Curriculum Vitae

Alex Gavryushkin

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Contacts

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Education

2009	Ph. D. in Mathematics	from Sobolev Institute of Mathematics, Novosibirsk
2006	M. S. in Mathematics	from Novosibirsk State University (with First Class Honours)
2004	B. S. in Mathematics	from Novosibirsk State University (with First Class Honours)

Professional Activity

February 2018–present	Senior Lecturer	University of Otago (NZ) Department of Computer Science
August 2016–January 2018	Research Fellow	ETH Zurich (CH) Dept Biosystems Science and Engineering
February 2012–July 2016	Research Fellow	The University of Auckland (NZ) Department of Computer Science
September 2009–December 2014	Senior Lecturer	Irkutsk State University (RF) Institute of Mathematics, Economics, and Computer Science

Awards

2017	Rutherford Discovery Fellowship (five years, Royal Society of New Zealand)
2011	Dr of Science Scholarship (three years, Government of Russia)
2009	Siberian Fund for Algebra and Logic Award (2005–2009)
2008	Award for excellence in teaching (at ACM-ICPC North-Eastern European Regional Contest)
2007	Siberian Mathematical Journal Award (from Sobolev Institute of Mathematics)
2006	Best Student Scientific Work Award (from Novosibirsk State University)
2005	Maltsev Award (from Novosibirsk State University)

Recent publications

- A. Gould, V. Zhang, L. Lamberti, E. Jones, B. Obadia, A. Gavryushkin, J. Carlson, N. Beerenwinkel, W. Ludington. High-dimensional microbiome interactions shape host fitness. *bioRxiv,* DOI 10.1101/232959, 2018.

- C. Lienkaemper, L. Lamberti, J. Drain, N. Beerenwinkel, and A. Gavryushkin. The geometry of partial fitness orders and an efficient method for detecting genetic interactions. *Journal of Mathematical Biology,* accepted. *bioRxiv,* DOI 10.1101/180976, 2018.

- K. Crona*, A. Gavryushkin*, D. Greene*, and N. Beerenwinkel. Inferring genetic interactions from comparative fitness data. *eLife,* 2017;6:e28629, DOI: 10.7554/eLife.28629, 2017. *Equal contribution, alphabetic order.

- A. Gavryushkin, C. Whidden, and F. Matsen IV. The combinatorics of discrete time-trees: theory and open problems. *Journal of Mathematical Biology,* 76, 5, 1101–1121, 2017.

- C. Zeidler, G. Weber, A. Gavryushkin, and C. Lutteroth. Tiling algebra for constraint-based layout editing. *Journal of Logical and Algebraic Methods in Programming,* Vol. 89, 67–94, 2017.

- A. Gavryushkin and A. Drummond. The space of ultrametric phylogenetic trees. *Journal of Theoretical Biology,* Vol. 403, 197–208, 2016.

- P. Gavryushkin, A. Behtenova, Z. Popov, V. Bakakin, A. Likhacheva, K. Litasov, and A. Gavryushkin. Toward analysis of structural changes common for alkaline carbonates and binary compounds: prediction of high-pressure structures of Li2CO3, Na2CO3, and K2CO3. *Crystal Growth & Design,* 16, 10, 5612–5617, 2016.

- P. Gavryushkin, Z. Popov, K. Litasov, A. Belonoshko, and A. Gavryushkin. Stability of B2-type FeS at Earth's inner core pressures. *Geophysical Research Letters,* 43, 16, 8435–8440, 2016.

- A. Gavryushkin, B. Khoussainov, M. Kokho, and J. Liu. Dynamic algorithms for multimachine interval scheduling through analysis of idle intervals. *Algorithmica,* DOI 10.1007/s00453-016-0148-5, 2016.

- T. Stadler, T. Vaughan, A. Gavryushkin, S. Guindon, D. Kühnert, G.E. Leventhal, and A. Drummond. How well can the exponential-growth coalescent approximate constant-rate birth-death population dynamics? *Proceedings of the Royal Society B: Biological Sciences,* 282, 1806, 2015.

- P. Gavryushkin, Z. Popov, K. Litasov, and A. Gavryushkin. Unbiased crystal structure prediction of NiSi under high pressure. *Journal of Applied Crystallography,* 48, 3, 906–908, 2015.

- A. Gavryushkin, B. Khoussainov, and F. Stephan. Reducibilities among equivalence relations induced by recursively enumerable structures. *Theoretical Computer Science,* Vol. 612, 137–152, 2015.
- A. Gavryushkin. Decidable models of small theories. *Lobachevskii Journal of Mathematics,* 36, 4, 446–449, 2015.
- A. Gavryushkin, B. Khoussainov, M. Kokho, and J. Liu. Dynamic algorithms for monotonic interval scheduling problem. *Theoretical Computer Science,* Vol. 562, 227–242, 2014.
- A. Gavryushkin and A. Nies. Universality for left-computably enumerable metric spaces. *Lobachevskii Journal of Mathematics,* 35, 4, 292–294, 2014.
- A. Gavryushkin, B. Khoussainov, M. Kokho, and J. Liu. Dynamic interval scheduling for multiple machines. *ISAAC 2014, Springer LNCS,* Vol. 8889, 235–246, 2014.
- A. Gavryushkin, S. Jain, B. Khoussainov, and F. Stephan. Graphs realised by r. e. equivalence relations. *Annals of Pure and Applied Logic,* 165, 7, 1263–1290, 2014.

Recent invited talks

April	2018	*Department of Biochemistry Seminar* Otago University	Seminar talk
July	2017	*SIAM Applied Algebraic Geometry* *Polyhedral and Combinatorial Biology Symposium* at Georgia Tech in Atlanta	Symposium talk
May	2017	*Interactions between Algebra and the Sciences* at Max Planck Institute in Leipzig	Workshop talk
June	2016	*Evolution Meeting* in Austin, Texas	Spotlight session talk
November	2015	*Computational Biology Group Seminar* at ETH—Zurich	Seminar talk
February	2015	*Matsen Group Seminar* at Fred Hutchinson Cancer Research Centre	Seminar talk
February	2015	*Workshop on Networks of Life* at the University of Canterbury	Workshop talk

Grants

2018–2023	Principal Investigator and Coordinator of a Rutherford Discovery Fellowship from the Royal Society of New Zealand Contract #RDF-17-UOO-007 for NZ$ 800,000 (GST exclusive)
2012–2013	Associate Investigator of an FRDF grant from the University of Auckland Contract # 2795185 for NZ$ 200,000
2011–2013	Principal Investigator and Coordinator of a Russian Government Grant Contract # 16.740.11.0567 for US$ 50,000
2010–2012	Principal Investigator and Coordinator of a Russian Government Grant Contract # Π1227 for US$ 65,000

Students

2018–present	Kieran Elmes	Project	University of Otago
2017–present	Lena Collienne	Master	University of Greifswald
2015–2016	Lena Collienne	Intern	The University of Auckland (University of Greifswald)
2015–2016	Edwardo Reynolds	Intern	The University of Auckland

Recent teaching

2017–2017	ETH Zurich	Systems Genomics (636-0101-00L)
2012–2014	The University of Auckland	Discrete Structures in Math and CS (CompSci 225)
2013–2014	Auckland U of Technology	Engineering Mathematics I and II (715001/716001)
2013–2013	Auckland U of Technology	Finite Mathematics (715205)
2012–2012	Auckland U of Technology	Theory of Computation (717300)
2012–2012	The University of Auckland	Software Engineering Theory (SoftEng 211)

Professional Affiliation

2016	Society of Systematic Biologists	Member
2016	The Geological Society of America	Member

Service to Department and University

2013	Auckland–Novosibirsk Workshop on Algebra, Logic, Geometry, and Combinatorics	Co-Chair of the Program Committee
2009	Maltsev Meeting	Organizing Committee
2007	Mathematics in the Modern World	Organizing Committee
2007	Domains VIII and Computability Over Continuous Data Types	Organizing Committee
2005	Asian Logic Conference	Organizing Committee

I am a regular reviewer for *AMS Mathematical Reviews*. I recently acted as a referee for:

- *Genome Biology and Evolution*
- *Systematic Biology*
- *Journal of Mathematical Biology*
- *Discrete Applied Mathematics*
- *LICS Symposium*
- *Algebra and Logic*

Up-to-date CV: http://lab.gavruskin.com/alex/AGcv_short.pdf