Alexander GLAZMAN

Curriculum Vitæ

Department of Mathematics
Faculty of Mathematics, Computer Science and Physics
University of Innsbruck
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Main areas of research

Probability theory and mathematical physics, in particular: phase transitions in lattice models, conformal invariance, Schramm–Loewner Evolution, Gaussian Free Field, random height functions. Examples of models: Loop O(n), Fortuin–Kateleyn percolation, six-vertex (ice model), Ashkin–Teller, Ising, Self-Avoiding Walk (polymer model).

Education

2016 **Ph.D**, *University of Geneva*, Switzerland.

Advisor: Stanislav Smirnov,

Title: Properties of self-avoiding walks and a stress-energy tensor in the O(n) model

2015 **Cand. Sci. Phys. Mat.**, *St Petersburg Department of Steklov Institute*, Russia.

Advisor: Dmitry Karpov, Title: Generalized flowers in k-connected graphs

2011 **Diploma of Mathematician**, *St Petersburg State University*, Russia.

Academic employment

2022–curent **Assistant Professor**, *University of Innsbruck*.

2020–22 **Postdoc**, *University of Vienna*.

2019–20 **Postdoc**, *University of Fribourg*.

2016–19 **Postdoc**, *Tel Aviv University*.

06–08/2016 **Postdoc**, *University of Geneva*.

01–08/2012 **Researcher**, *Chebyshev Laboratory, St. Petersburg*.

Research achievements

2021–24 **PI**, *Order–disorder phase transition in 2D lattice models*, Austrian Science fund, €399,577, University of Vienna, Austria.

2018–20 **PI**, *Combinatorial approach to critical 2D lattice models*, Swiss National Science Foundation, CHF 123,307, Tel Aviv University, Israel and University of Fribourg, Switzerland.

2016–18 **PI**, *Observables in lattice models*, Swiss National Science Foundation, CHF 67,200, Tel Aviv University, Israel.

2014 **Founder of** *Club de Math*, Outreach project in Geneva, Switzerland.

2006 **Silver medal** *on the International Mathematical Olympiad.*

Supervision experience

from 10/2021 **Kieran Ryan**, *Postdoc*, University of Vienna

from 10/2021 **Moritz Dober**, *PhD student*, University of Vienna

2020 **Emmanuel Michta** (Federal University of Toulouse Midi–Pyrénées), *internship*, University of Vienna

Publications/Preprints

Link to all published publications: https://www.uibk.ac.at/mathematik/personal/glazman/

1. A. Glazman, I. Manolescu, Structure of Gibbs measures of planar FK-percolation and Potts model (2021),
   arXiv:2106.02403

2. with N. Crawford, A. Glazman, M. Harel, R. Peled, Macroscopic loops in the loop O(n) model via the XOR trick (2020), arXiv:2001.11977

3. A. Glazman, R. Peled, On the transition between the disordered and antiferroelectric phases of the 6-vertex model (2019), arXiv:1909.03436

4. A. Glazman, I. Manolescu, Exponential decay in the loop $O(n)$ model: $n > 1, x < \frac{1}{\sqrt{3}} + \varepsilon(n)$.
   In and Out of Equilibrium 3: Celebrating Vladas Sidoravicius, (2021), doi:10.1007/978-3-030-60754-8_21

5. A. Glazman, I. Manolescu, Uniform Lipschitz functions on the triangular lattice have logarithmic variations.
   Comm. Math. Phys. (CMP), 381 (2021), doi:10.1007/s00220-020-03920-z

6. A. Glazman, I. Manolescu, Self-avoiding walk on $\mathbb{Z}^2$ with Yang–Baxter weights: universality of critical fugacity and 2-point function. *Ann. Ins. Henri Poincaré (AIHP)*, 56 (2020), doi:10.1214/19-AIHP1024

7. H. Duminil-Copin, A. Glazman, R. Peled and Y. Spinka, Macroscopic loops in the loop $O(n)$ model at Nienhuis' critical point, *J. Eur. Math. Soc. (JEMS)*, 23 (2021), doi:10.4171/JEMS/1012

8. D. Chelkak, A. Glazman, S. Smirnov, Discrete stress-energy tensor as a new observable for $O(n)$ model, 2016. arXiv:1604.06339

9. H. Duminil-Copin, A. Glazman, A. Hammond and I. Manolescu, On the probability that self-avoiding walk ends at a given point. *Ann. Prob. (AOP)*, 44 (2016), doi:10.1214/14-AOP993

10. A. Glazman, Connective constant for a weighted self-avoiding walk on $\mathbb{Z}^2$. *Electr. Comm. Prob. (ECP)*, 20 (2015), doi:10.1214/ECP.v20-3844

11. A. Glazman, Generalized flowers in k-connected graphs. Part II.
    Zapiski Nauchnykh Seminarov POMI, 417 (2013) translation in J. Math. Sci. (N.Y.), 204 (2015)
    doi:10.1007/s10958-014-2197-0

12. A. Glazman, A. Sivatski, D. Stolyarov and P. Zatitski, Forms of higher degree over certain fields.
    Zapiski Nauchnykh Seminarov POMI, 394 (2011) translation in J. Math. Sci. (N.Y.), 188 (2013)
    translation in J. Math. Sci. (N.Y.)

13. A. Glazman, Generalized flowers in k-connected graphs.
    Zapiski Nauchnykh Seminarov POMI, 391 (2011) translation in J. Math. Sci. (N.Y.), 184 (2012)
    doi:10.1007/s10958-012-0883-3

Conference talks:

Jul 2022   "Random-cluster and Ashkin-Teller models ", Grenoble, France

Nov 2019   "Six-vertex and Ashkin-Teller models: order/disorder phase transition", Banff, Canada

Sep 2019   "Six-vertex and Ashkin-Teller models: order/disorder phase transition", Fribourg, Switzerland

Feb 2019   "Six-vertex and Ashkin-Teller models: order/disorder phase transition", Les Diablerets, Switzerland

Jan 2018   "Phase transition in the loop $O(n)$ model", Oberwolfach, Germany

July 2017   "Phase transition in the loop $O(n)$ model", IMPA, Brazil

May 2017   "Macroscopic loops in the critical loop $O(n)$ model", Weizmann institute, Israel

Jul 2015   "Discrete stress tensor as a new observable for the $O(n)$ model", Oxford, England

Feb 2015   "Discrete stress tensor as a new observable for the $O(n)$ model", Les Diablerets, Switzerland

Jun 2014   "Observables for O(n) model on the honeycomb lattice. New game", Bath, England

Feb 2013   "Connective constant for a weighted self-avoiding walk on $\mathbb{Z}^2$", Stony Brook, USA

Sep 2011   "Generalized flowers in k-connected graphs", St Petersburg, Russia

Seminar talks:

Jan 2021   "Macroscopic loops in the loop $O(n)$ model", University of Geneva

Sep 2020   "Order–disorder phase transition in two dimensions", Budapest–Vienna seminar

Mar 2019   "Probabilistic approach to phase transition in lattice models", Lund University, Sweden

Mar 2019   "Probabilistic approach to phase transition in lattice models", University of Copenhagen, Denmark

Mar 2019   "Height functions on the square lattice: fluctuations, Gibbs states, and links to other models of statistical mechanics", Tel Aviv University, Israel

Sep 2018   "Logarithmic variance of random Lipschitz functions", Bar-Ilan University, Israel

Sep 2018	"Random Lipschitz functions and 6-vertex model via spin representations", University of Geneva, Switzerland
Jan 2018	"Level lines of random Lipschitz functions", Weizmann Institute, Israel
Oct 2017	"Phase transition in the loop $O(n)$ model", IHES, France
Sep 2017	"Phase transition in the loop $O(n)$ model", EPFL, Switzerland
Sep 2017	"Phase transition in the loop $O(n)$ model", University of Geneva, Switzerland
Mar 2016	"Properties of integrable self-avoiding walks", Technion, Israel
Mar 2016	"Properties of integrable self-avoiding walks", Tel-Aviv University, Israel
May 2015	"Self-avoiding walk : classical results, recent progress and many questions", IMPAN, Warsaw, Poland
Mar 2015	"Generalized flowers in k-connected graphs", PDMI, St Petersburg, Russia
Nov 2013	"Observables for O(n) model on the honeycomb lattice. New game", Helsinki, Finland
Nov 2013	"Observables for O(n) model on the honeycomb lattice. New game", Geneva, Switzerland
Mar 2013	"Connective constant for a weighted self-avoiding walk on $\mathbb{Z}^2$", Geneva, Switzerland
Jan 2013	"What is the critical temperature", Chebyshev Lab, St Petersburg, Russia

Teaching experience and outreach

2021-2022	University of Vienna:
	- Measure theory (course for master students, instructor)
	St. Petersburg State University:
	- Online course on statistical mechanics (graduate course, instructor)
2020-2021	University of Vienna:
	- Advanced Probability (course for master students, instructor)
	- Complex Analysis (2nd year students, teaching assistant (TA))
2019	University of Tel Aviv:
	- Modern topics in Probability (advanced course)
2011-2016	University of Geneva:
	- Advanced course on Quantum mechanics (master students, TA)
	- Probability 2 : measure theory, random variables (2nd year students, TA)
	- Algebra I : basic algebraic structures (1st year students, TA)
	- Mathématiques générale : program R, mathematics and statistics for students from other faculties (1st year students, TA)
2013-16	Founder of an outreach activity "Club de Math", unige.ch/math/clubmath, in Geneva for middle-school students. Teacher and organiser of three open mathematical olympiads.

2010   St. Petersburg State University:

  -     Discrete mathematics (bachelor students, TA)

2007-14   Advanced classes to middle- and high-school students in Russia (St. Petersburg, Kirov, Izhevsk) and Kazakhstan

Reviewing activity:

Annals of Probability (AOP), Communications in Mathematical Physics (CMP), Electronic Journal of Probability (EJP), Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques (AIHP), Discrete Mathematics.

Institutional responsibilities

2015-16   Organising a seminar on the Probability Theory and Mathematical Physics at the university of Geneva

2014-16   Organising a reading group for junior researchers on different aspects of the Probability Theory

Languages

fluent   English, Russian (native), French

intermediate   German (B2)

basic   Hebrew