Bogdan Zavyalov

Curriculum Vitae

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Personal Information

Birth	Omsk (Russia), September 9, 1994
Languages	Russian (native), English (fluent)

Positions Held

Employment

2024–2025	**Postdoctoral Research Associate**, *Princeton University*, Princeton (USA)
2024–2025	**Visitor**, *Institute For Advanced Study*, Princeton (USA)
2022–2024	**Member**, *Institute For Advanced Study*, Princeton (USA)
2021–2022	**Postdoc**, *Max Planck Institute*, Bonn (Germany)
2016	**Research Intern**, *HSE*, Moscow (Russia)

Temporary Visiting Positions

July 2023	**Visitor**, *Institut des Hautes Études Scientifiques*, Bures-sur-Yvette (France)

Education

2016-2022	**Ph.D.**, *Stanford University*, Stanford (USA), Advisor: Brian Conrad Doctoral Thesis: Mod-p Poincaré duality in p-adic analytic geometry
2012–2016	**Bachelor Degree**, *Higher School of Economics*, Moscow (Russia) Advisor: Marat Rovinsky Degree Thesis: Chow Groups of Abelian Varieties and Beilinson's Conjecture
2012–2016	Independent University of Moscow, Moscow (Russia)

Fellowship

2014–2016	R.L. Dobrushin Felloship for students

Current Projects

Ongoing Projects

1) **Solid de Rham stack**, with Ko Aoki and Juan Esteban Rodriguez Camargo
2) **Multiplicative Polynomial Laws and deformations of commutative group schemes**, with Dmitry Kubrak, Akhil Mathew, and Arpon Raksit

Papers in Preparation

3) **Poincaré Duality for pro-étale $\mathbf{Q}_p$-local systems**, with Shizhang Li, Wiesława Nizioł, and Emanuel Reinecke

4) **Absolute approximations and the decomposi- tion theorem in rigid-analytic geometry**, with Shizhang Li and Shiji Lyu

Preprints and Publications

Preprints

12) **Relative Poincaré duality in nonarchimedean geometry**, joint with Shizhang Li and Emanuel Reinecke, arXiv:2410.08200

11) **Some Foundational Results in Adic Geometry**, arXiv:2409.15516

10) **Algebraization Techniques and Rigid-Analytic Artin–Grothendieck Vanishing**, joint with Ofer Gabber, arXiv:2402.08741

9) **Poincaré in abstract 6-functor formalisms**, arXiv:2301.03821

8) **Arithmetic Properties Of ℓ-adic Étale Cohomology and Nearby Cycles of Rigid-Analytic Spaces**, joint with David Hansen, recommended for publication at Journal of Algebraic Geometry (currently under review), arXiv:2102.02762

Publications

7) **Lefschetz theorems in flat cohomology and applications**, with Sean Cotner, *Compositio Mathematica*, arXiv:2204.06121

6) **Mod-p Poincaré Duality in p-adic Analytic Geometry**, *to appear in Annals of Mathematics*, arXiv:2111.01830

5) **Almost coherent modules and almost coherent sheaves**, *to appear in Memoirs of the European Mathematical Society*, arXiv:2110.10773

4) **Sheafiness of Strongly Rigid-Noetherian Huber Rings**, *Mathematische Annalen*, arXiv:2102.02776

3) **Altered Local Uniformization of Rigid-Analytic Spaces**, *Israel Journal of Mathematics*, arXiv:2102.04752

2) **Quotients of Adic Spaces and Admissible Formal Schemes**, *Algebra and Number Theory*, arXiv:2102.02762

Not intended for publication

1) **Chow Groups of Abelian Varieties and Beilinson's Conjecture**, arXiv:1612.03489

Teaching Experience

Princeton University

Fall 2024 MAT 104 (Calculus II), **Instructor** (teaching classes, holding office hours, grading exams)

Stanford University

Summer 2021 Math 51 (Linear Algebra and Multivariable Calculus), **Course Assistant** (holding office hours, grading homework and exams)

Spring 2021	Math 210 C (Lie Theory), **Course Assistant** (holding office hours, grading exams)
Summer 2021	Math 51 (Linear Algebra and Multivariable Calculus), **Course Assistant** (holding office hours, grading homework and exams)
Winter 2021	Math 20 (Calculus II), **Course Assistant**, (holding office hours, grading exams)
Fall 2020	Math 51 (Linear Algebra and Multivariable Calculus), **Teaching Assistant** (teaching exercise sections, holding office hours, grading exams)
Summer 2020	Math 19 (Calculus I), **Course Assistant** (holding office hours, teaching exam review sessions, grading exams)
Spring 2020	Math 104 (Applied Matrix Theory), **Course Assistant** (holding office hours, teaching exam review sessions, grading exams)
Winter 2020	Math 51 (Linear Algebra and Multivariable Calculus), **Teaching Assistant** (teaching exercise sections, holding office hours, grading exams)
Summer 2019	Algebra Qual Prep Class, **Teacher**, (fully responsible for mentoring two graduate students for algebra quals. Held personal meetings, prepared the syllabus, graded homework)
Spring 2019	Math 21 (Calculus III), **Teaching Assistant**, (teaching exercise sections, holding office hours, grading exams)
Spring 2018	Math 155 (Analytic Number Theory), **Course Assistant**, (holding office hours, grading homework and exams)
Winter 2018	Math 51 (Linear Algebra and Multivariable Calculus), **Teaching Assistant**, (teaching exercise sections, holding office hours, grading exams)
Spring 2017	Math 122 (Modules and Group Representations), **Course Assistant**, (holding office hours, grading homework and exams)
Fall 2016	Math 19 (Calculus I), **Course Assistant**, (holding office hours, teaching exam review sessions, exams)

Mentoring

Spring 2024	Princeton Directed Reading Program, **Mentor**. Held private weekly meetings and guided algebraic geometry reading over the term.

Service

Thuses.com	An online publishing platform for mathematicians. A place for everything in math that just has to be shared
Miftakhov.com	A website with information about the political court case against Moscow State graduate student Azat Miftakhov

Invited Conferences

June 2025	**Higher category theory, derived algebraic geometry, and homotopy theory**, University of Maryland (USA) [upcoming]
Sep. 2024	**Workshop on Anabelian Geometry and Representations of Fundamental Groups**, Oberwolfach workshop (Germany)

Sep. 2024	**Workshop on p-adic geometry**, University of Chicago (USA)
July 2024	**Arithmetic Geometry workshop**, Oberwolfach (Germany)
July 2024	**Algebraic K-theory and arithmetic**, Bedlewo (Poland)
Sep. 2023	**Arithmetic and Cohomology of Algebraic Varieties**, Hanoi (Vietnam)
May 2023	**Algebraic geometry and cohomology in mixed characteristic**, Northwestern University (USA)
June 2022	**Complex Geometry in Byurakan**, Byurakan (Armenia)
May 2022	**Simons Symposium on p-adic Hodge theory**, Scotland (I was not able to attend it due to COVID restrictions)
May 2022	**Workshop on p-adic Hodge Theory**, Ann Arbor (USA) (I was not able to attend it due to COVID restrictions)
April 2022	**Cohomology of Varieties**, IMPAN Warsaw (Poland)
Feb. 2022	**Workshop on Non-archimedean Geometry and Application**, Oberwolfach (Germany)
Dec. 2021	**3rd Kyoto-Hefei Workshop On Arithmetic Geometry**, Online

━━━━ Invited Seminar Talks

Nov. 2025	**Arithmetic Geometry and Number Theory seminar**, University of Berkeley (USA) [upcoming]
July 2025	**Pre-print Seminar of Sorbonne University**, Paris (France), 2 talks
March 2024	**Algebraic Geometry Seminar**, University of Utah (USA)
Dec. 2023	**Special Year Seminar**, Institute For Advanced Study, Princeton (USA)
October 2023	**Number Theory Seminar**, Johns Hopkins University, Baltimore (USA)
July 2023	**GAUS AG: Six functor formalism and Poincaré duality**, Heidelberg University (Germany)
July 2023	**Non-archimedean Geometry Seminar**, Frankfurt University (Germany)
March 2023	**Number Theory Seminar**, University of Chicago (USA)
Feb. 2023	**Seminar zur Arithmetischen Geometrie (online)**, Darmstadt University (Germany)
Feb. 2023	**Algebra and Number Theory seminar**, University of Maryland (USA)
July 2022	**Oberseminar Algebra und Topologie**, Wuppertal University (Germany)
October 2021	**Arbeitsgemeinschaft Arithmetische Geometrie**, Max Planck Institute, Bonn (Germany)
July 2020	**Recent Advances in Modern p-Adic Geometry Seminar, RAMpAGe**, online
January 2020	**Number Theory Seminar**, Stanford University (USA)
Dec. 2019	**Number Theory Seminar**, Higher School of Economics, Moscow (Russia)
Dec. 2019	**Number Theory Seminar**, University of Michigan (USA)
Nov. 2019	**Number Theory Seminar**, University of Georgia (USA)

━━━━ Organizational Experience

Research Seminars

Spring 2023 – current time — **Joint IAS and Princeton Arithmetic Geometry Seminar**, *co-organizer with Bhargav Bhatt, Lue Pan, and Mingjia Zhang*

Learning Seminars

Spring 2024 — **Analytic K-theory Learning seminar**, *co-organizer with Greg Andreychev and Vadim Vologodsky*, joint seminar between IAS and Princeton University; part of the IAS special year program

Fall 2023 — **Condensed Learning seminar**, *co-organizer with Vadim Vologodsky*, joint seminar between IAS and Princeton University; part of the IAS special year program

Spring 2022 — **Absolute Prismatization**, *organizer*, Learning Seminar at Max Planck Institute, Bonn

Fall 2021 — **Mixed Hodge Modules**, *organizer*, Learning Seminar at Max Planck Institute, Bonn

Summer 2020 — **Derived Algebraic Geometry**, *organizer*, Online Student Learning Seminar

Winter 2020 — **Crystalline Cohomology**, *organizer*, Student Learning Seminar, Stanford University

Fall 2018 — **p-adic Hodge Theory**, *organizer*, Student Learning Seminar, Stanford University

Fall 2017 — **Néron Models**, *organizer*, Student Learning Seminar, Stanford University