Alexey Ananyevskiy

Curriculum Vitae, January 2025

☑ alseang@gmail.com

Employment

2022–	Heisenberg Position , Ludwig-Maximilans-Universität München, Munich Germany					
2017-2022	Deputy Director, EIMI, St. Petersburg, Russia					
2017-2022	Senior Researcher, PDMI RAS, St. Petersburg, Russia					
2017-2019	Senior Researcher, Chebyshev Laboratory at SPbU, St. Petersburg, Russia					
2015-2019	Deputy Head, Chebyshev Laboratory at SPbU, St. Petersburg, Russia					
2013-2017	Postdoc, Chebyshev Laboratory at SPbU, St. Petersburg, Russia					

2010–2013 Lecturer, Algebra Department at SPbU, St. Petersburg, Russia

Education

2010–2013	3 Ph.D. in Mathematics, SPbU, St. Petersburg, Russia			
	Thesis: "On the algebraic K-theory of some varieties and related problems"			
	Doctoral advisor: Ivan Panin			
2005–2010	Specialist in Mathematics, SPbU, St. Petersburg, Russia			
	Thesis: "Generalization of Colliot-Thélène and Sansuc theorem on principal T-bundles"			

Research visits

May – June 2022	Isaac Newton Institute,	Cambridge, UK	(online participation	due to travel restric-
	tions)			

March 2020 Isaac Newton Institute, Cambridge, UK; suspended due to the COVID-19 pandemic

October 2018 University of Oslo, Oslo, Norway

February - March 2018 University of Oslo, Oslo, Norway

January – April 2017 Mittag-Leffler Institute, Stockholm, Sweden

November 2016 Universität Osnabrück, Osnabrück, Germany

January - April 2015 Institute for Advanced Study, Princeton, USA

June 2014 Universität Duisburg-Essen, Essen, Germany

May 2013 Fields Institute, Toronto, Canada

July - August 2011 Universität Bielefeld, Bielefeld, Germany

June - July 2009 Universität Bielefeld, Bielefeld, Germany

Areas of specialization

Motivic Homotopy Theory, Algebraic K-theory, Homogeneous Varieties, Algebraic Geometry

Publications

22. Alexey Ananyevskiy, Nikita Geldhauser, *Chow rings of quasi-split geometrically almost simple algebraic groups*, https://arxiv.org/abs/2408.09390

- 21. Alexey Ananyevskiy, Marc Levine, *Combing a hedgehog over a field*, to appear in Algebra and Number Theory, https://arxiv.org/abs/2311.07486
- 20. Alexey Ananyevskiy, Elden Elmanto, Oliver Röndigs, Maria Yakerson, *On the motivic Adams conjecture*, https://arxiv.org/abs/2310.00974
- 19. Alexey Ananyevskiy, On the A¹-Euler characteristic of the variety of maximal tori in a reductive group, IMRN, 2022:19 (2022), 15390–15409, https://doi.org/10.1093/imrn/rnab156
- 18. Alexey Ananyevskiy, *Thom isomorphisms in triangulated motivic categories*, Algebraic and Geometric Topology, 21:4 (2021), 2085-2106, https://doi.org/10.2140/agt.2021.21.2085
- 17. Alexey Ananyevskiy, Grigory Garkusha, Ivan Panin, Cancellation theorem for framed motives of algebraic varieties, Advances in Mathematics, 383 (2021), 107681, http://doi.org/10.1016/j.aim.2021.107681
- 16. Alexey Ananyevskiy, *SL-oriented cohomology theories*, in *Motivic Homotopy Theory and Refined Enumerative Geometry*, Contemporary Mathematics, 745 (2020), 1-20, https://doi.org/10.1090/conm/745
- 15. Alexey Ananyevskiy, Oliver Röndigs, Paul Arne Østvær, *On very effective hermitian K-theory*, Mathematische Zeitschrift, 294 (2020), 1021-1034, https://doi.org/10.1007/s00209-019-02302-z
- 14. Alexey Ananyevskiy, Alexander Neshitov, Framed and MW-transfers for homotopy modules, Selecta Mathematica, 25:26 (2019), https://doi.org/10.1007/s00029-019-0472-0
- 13. Alexey Ananyevskiy, Andrei Druzhinin, *Rigidity for linear framed presheaves and generalized motivic cohomology theories*, Advances in Mathematics, 333 (2018), 423-462, https://doi.org/10.1016/j.aim.2018.05.013
- 12. Alexey Ananyevskiy, On the zeroth stable A¹-homotopy group of a smooth curve, Journal of Pure and Applied Algebra, 222:10 (2018), 3195-3218, https://doi.org/10.1016/j.jpaa.2017.12.001
- 11. Alexey Ananyevskiy, Marc Levine, Ivan Panin, Witt sheaves and the η -inverted sphere spectrum, Journal of Topology, 10:2 (2017), 370-385, https://doi.org/10.1112/topo.12015
- 10. Alexey Ananyevskiy, Stable operations and cooperations in derived Witt theory with rational coefficients, Annals of K-theory, 2:4 (2017), 517-560, https://doi.org/10.2140/akt.2017.2.517
 - 9. Alexey Ananyevskiy, On the zeroth stable A¹-homotopy group of a smooth projective variety, Journal of Mathematical Sciences, 222:4 (2017), 367-369 (translated from Russian), https://doi.org/10.1007/s10958-017-3306-7
 - 8. Alexey Ananyevskiy, On the push-forwards for motivic cohomology theories with invertible stable Hopf element, Manuscripta Mathematica, 150:1-2 (2016), 21-44, https://doi.org/10.1007/s00229-015-0799-6
 - 7. Alexey Ananyevskiy, On the relation of special linear algebraic cobordism to Witt groups, Homology, Homotopy and Applications, 18:1 (2016), 205-230, https://doi.org/10.4310/HHA.2016.v18.n1. a11
- 6. Alexey Ananyevskiy, *The special linear version of the projective bundle theorem*, Compositio Mathematica, 151:3 (2015), 461-501, https://doi.org/10.1112/S0010437X14007702

- Alexey Ananyevskiy, Asher Auel, Skip Garibaldi, Kirill Zainoulline, Exceptional collections of line bundles on projective homogeneous varieties, Advances in Mathematics, 236 (2013), 111-130, https://doi.org/10.1016/j.aim.2012.12.016
- Alexey Ananyevskiy, Relationship between algebraic MSL-cobordisms and derived Witt groups, Doklady Mathematics, 87:1 (2013), 76-78 (translated from Russian), http://doi.org/10.1134/ S1064562413010286
- 3. Alexey Ananyevskiy, On the algebraic K-theory of some homogeneous varieties, Documenta Mathematica, 17 (2012), 167-193, https://www.emis.de/journals/DMJDMV/vol-17/07.html
- 2. Alexey Ananyevskiy, Nikolai Vavilov, Sergey Sinchuk, Overgroups of $E(m;R)\otimes E(n;R)$. I. Levels and normalisers, St. Petersburg Mathematical Journal, 23:5 (2012), 819-849 (translated from Russian), http://doi.org/10.1090/S1061-0022-2012-01219-7
- 1. Alexey Ananyevskiy, Nikolai Vavilov, Sergey Sinchuk, On the description of overgroups of $E(m;R)\otimes E(n;R)$, Journal of Mathematical Sciences, 161:4 (2009), 461-473 (translated from Russian), https://doi.org/10.1007/s10958-009-9576-y

Selected talks

- October 22, 2024 Combing a hedgehog over a field, Algebraic geometry seminar, University of Zurich, Zurich, Switzerland
- January 15, 2024 Combing a hedgehog over a field, Algebra seminar, Charles University, Prague, Czech Republic
- November 23, 2023 Combing a hedgehog over a field, Kolloquium Geometrie und Arithmetik, Johannes Gutenberg Universität Mainz, Mainz, Germany
 - October 19, 2023 On the motivic Adams conjecture, AG seminar, Universität Regensburg, Regensburg, Germany
- September 28, 2023 Non-Vanishing Sections of Vector Bundles and Chern Classes, ESAGA seminar, Universität Duisburg–Essen, Essen, Germany
 - June 22, 2023 On the existence of non-vanishing sections of vector bundles, Séminaire d'arithmétique à Lyon, ENS de Lyon, Lyon, France
 - May 10, 2023 Non-Vanishing Sections of Algebraic Vector Bundles and Trivial Chern Classes, Colloquium of Institut für Mathematik, Universität Osnabrück, Osnabrück, Germany
- November 17, 2022 On the existence of a nowhere vanishing section for a vector bundle with trivial top Chern class, Oberseminar zur Algebra und Zahlentheorie, Universität Augsburg, Augsburg, Germany
 - October 27, 2022 On the existence of a nowhere vanishing section for a vector bundle with trivial top Chern class, seminar Motivic algebraic topology, LMU, Munich, Germany
- July 25 27, 2021 *Motivic homotopy theory and vector bundles*, summer school *Algebra and Geometry*, Yaroslavl, Russia
 - May 20, 2021 An introduction to motivic homotopy theory, Mini-workshop on Algebraic Geometry, EIMI, St. Petersburg, Russia
 - April 29, 2021 On the A¹-Euler characteristic of the variety of maximal tori, Motivic Algebraic Topology Seminar, LMU, online
 - January 12, 2021 On the A¹-Euler characteristic of the variety of maximal tori, Shafarevich Seminar, online

- September 9, 2020 On the A¹-Euler characteristic of the variety of maximal tori, Conference Motivic Geometry, CAS, Oslo, Norway (moved to online)
 - June 20, 2019 Motivic cellular structure on some homogeneous varieties, Conference Number Theory and Algebraic Geometry (In memoriam of Alexei Zykin), Independent University of Moscow, Moscow, Russia
 - May 7, 2019 *SL-oriented cohomology theories*, Conference *Algebro-geometric and homotopical methods*, Institute Mittag-Leffler, Stockholm, Sweden
- February 19, 2019 Motives of smooth algebraic varieties, Shafarevich Seminar, MI RAS, Moscow, Russia
- October 24, 2018 Non-vanishing sections of algebraic vector bundles and characteristic classes, Geometry and Topology Seminar, University of Oslo, Oslo, Norway
 - June 29, 2018 On the linear categories of motives, Workshop Motivic homotopy groups of spheres III, Technische Universität Berlin, Berlin, Germany
 - May 14, 2018 *SL-oriented cohomology theories*, Workshop *Motivic homotopy theory and refined enumerative geometry*, Universität Duisburg-Essen, Essen, Germany
 - March 6, 2018 Framed and Milnor-Witt transfers for homotopy modules, Geometry and Topology Seminar, University of Oslo, Oslo, Norway
- February 7, 2017 Rigidity for framed presheaves and motivic homotopy groups, Mittag-Leffler Seminar, Institute Mittag-Leffler, Stockholm, Sweden
- November 29, 2016 Algebraic K-theory of some homogeneous varieties, Kollegseminar, Universität Osnabrück, Osnabrück, Germany
- November 22, 2016 Rigidity for motivic stable homotopy sheaves, Topology Seminar, Universität Osnabrück, Osnabrück, Germany
 - June 24, 2016 On the zeroth stable A¹-homotopy group of a smooth curve, Workshop on motivic homotopy groups of spheres II, Universität Duisburg-Essen, Essen, Germany
 - February 3, 2016 Stable operations in derived Witt theory and motivic Serre finiteness, Workshop Algebraic Cobordism and Projective Homogeneous Varieties, Oberwolfach, Germany
- September 25, 2015 Operations in derived Witt theory, Minisymposium Motivic Homotopy Theory and its application to problems in Algebra and Algebraic Geometry, Hamburg, Germany
 - June 20, 2014 Special linear oriented cohomology theories, Workshop Oriented theories and symplectic cobordism, Universität Duisburg-Essen, Essen, Germany
- September 28, 2013 Cohomology theories with invertible Hopf element, Workshop Quantum and motivic cohomology, Fano varieties and mirror symmetry, Euler Institute, St. Petersburg, Russia
 - May 8, 2013 SL-oriented cohomology theories, Spring School and Workshop on Torsors, Motives and Cohomological Invariants, The Fields Institute for Research in Mathematical Sciences, Toronto, Canada
 - April 23, 2013 SL-oriented cohomology theories, Shafarevich Seminar, MI RAS, Moscow, Russia
- September 20, 2012 The special linear version of the projective bundle theorem, Conference Algebraic groups and related structures, Euler Institute, St. Petersburg, Russia

Grants, Fellowships and Awards

Grants

- 2023– DFG research grant AN 1545/4-1, project "Equivariant and weak orientations in the motivic homotopy theory", 226.650 euro.
- DFG Heisenberg Program, grant AN 1545/1-1, project "Motivic homotopy theory and cohomological properties of algebraic varieties", 311.400 euro.
- 2021–2022 "Basis" Foundation grant "Stable motivic homotopy theory, K-theory and generalized motivic cohomology", Principal Investigator, 1.200.000 RUB/year.
- 2020–2022 joint RSF-DFG grant 20-41-04401 "Algebraic bordism spectra: Computations, filtrations, applications", Principal Investigator on the Russian side, 6.000.000 RUB/year on the Russian side. Principal Investigator on the German side is Oliver Röndigs.
- 2014–2015 RFBR grant 14-01-31095-mol_a "Homotopical methods in algebraic geometry and derived Witt groups", Principal Investigator, 400.000 RUB/year.
- Investigator RFBR grants 19-01-00513-a, 18-31-20044-mol_a_ved, 16-01-00750-a, 15-01-(not PI) 03034-a, 13-01-00429-a, 12-01-33057-mol_a_ved, 12-01-31100-mol_a, 10-01-00551_a, RSF grant 14-11-00456

Fellowships and Awards

- 2020 Simons Foundation Fellowship to stay at Isaac Newton Institute, Cambridge
- 2018–2020 "Young Russian Mathematics" fellowship, 480.000 RUB/year
 - 2017 Fellowship to stay at Mittag-Leffler Institute, Stockholm
 - 2015 IAS fellowship to stay at Institute for Advanced Study, Princeton
- 2013–2015 Dynasty foundation fellowship for Russia's young mathematicians, 360.000 RUB/year
- 2013, 2015 Gazprom Neft prize for young mathematicians
 - 2012 Young Mathematician prize of the St. Petersburg Mathematical Society
- 2010, 2012 Rokhlin prize for St. Petersburg young mathematicians

Mentorship

2022- Egor Zolotarev, PhD student at LMU Munich

2021-2022 Tariq Syed, Postdoc at EIMI

Services to the community

Refereeing Adv. Math., Algebr. Geom. Topol., Ann. Inst. Fourier, Compos. Math., Doc. Math., IMRN, Invent. Math., Izv. Math., J. Algebra, J. Pure Appl. Algebra, Math. Proc. Cambridge Philos. Soc., Pacific J. Math., St. Petersburg Math. J., MathSciNet

Organizing Zoom Zoom seminar on \mathbb{A}^1 -topology, motives and K-theory in 2020-2022 seminar https://indico.eimi.ru/category/12/.

Organizing conferences Emerging Research in Algebraic Groups, Motives, and K-Theory, September 9-13, 2019 at EIMI, St. Petersburg, Russia. Organizers: Alexey Ananyevskiy, Anastasia Stavrova and Nikolai Vavilov.

https://sites.google.com/view/agmspb2019

Petersburg motives (dedicated to Ivan Panin's 60th birthday), September 2-6, 2019 at EIMI, St. Petersburg, Russia. Organizers: Alexey Ananyevskiy, Alexander Merkurjev and Serge Yagunov.

https://sites.google.com/view/agmspb2019

Motives in St. Petersburg 2018, September 3-14, 2018 at EIMI, St. Petersburg, Russia. Organizers: Alexey Ananyevskiy, Grigory Garkusha and Ivan Panin.

https://sites.google.com/view/mispb2018

Moscow - St. Petersburg algebraic geometry symposium for young mathematicians, May 10-11, 2018 at Chebyshev Laboratory, SPbU, St. Petersburg, Russia. Organizers: Alexey Ananyevskiy, Valery Gritsenko, Peter Zograf.

https://chebyshev.spbu.ru/en/ag2018/