

## Positions

2018 – 2024 **Graduate Student Instructor & Graduate Student Research Assistant**

University of Michigan, Ann Arbor MI

2014 – 2018 **Research assistant**

Chebyshev Laboratory at St. Petersburg State University, Russia

## Education

2018 – 2024 **Ph.D. in Mathematics at the University of Michigan**

Advisor: Prof. A. Snowden *Tensorial measures on omega-categorical structures*

2017 – 2019 **Graduate study in Mathematics at St. Petersburg State University**

Advisors: Prof. G. Panina *Cohomology ring of polygonal linkages moduli space,*

Prof. S. Vostokov *Cohomology of formal modules over local fields,*

Prof. N. Vavilov *Overgroups of exterior powers of  $GL_n$ .*

2012 – 2017 **Undergraduate study in Mathematics at St. Petersburg State University**

Advisor: Prof. S. Vostokov *Cohomology of formal modules*

## Research Interests

- **Oligomorphic groups and Tensor categories:** representation theory, categorical and model-theoretic aspects, structure theory of tensorial measures, monoidal abelian envelopes
- **Representation stability and  $\infty$ -dimensional equivariant spaces:** geometry and structure theory
- **Compactifications of  $\mathcal{M}_{0,n}$  and Gromov–Witten theory:** connections to stability and string theory

## Publications and Preprints

- **Planar arboreal tensor category.** Work in progress with N. Harman
- **Smooth Representation Theory of Oligomorphic Groups.** Work in progress
- 2023 **Overgroups of exterior powers of an elementary group. Normalizers.** with R. Lubkov  
Submitted, <http://arxiv.org/abs/2310.00101>
- **Arboreal tensor categories.** with N. Harman and A. Snowden  
Submitted, <https://arxiv.org/abs/2308.06660>
- 2022 **Dual infinite wedge is  $GL_\infty$ -equivariantly noetherian.**  
Submitted, <https://arxiv.org/abs/2008.09531>
- **Overgroups of exterior powers of an elementary group. Levels.** with R. Lubkov  
Linear Multilinear Algebra. doi: 10.1080/03081087.2022.2160422
- 2020 **Geometric presentation for the cohomology ring of polygon spaces.** with G. Panina  
St. Petersburg Math. J. 31, no. 1, 59–67.
- 2019 **Explicit equations for the exterior square of the general linear group.** with R. Lubkov  
J. Math. Sci. (N.Y.), 243 (2019), no. 4, 583–594.
- **Compactifications of the space  $\mathcal{M}_{0,n}$  associated with Alexander self-dual complexes: Chow rings,  $\psi$ -classes, and intersection numbers.** with G. Panina  
Proc. Steklov Inst. Math. 305, no. 1, 232–250.
- **Cohomology of formal modules over local fields.** with S. Vostokov

- Math. Notes 105 (2019), no. 1-2, 3–7.
- 2018 **Power filtration on morphisms of formal group law.**  
Lobachevskii J. Math. 39 (2018), no. 9, 1400–1402.
- **Alexander r-tuples and Bier complexes.** with D. Jojić, G. Panina, and R. Živaljević  
Publ. Inst. Math. (Beograd) (N.S.) 104(118) (2018), 1–22.
- 2017 **Explicit constructions and arithmetic of local number fields.** with S. Vostokov et al  
Vestnik St. Petersburg Univ. Math. 50 (2017), no. 3, 242–264.
- 2016 **Cyclopermutohedron: geometry and topology.** with A. Zhukova and G. Panina  
Eur. J. Math. 2 (2016), no. 3, 835–852.
- **Lutz filtration as a Galois module.** with S. Vostokov and R. Vostokova  
Lobachevskii J. Math. 37 (2016), no. 2, 214–221.
  - **The Lubin-Tate formal module in a cyclic unramified p-extension as a Galois module.** with S. Vostokov. J. Math. Sci. (N.Y.) 219 (2016), no. 3, 375–379.
- 2011 **The possibility of constructing a heat engine running on a cycle approaching the Carnot cycle.**  
with M. Grinkrug. Int. J. Fund. Appl. Res. (RANH, Moscow), 12, pp 48-51.

## Awards and Scholarships

- 2023 – 2024 **The Cornwell Prize, doctoral student award**  
The highest research prize of Math Department, the University of Michigan
- 2023 – 2024 **Rackham Predoctoral Fellowship, doctoral student award**  
A prestigious award given by Rackham Graduate School at the University of Michigan
- 2019 – 2022 **Math Department Scholarship, doctoral student award**  
University of Michigan, Department of Mathematics
- 2015, 2018 **Rokhlin Stipends for Young Mathematicians, graduate student award**  
St. Petersburg Mathematical Society
- 2013 – 2017 **Scholarship of Chebyshev Laboratory, undergraduate student award**  
St. Petersburg State University, Chebyshev Laboratory

## Teaching Experience: Primary Instructor

- 2023, Aug. **Training for incoming Math instructors, Introduction to IBL, facilitator, University of Michigan**  
Training and observing new instructors, leading lecture sessions, and designing *Inquiry-Based Learning*-friendly lesson plans.
- 2022, Fall **Calculus I, Math 115, co-coordinator (1800+ students), University of Michigan**  
Mentoring and observing new instructors, redesigning the course, developing new class formats, and writing original *Inquiry-Based Learning*-type assignments and exams.
- 2022, Spring **Calculus II, Math 116, coordinator and primary instructor (30+ students), University of Michigan**  
Coordinating the course and *Inquiry-Based Learning*-type teaching in a section of 20 students.
- 2018 – 2022 **Calculus I & II, Math 115 & 116, primary instructor, University of Michigan**  
5 full semesters of *Inquiry-Based Learning*-type teaching in sections of 15–25 students
- 2017 – 2018 **Number Theory I & II, Class Field Theory, undergraduate extra courses, primary instructor, Chebyshev Lab at St. Petersburg State University**  
Lecturing, facilitating problem solving sessions, course mini-projects advising, and writing homework problems.

## Teaching Experience: Mentoring and Service

- 2020, Fall **Directed Reading Program, University of Michigan**  
Matthew Wang, *Symmetries of Symmetric Groups*.

- 2020, May **School Math: Extra Practice**, *Khabarovsk Krai, Russia*  
Math practice with high-schoolers over Zoom.
- 2019 – 2020 **Advisor for Master’s Degree Thesis**, *St. Petersburg State University*  
Nikita Elizarov (Universität Bielefeld) published his thesis *Lubin–Tate extensions and Carlitz modules*.
- 2017, Spring **Local Number Theory**, *Chebyshev Laboratory*  
Organizer of a seminar for graduate students.
- 2013 **Math & Physics Summer Camp**, *Khabarovsk, Russia*  
Course *Continuous methods in plane geometry* for middle and high-schoolers.

## Professional Development

- 2023 **UM/AMiIBL workshop**, *University of Michigan*
- 2020 **Intercultural Leadership Seminar**, *University of Michigan*

## Funding and Research Groups

- 2018 – 2023 **Graduate Student Research Assistant Position**, *National Science Foundation, USA*  
6 full semesters of GSRA positions at the University of Michigan
- 2017 – 2019 **Formal groups and arithmetic cohomology theories**, *Russian Science Foundation, 16-11-10200*
- 2016 – 2019 **Geometry and topology**, *Russian Science Foundation, 16–11–10039*
- 2016 **Formal modules and ramification theory**, *Russian Foundation for Basic Research, 14–01–00393*
- 2015 – 2016 **Mechanical linkages: theory and applications**, *Russian Foundation for Basic Research, 15–01–02021*

## Visits

- 2022, Dec. **Institute for Advanced Study**, *Princeton NJ*  
Research advisor: Prof. Jan Draisma
- 2017, April **RIMS**, *Kyoto, Japan*  
Research advisor: Prof. Anatol Kirillov
- 2017, Spring **STEPS program**, *Tokyo University, Tokyo, Japan*  
Research advisor: Prof. Yoichi Mieda
- 2016, May **Mathematisches Forschungsinstitut Oberwolfach gGmbH**, *Oberwolfach, Germany*  
Research in Pairs: Dusko Jojic, Ilia Nekrasov, Gaiane Panina, and Rade T. Zivaljevic
- 2015, April **Bielefeld University**, *Bielefeld, Germany*  
Research advisor: Prof. Anthony Bak

## Conference and Seminar Talks

- 2023 **Arboreal Tensor Categories**, *Algebra Seminar, November 27, IU Bloomington, IN*
- **Arboreal Tensor Categories**, *Tensor Categories Seminar, November 14, UC Berkeley, CA*
  - **Arboreal Tensor Categories**, *Algebra Seminar, November 7, University of Oregon, Eugene OR*
  - **Arboreal Tensor Categories**, *Algebra Seminar, October 2, University of Georgia, Athens GA*
  - **Tensorial measures and  $\omega$ -categorical theories**, *Logic Seminar, September 20, University of Michigan, Ann Arbor MI*
- 2018 **Symmetric–Exterior plethysms, vertex algebras and generalized Sato Grassmannians (poster)**, *Modern Algebraic Geometry, July 21-25, Silkroad Mathematics Center, Beijing*
- **Formal modules in constructible class field theory**, *Conference on Rings and Factorizations, February 19-23, Graz, Austria*
- 2017 **Cohomology of formal modules**, *Steklov Math. Institute, November 28, Moscow, Russia*
- **Explicit class field theory**, *Number Theory Seminar at HSE, November 27, Moscow, Russia*

- **Formal modules in constructible class field theory**, *Mal'tsev Meeting at NSU, November 20-23, Novosibirsk, Russia*
- **Intersection numbers of Chern classes of tautological line bundles on the moduli spaces of flexible polygons**, *St. Petersburg Topology Seminar, October 18, POMI, St. Petersburg, Russia*
- **Classical plethysms and generalized grassmannians (poster)**, *Algebraic Modes of Representations The Canicular Days, July 16-18, The Weizmann Institute of Science, Israel*
- **Grassmannians and others homogeneous varieties in symmetric plethysms**, *Lie algebras, algebraic groups and Invariant theory, January 31 – February 5, 2017, MSU and Independent University of Moscow, Moscow, Russia*
- 2015 **Volume and lattice points counting for the cyclopermutohedron**, *The 5th German-Russian Week of the Young Researcher at the Moscow Institute of Physics and Technology in Dolgoprudnyj, September 6-12, 2015, MIPT, Moscow, Russia*
- **Volume and lattice points counting for the cyclopermutohedron**, *Polynomial Computer Algebra '2015, April 13-18, 2015, Euler International Mathematical Institute, St. Petersburg, Russia*
- **Lutz filtration as Galois module (poster)**, *Local arithmetic geometry in honor of Sergei V. Vostokov on the occasion of his 70th birthday, May 18-22, 2015, Euler International Mathematical Institute, St. Petersburg, Russia*

## Conferences, Schools, and Workshops

- 2021 **Chern–Simons and Other Topological Field Theories**, *MSRI, Berkeley CA*
- 2020 **Stability in Topology, Arithmetic, and Representation Theory**, *AMS Sectional Meeting, online*
- 2018 **Winter school on local geometric Langlands theory**, *Paris 7 University, France*
- 2017 **Algebraic Modes of Representations and Nilpotent Orbits: The Canicular Days**, *Haifa University, Israel*
- 2017 **Current Topics in the Theory of Algebraic Groups**, *Dijon University, France*
- 2017 **Arbeitsgemeinschaft: Higher Gross–Zagier Formulas**, *Oberwolfach, Germany*
- 2017 **Cluster Algebras in Mathematical Physics**, *Johannes Gutenberg University Mainz, Germany*
- 2017 **Workshop on Quiver Grassmannians and their Applications**, *University of Wuppertal, Germany*
- 2013 **Summer School “Contemporary Mathematics”**, *Dubna, Russia*