Mikhail Kornev

Curriculum Vitae

Steklov Mathematical Institute of RAS
HSE University

Nationality: Russian
E-mail: michaelkorneff@gmail.com
Web-page: https://magisterlud.github.io
ORCID: 0009-0005-5408-3248

RESEARCH AREAS

Geometry and Topology

APPOINTMENTS

Sep. 2022 – present	Research assistant, Steklov Mathematical Institute of RAS Department of Geometry and Topology
Mar. 2026 – present	Research assistant, HSE University International Laboratory for Mirror Symmetry and Automorphic Forms
Sep. 2021 – 2025	Research assistant, HSE University Laboratory of Algebraic Topology and Applications

EDUCATION

2022 – 2026	PhD in Mathematics, Steklov Mathematical Institute of RAS Thesis successfully defended on 17 September 2026 Thesis: *n-Valued Monoids and Groups: Algebraic Theory and Topological Applications* Supervisor: Victor M. Buchstaber
Sep. 2016 – May 2022	Specialist degree in Mathematics, with honors Lomonosov Moscow State University; equivalent to a master's degree

RESEARCH PAPERS

Mathematics

Jul. 2026	Buchstaber V.M., Kornev M.I., *Algebraic n-valued groups, cubics and Wendt matrices* Sbornik: Mathematics, Volume 217, Number 8 (2026), 1101–1153 https://doi.org/10.4213/sm10344e
Apr. 2026	Kornev M.I., *Buchstaber, Ochanine, Krichever, and Witten genera* Journal of Geometry and Physics, Volume 226, Number 105855 (2026) https://doi.org/10.1016/j.geomphys.2026.105855
Jan. 2026	Buchstaber V.M., Kornev M.I. *n-Valued Monoids on $\mathbb{C}P^1$ and Discriminants* Russian Mathematical Surveys, Volume 81, Issue 1(487) (2026), 191–193 https://doi.org/10.4213/rm10280e
Jan. 2026	Kornev M.I. *On the Classification of n-Valued Monoids and Groups of Order* 3

Mat. Zametki, Volume 119, Issue 2 (2026), 244–252
https://doi.org/10.4213/mzm14803

Jan. 2024 — Kornev M.I.
n-Valued Coset Groups and Dynamics
Mathematical Notes, Volume 116, Issue 1 (2024), 66–76
https://doi.org/10.4213/mzm14243

Sep. 2023 — Kornev M.I.
Homology Spheres
Transactions of the Moscow Mathematical Society, Volume 84 (2023), 197–239
https://doi.org/10.1090/mosc/352

Mathematics and Music

Sep. 2025 — *The Technique of Musical Icosahedra*
Music Academy, no. 3, 2025, pp. 64–83
https://doi.org/10.34690/479

PREPRINTS

Oct. 2026 — Kornev M.I.
n-Valued Analogue of Abel's Theorem
arXiv:2610.14044

Sep. 2026 — Buchstaber V.M., Kornev M.I.
Logarithm of the Universal Two-Valued Formal Group
arXiv:2609.15878

Apr. 2026 — Buchstaber V.M., Kornev M.I., Rubtsov V.N.
Two-Valued Groups, Chazy Equation, Dubrovin-Frobenius Structures, and QYBE
arXiv:2604.26641

Mar. 2026 — Kornev M.I.,
Buchstaber, Ochanine, Krichever, and Witten genera
arXiv:2603.21118

Oct. 2025 — Buchstaber V.M., Kornev M.I.
Algebraic n-Valued Monoids on $\mathbb{C}P^1$, Discriminants and Projective Duality
arXiv:2510.14010

Aug. 2025 — Kornev M.I.
On the Classification of n-Valued Monoids and Groups of Order 3
arXiv:2508.04454

May 2025 — Buchstaber V.M., Kornev M.I.
n-Valued Groups, Kronecker Sums, and Wendt's Matrices
arXiv:2505.04296

Jan 2024 — Kornev M.I.
n-valued Coset Groups and Dynamics
arXiv:2401.12718

CONFERENCE TALKS

Oct. 2026	*Two-Valued Groups, Chazy Equation, Dubrovin-Frobenius Structures, and QYBE* International Conference "Integrable Systems and Quantum Theory", dedicated to the 80th anniversary of A. K. Pogrebkov, Saint Petersburg State University, Saint Petersburg, Russia
Aug. 2026	*Buchstaber Genus, Formal Groups, and Cohomology Theories* 6th Conference of Mathematical Centers of Russia, Kazan, Russia
May. 2026	*Buchstaber Genus and Formal Groups* Conference "Algebraic Topology, Group Actions, and Combinatorics," Sirius, Sochi, Russia
Aug. 2025	*n-Valued Groups, Kronecker Sums, and Wendt Matrices* joint work with Victor Buchstaber 5th Conference of Mathematical Centers of Russia, Krasnoyarsk, Russia
May 2024	*Homology Spheres, Acyclic Groups and Kan-Thurston Theorem* Conference "From Analysis to Homotopy Theory" , University of Greifswald, Greifswald, Germany
Mar. 2023	*Dynamics and multivalued groups* Conference "SIMC Youth Race", Steklov Mathematical Institute of RAS, Moscow, Russia
Oct. 2022	*Inconcretness of homotopy categories* International School "Toric topology, combinatorics and data analysis", Euler International Mathematical Institute, Saint Petersburg, Russia
Apr. 2022	*Acyclic groups and spaces* 29th International Scientific Conference for Undergraduate and Graduate Students and Young Scientists "Lomonosov", Moscow, Russia
Nov. 2021	*Acyclic groups and Kan-Thurston theorem*, International School "Toric Topology and Combinatoric", Sirius Mathematics Center, Sochi, Russia

SEMINAR TALKS

Sep. 2026	*Buchstaber, Witten, Krichever, and Ochanine Genera* (2 talks) Seminar "Automorphic Forms and Their Applications", Faculty of Mathematics, HSE University, Moscow, Russia
May 2026	*Buchstaber genus and formal groups* Seminar "Toric Topology, Combinatorics, and Homotopy Theory" jointly with the Laboratory of Topology and Complex Networks of the Faculty of Mathematics, HSE University, Moscow Center for Continuous Mathematical Education (MCCME), Moscow, Russia
Dec. 2025	*Fermat hypersurfaces, projective duality, and algebraic n-valued monoids* Seminar of the Department of Geometry and Topology "Geometry, Topology and Mathematical Physics" (Novikov Seminar), Steklov Mathematical Institute of RAS, Moscow, Russia
Dec. 2025	*Discrete and Algebraic n-Valued Groups* Seminar on Discrete Geometry and Geometry of Numbers, Moscow State University, Moscow, Russia
Nov. 2025	*n-Valued Algebraic Monoids, Cubics, and Discriminants*

	The Seminar of International Laboratory of Algebraic Topology and Its Applications, HSE University, Moscow, Russia
May 2025	*n-Valued Groups, Kronecker Sums, and Wendt Matrices* Joint work with Victor Buchstaber Seminar of the Department of Geometry and Topology "Geometry, Topology and Mathematical Physics", Steklov Mathematical Institute of RAS (Novikov Seminar), Moscow, Russia
Apr. 2023	*Acyclic groups and Kan-Thurston theorem* Seminar by I. G. Lysenok and A. L. Talambutsa "Seminar on geometric group theory", Steklov Mathematical Institute of RAS, Moscow, Russia
Dec. 2022	*Fundamental groups of homology spheres* Seminar "Geometry, Topology and their applications" at Sobolev Institute of Mathematics, Online

GRANTS AND AWARDS

Research Grants

2026 – present	Research Team Member, Russian Science Foundation Grant No. 26-11-00052, *Topology of Group Actions and Mapping Class Groups* Principal Investigator: Alexander A. Gaifullin Steklov Mathematical Institute, Russian Academy of Sciences
2023 – 2025	Research Team Member, Russian Science Foundation Grant No. 23-11-00143, *Problems of Group Actions in Topology, Geometry and Combinatorics* Principal Investigator: Victor M. Buchstaber Steklov Mathematical Institute, Russian Academy of Sciences
2022	Research Team Member, Russian Science Foundation Grant No. 22-71-00106, *Polyhedral Products in Topology, Geometry and Combinatorics* Principal Investigator: Ivan Yu. Limonchenko HSE University
2022 – 2026	Research supported by the Steklov International Mathematical Center, Steklov Mathematical Institute, Russian Academy of Sciences

Awards

2019	*Winner of the olympiad on Partial Differential Equations* Moscow State University
2018	*Winner of the olympiad on Ordinary Differential Equations* Moscow State University

STUDY SEMINAR TALKS

Texas Tech Quantum Homotopy Seminar

Dec. 2024	*An Introduction to Cartan Geometries*
Mar. 2024	*Euler-Lagrange dynamics via the* ∞*-jet bundle* (2 talks)

Seminar On Homotopy Theory and Applications at Independent University of Moscow

Dec. 2023	*Principal* ∞*-bundles*

Apr. – May 2023	*A mini-course on the ∞-category of motivic coarse spaces* (4 talks)
Apr. 2023	*Elements of unstable motivic homotopy theory*
Feb. – Apr. 2023	*A mini-course on ∞-cosmoi* (4 talks)
Dec. 2022	*Applications of Reedy theory*
Nov. 2022	*Weighted (co-)limits, Gambino's theorem, Reedy model structures*
Nov. 2022	*Homotopically final functors and examples of calculations with homotopy (co-)limits*
Nov. 2022	*Nerve—realization adjunction and bar construction*
Apr. 2022	*A series of 4 talks on sheaves of sets*
Apr. 2022	*Kan extensions. Additional topics*
Oct. 2021	*The categorical meaning of the Kan-Thurston theorem*
Jul. – Aug. 2021	*Quillen's theorem, a closed model structure on sSet*

Study And Scientific Seminar "Geometry And Topology" at Moscow State University

Sep. 2020	*Andreev's theorem on hyperbolic polyhedra*
Nov. 2019	*The intersection form of 4-manifolds*
May 2019	*Nilmanifolds and Massey product in bigraded cohomology rings*

CONFERENCES, WORKSHOPS AND SCHOOLS

Oct. 2026	*International Conference "Integrable Systems and Quantum Theory", dedicated to the 80th anniversary of A. K. Pogrebkov* Saint Petersburg State University, Saint Petersburg, Russia
Sep. 2026	*Conference "Modern Algebraic Geometry", dedicated to the 60th anniversary of Dmitri Orlov* Steklov Mathematical Institute of RAS, Moscow, Russia
Aug. 2026	*6th Conference of Mathematical Centers of Russia* Kazan Federal University, Kazan, Russia
Jul. – Aug. 2026	*International Summer Mathematical School and Conference "Algebra and Geometry"* HSE University, Steklov Mathematical Institute of RAS, Suzdal, Russia
Jul. 2026	*Summer School "Categorical Constructions in Geometry"* Centre of Pure Mathematics, Moscow Institute of Physics and Technology, Dolgoprudny, Russia
May 2026	*School "Toric Topology, Hyperbolic Geometry, and Combinatorial Group Theory"* Sirius Mathematics Center, Sochi, Russia
May 2026	*Conference "Algebraic Topology, Group Actions, and Combinatorics"* Sirius Mathematics Center, Sochi, Russia
Aug. 2025	*5th Conference of Mathematical Centers of Russia* Siberian Federal University, Krasnoyarsk, Russia
Jun. – Jul. 2025	*Summer School "Fundamental Aspects of Geometry and Topology"* Centre of Fundamental Mathematics, Moscow Institute of Physics and Technology, Dolgoprudny, Russia
Jul. 2024	*Summer School "Classical, Derived, and Condensed Geometry"*

	Centre of Fundamental Mathematics, Moscow Institute of Physics and Technology, Dolgoprudny, Russia; participation continued online
May 2024	*Conference "From Analysis to Homotopy Theory"* University of Greifswald, Greifswald, Germany
Jul. 2023	*Summer School "Algebra and Geometry"* HSE University, Steklov Mathematical Institute of RAS, Suzdal, Russia
Jul. 2023	*Summer school on non-commutative and derived geometry of matrix factorisations* Centre of Pure Mathematics, Moscow Institute of Physics and Technology, Dolgoprudny, Russia
Jun. – Jul. 2023	*Second Summer School "Algebra and Number Theory"* HSE University, Voronovo, Russia
Jun. 2023	*Conference on algebra, algebraic geometry, and number theory on the occasion of academician Igor Rostislavovich Shafarevich 100th birthday* Steklov Mathematical Institute of RAS, Moscow, Russia
Apr. 2023	*Conference "Geometry, topology and mathematical physics" on the occasion of the 85th anniversary of S. P. Novikov and the 80th anniversary of V. M. Buchstaber* Steklov Mathematical Institute of RAS, Moscow, Russia
Mar. 2023	*Conference "SIMC Youth Race"* Steklov Mathematical Institute of RAS, Moscow
Oct. 2022	*International School "Toric topology, combinatorics and data analysis"* Euler International Mathematical Institute, Saint Petersburg, Russia
Jul. 2022	*Summer School "Algebra and Geometry"* HSE University, Steklov Mathematical Institute of RAS, Suzdal, Russia
Apr. 2022	*29th International Scientific Conference for Undergraduate and Graduate Students and Young Scientists "Lomonosov"* Lomonosov Moscow State University, Moscow, Russia
Nov. 2021	*International School "Toric Topology and Combinatorics"* HSE University, Sirius Mathematics Center, Sochi, Russia
Nov. 2020	*Topology and Geometry of Group Actions* HSE University, online
Jul. 2020	*7th Summer School-Conference on Geometric Methods of Mathematical Physics* Online
Sep. 2019	*Geometry, Topology And Mathematical Physics* Landau Institute for Theoretical Physics, Lomonosov Moscow State University, Chernogolovka, Russia
Nov. 2018	*Geometry, Topology And Mathematical Physics* Landau Institute for Theoretical Physics, Lomonosov Moscow State University, Chernogolovka, Russia
Jul. 2018	*Summer school "Modern Mathematics"* HSE University, Lomonosov Moscow State University, Independent University of Moscow, Dubna, Russia
Jul. 2017	*Summer school "Modern Mathematics"* HSE University, Lomonosov Moscow State University, Independent University of Moscow, Dubna, Russia

TEACHING

May 2022 – 2024	*Teaching various courses (e. g., Algebraic Geometry, Algebraic Topology, Abstract Algebra, Differential Geometry, Linear Algebra, Probability Theory, Discrete Mathematics, Calculus, etc.) on Profi* `https://profi.ru/profile/KornevMI3/`
Sep. 2016 – 2022	*Little Mech-Math courses* An olympiad Math class at Lomonosov Moscow State University

SERVICE

June 2021 – 2024	*Co-organization of the study seminar "Homotopy Theory and Applications" at Independent University of Moscow* `https://researchseminars.org/seminar/HomotopyTheoryAndApps`

REFERENCES

Victor Buchstaber,
Steklov Mathematical Institute of RAS
`buchstab@mi-ras.ru`

LANGUAGES

Russian (native)

English (fluent)

French (intermediate)

Latin (basic)