2022 *Non-abelian Painlevé systems with generalized Okamoto integral*, Ufa, Ufa Autumn Mathematical School-2022, September 28
- 2022 *Non-commutative generalisations of the fourth Painlevé equation*, Sochi, Integrable systems and their applications, September 15
- 2021 *Matrix Painlevé equations*, Moscow, IUM & MSU, December 13 – 17
- 2021 *On matrix Painlevé-4*, Moscow, Laboratory of Mathematical Physics and Representation Theory, HSE, November 17
- 2021 *On the Painlevé equations and their non-Abelian generalisations*, Zoom, Laboratory of Cluster Geometry, HSE, October 28

- 2021 *Symmetries of the second Painlevé equation*, Zoom, Landau Institute for Theoretical Physics, October 13 (invited)
- 2021 *Symmetries of the second Painlevé equation*, Zoom, Steklov Mathematical Institute, September 14, 21, 28
- 2021 *On matrix Painlevé-4 equations*, Sochi, Classical and Quantum Integrable Systems Workshop, July 29
- 2021 *On matrix Painlevé IV equations*, Chernogolovka, Landau Institute for Theoretical Physics, June 4 (invited)
- 2021 *Stokes Phenomena*, Zoom, Spring Student School on Mathematics and Physics, May 6-7
- 2021 *On some structures of the second Painlevé equation and related hierarchies*, Zoom, Junior Global Poisson Workshop, May 4
- 2020 *On the Motion of a Solid Body in a Fluid*, Zoom, Seminar on the Analytic Theory of Differential Equations, November 15
- 2020 *The Non-Stationary $P_{II}^{(n)}$ Hierarchy: Bäcklund Transformations, Rational Solutions, and Yablonskii-Vorobiev Polynomials*, Zoom, Differential equations and related topics Conference, June 19
- 2020 *On the Second Painlevé Equation and its Higher Analogues*, Zoom, Geometry of Differential Equations Seminar, June 8
- 2020 *The Hamiltonian Action of the Lie Group, the Momentum Map, and the Hamiltonian Reduction*, Zoom, Spring Student School on Mathematics and Physics, May 1
- 2020 *The Momentum Map*, Zoom, Steklov Mathematical Institute, April 28
- 2020 *Isomonodromic Deformations*, Moscow, HSE, March 10
- 2020 *From the Stationary KdV Hierarchy to the Second Painlevé Hierarchy*, Moscow, Steklov Mathematical Institute, February 25
- 2019 *Riemann - Hilbert Problem and Schlesinger Isomonodromic Deformation*, Moscow, Steklov Mathematical Institute, November 26
- 2019 *Closed Toda Lattice*, Dubna, Spring Student School on Mathematics and Physics, May 6
- 2019 *On the Inheritance of the Korteweg-de Vries Equation Structure of Painlevé II*, Moscow, Steklov Mathematical Institute, April 24

Conference Participation

- 2024 AMS Special Session on Non-commutative birational geometry, cluster structures and canonical bases, with talk, Zoom, October 26-27
- 2024 *Developments in Modern Mathematics*, with talk, Göttingen, Germany, September 02
- 2024 9th European Congress of Mathematics (9ECM), Seville, Spain, July 15-19
- 2024 *Representation Theory, Integrable Systems and Related Topics International*, with talk, Beijing, China, July 08-12
- 2024 *Beijing Summer Workshop in Mathematics and Mathematical Physics*, Beijing, China, July 01-08
- 2024 *Open Communications in Nonlinear Mathematical Physics*, with talk, Bad Ems, Germany, June 23-29
- 2024 *Integrable systems and automorphic forms*, with talk, Lille, France, May 13-16
- 2024 *Noncommutative Integrable Systems Workshop*, with talk 1 and talk 2, Zoom
- 2024 *Symplectic geometry of representation and quiver varieties*, with talk, Leipzig
- 2023 *Forum des jeunes mathématicien-nes. Analyse. Géométrie. Application*, with talk, Bruxelles
- 2023 *Atelier on Higher Structures in Differential Geometry*, Lyon, Institut Camille Jordan
- 2022 *Ufa Autumn Mathematical School-2022*, with talk, Ufa
- 2022 *Integrable systems and their applications*, with talk, Sochi
- 2021 *Diffieties, Cohomological Physics, and Other Animals (Alexandre Vinogradov Memorial Conference)*, with talk, Moscow

- 2021 *Third International Conference on Integrable Systems & Nonlinear Dynamics*, Yaroslavl
- 2021 *Classical and Quantum Integrable Systems*, with talk, Sochi
- 2021 *Junior Global Poisson Workshop*, with talk, Zoom
- 2021 *Analytic Theory of Differential and Difference Equations*, Zoom
- 2020 *Polivanov-90*, Zoom
- 2020 *Differential equations and related topics*, Zoom
- 2019 *Classical and Quantum Integrable Systems*, Saint-Petersburg

Schools

- 2022 *EIMI Lie algebras summer school ALGEULER*, Saint-Petersburg
- 2021 *Spring Student School on Mathematics and Physics*, Zoom
- 2021 *String Theory, Integrable Models and Representation Theory*, Zoom
- 2020 *Spring Student School on Mathematics and Physics*, Zoom
- 2020 *String Theory, Integrable Models and Representation Theory*, Moscow
- 2019 *Visions of Algebraic Groups*, Saint-Petersburg
- 2019 *Spring Student School on Mathematics and Physics*, Moscow
- 2016 *String Theory, Integrable Models and Representation Theory*, Moscow
- 2015 *Algebra and Geometry*, Yaroslavl
- 2015 *Math Winter School*, Voronovo

Additional Skills Wolfram Mathematica, Python, Java, SQL, Data Modeling