

Duncan Dauvergne

CONTACT INFORMATION	Department of Mathematics University of Toronto 40 St. George Street, Toronto, Ontario Toronto, ON, Canada M5S2E4 duncan.dauvergne@utoronto.ca
EDUCATION	University of Toronto , Toronto, ON Canada Ph.D., Mathematics 2015-2019 Thesis: Random sorting networks, the directed landscape, and random polynomials Supervisor: Bálint Virág M.Sc., Mathematics 2014-2015 Research Topic: D -spaces and the Lindelöf- D problem Supervisor: William Weiss University of British Columbia , Vancouver, BC Canada B.Sc., Honours Mathematics 2010-2014
EMPLOYMENT	Assistant Professor 08/2021-present University of Toronto - Mississauga, Department of Mathematical and Computational Sciences Postdoctoral Fellow (Instructor) 09/2019-07/2021 Princeton University Department of Mathematics – Held concurrently with an NSERC postdoctoral fellowship
RESEARCH INTERESTS	Probability, combinatorial probability, last passage percolation, KPZ universality, interacting particle systems and spread of infection models, sorting networks, random polynomials, potential theory, random constraint satisfaction
PUBLICATIONS	<ol style="list-style-type: none">1. Dauvergne, D. The Archimedean limit of random sorting networks. 61 pp. https://arxiv.org/abs/1802.08934. To appear in <i>Journal of the American Mathematical Society</i>.2. Dauvergne, D., Ortmann, J. and Virág, B. (2021+). The directed landscape. 74 pp. https://arxiv.org/abs/1812.00309. To appear in <i>Acta Mathematica</i>.3. Dauvergne, D. (2021+). Hidden invariance of last passage percolation and directed polymers. 45 pp. https://arxiv.org/abs/2002.09459. To appear in <i>Annals of Probability</i>.4. Dauvergne, D. (2021). A necessary and sufficient condition for global convergence of the zeros of random polynomials. <i>Advances in Mathematics</i>, 384, article 107691.5. Dauvergne, D. and Virág, B. (2021). Bulk properties of the Airy line ensemble. https://arxiv.org/abs/1812.00311. <i>Annals of Probability</i>, 49(4), 1738-1777.6. Dauvergne, D. and Virág, B. (2020). Circular support in random sorting networks. <i>Transactions of the American Mathematical Society</i>, 373, 1529-1553.7. Bloom, T. and Dauvergne D. (2019). Asymptotic zero distribution of random orthogonal polynomials. <i>Annals of Probability</i>, 47(5), 3202-3230.

8. Angel, O., Dauvergne, D., Holroyd, A.E., and Virág, B. (2019). The local limit of random sorting networks, *Annales de l'Institut Henri Poincaré, Probabilités et Statistiques*, 55(1), 412-440.
9. Dauvergne, D. (2016). Not every transitively D-space is D. *Topology and its Applications*, 209, 115-119.
10. Dauvergne, D. and Edelstein-Keshet, L. (2015). Application of quasi-steady state methods to molecular motor transport on microtubules in fungal hyphae. *Journal of Theoretical Biology*, 379, 47-58.

ELECTRONIC
PREPRINTS

1. Dauvergne, D., Nica, M., and Virág, B. RSK in last passage percolation: a unified approach. 48 pp. <https://arxiv.org/pdf/2106.09836>.
2. Dauvergne, D. Last passage isometries for the directed landscape. 26 pp. <https://arxiv.org/pdf/2106.07566>.
3. Dauvergne, D., and Sly, A. Spread of infections in a heterogeneous moving population. 55 pp. <https://arxiv.org/pdf/2105.11947>.
4. Dauvergne, D. and Virág, B. The scaling limit of the longest increasing subsequence. 109 pp. <https://arxiv.org/abs/2104.08210>.
5. Dauvergne, D. and Zhang, L. Disjoint optimizers and the directed landscape. 81 pp. <https://arxiv.org/abs/2102.00954>.
6. Dauvergne, D., Sarkar, S., and Virág, B. Three-halves variation of geodesics in the directed landscape. 40 pp. <https://arxiv.org/abs/2010.12994>.
7. Dauvergne, D., Nica, M., and Virág, B. Uniform convergence to the Airy line ensemble. 48 pp. <https://arxiv.org/abs/1907.10160>.

AWARDS

- Annales de l'Institut Henri Poincaré, Probabilités et Statistiques best paper prize for the period 2018-2019 2020
– Awarded for the paper ‘The local limit of random sorting networks’
- Princeton University Department of Mathematics Teaching Award 2020
- Canadian Mathematical Society Doctoral Prize 2020
- University of Toronto Malcolm Slingsby Robertson Prize 2019

SCHOLARSHIPS
AND FELLOWSHIPS

- NSERC Postdoctoral Fellowship (\$90,000/ 2 yrs) 2019
- NSERC Canada Graduate Scholarship (\$105,000/ 3 yrs) 2016
- University of Toronto J.R.G. Smyth Mathematics Scholarship (\$4,294/ 1 yr) 2015
- University of Toronto Alumni and Friends Graduate Scholarship (\$7,000/ 1 yr) 2015
- NSERC Undergraduate Student Research Award (USRA) (\$5,740/ 4 mths) 2014
- Various UBC undergraduate entrance and in-course performance scholarships (total \$23,500) 2010-2014

TALKS GIVEN

Invited talks:

- *The directed landscape* (Online) Jul 2021
Mathematical Congress of the Americas, Special Session on Interacting Stochastic Systems
- *The directed landscape* (Online) Jun 2021
Cambridge Probability Seminar
- *The directed landscape* (Online) Jun 2021
UC San Diego probability seminar
- *The directed landscape* (Online) Jun 2021
Vienna Probability Seminar
- *Infections in a sea of random walks* (Online) May 2021
Higher School of Economics Undergraduate Research Award Ceremony, Moscow
- *Infections in a sea of random walks* (Online) May 2021
Columbia-Princeton Probability Day, Columbia University
- *The directed landscape* (Online) Apr 2021
MIT Probability Seminar
- *The Archimedean limit of random sorting networks* (Online) Apr 2021
Measure Theory Seminar, Kent State University
- *Learning from the directed landscape* (Online) Mar 2021
Stochastic Spatial Processes Conference, Ohio State University
- *Learning from the directed landscape* (Online) Mar 2021
Probability Seminar, University of Waterloo
- *Learning from the directed landscape* (Online) Mar 2021
Probability Seminar, University of Kansas
- *Learning from the directed landscape* (Online) Feb 2021
Probability and the City Seminar
- *The Archimidean limit of random sorting networks* (Online) Feb 2021
Séminaire Francilien de Géométrie Algorithmique et Combinatoire
- *The Archimidean limit of random sorting networks* (Online) Feb 2021
Probability Seminar, University of Bristol
- *Building the directed landscape* (Online) Feb 2021
One World Probability Seminar
- *Geodesics in the directed landscape* (Online) Dec 2020
Joint Israeli Probabability Seminar
- *Canadian Mathematical Society Doctoral Prize Lecture* (Online) Dec 2020
Canadian Mathematical Society Winter Meeting
- *Hidden invariance of last passage percolation* (Online) Nov 2020
Probability Seminar, UC Berkeley
- *The Archimidean limit of random sorting networks* (Online) Oct 2020
Geometric and Functional Analysis Seminar, University of Helsinki
- *The scaling limit of the longest increasing subsequence* (Online) Sep 2020
'Permutations in Probability' workshop, BIRS
- *The Airy sheet* (Online) Jun 2020
Open Online Probability School, University of British Columbia
- *The directed landscape* Jan 2020
Probability Seminar, University of Virginia
- *The directed landscape* Oct 2019
CRM-ISM Probability Seminar, McGill University
- *The directed landscape* Oct 2019
AMS Fall Eastern Sectional Meeting, Binghamton University
- *The directed landscape* Sep 2019
AMS Fall Central Sectional Meeting, UW Madison
- *Zeros of random polynomials* Aug 2019

- ‘Zeros of random polynomials’ workshop, American Institute of Mathematics
- *The directed landscape* May 2019
Probability Theory Seminar, UW Madison
- *The directed landscape* Apr 2019
Probability Seminar, University of Utah
- *The Archimedean limit of random sorting networks* Mar 2019
‘Asymptotic Algebraic Combinatorics’ workshop, BIRS
- *The directed landscape* Feb 2019
Probability Seminar, University of Michigan
- *Asymptotic zero distribution of random polynomials* Feb 2019
Penn-Temple Probability Seminar, University of Pennsylvania
- *The Archimedean Limit of Random Sorting Networks* Nov 2018
Probability Seminar, New York University
- *The Archimedean limit of random sorting networks* Oct 2018
Probability Seminar, Indiana University
- *Asymptotic zero distribution of random polynomials* Oct 2018
Midwestern Workshop on Asymptotic Analysis, Indiana University
- *The Archimedean limit of random sorting networks* Sep 2018
Departmental Colloquium, University of Toronto
- *The Archimedean Limit of Random Sorting Networks* May 2018
Probability Seminar, Cornell University
- *The Global Limit of Random Sorting Networks* Feb 2018
Probability Seminar, University of British Columbia
- *The Global Limit of Random Sorting Networks* Oct 2017
Combinatorics Seminar, MIT
- *The Local Limit of Random Sorting Networks* Apr 2017
Probability Theory Seminar, UW Madison

Seminar talks:

- *Hidden invariance of last passage percolation* (Online) Oct 2020
Princeton Probability Seminar
- *The directed landscape* Sep 2019
Princeton Probability Seminar
- *Universality for zeros of random polynomials* Jan 2018
Probability Seminar, University of Toronto
- *The Global Limit of Random Sorting Networks* Nov 2017
Probability Seminar, Alfred Rényi Institute
- *Local Properties of Random Sorting Networks* Mar 2017
Probability Theory Seminar, University of Toronto, Toronto, ON
- *Energy in permuton processes* Nov 2016
Probability Seminar, Alfred Rényi Institute

TEACHING
EXPERIENCE

- **Course Instructor and Coordinator, Princeton University**
 - MAT 104 - Calculus II Spring 2021
 - MAT 104 - Calculus II (Course coordinator) Fall 2020
 - MAT 202 - Linear Algebra and Applications Spring 2020
 - MAT 202 - Linear Algebra and Applications Fall 2019
- **Course Instructor and Coordinator, University of Toronto St. George**
 - MAT 137 - Calculus! (Course coordinator) Summer 2018
 - MAT 223 - Linear Algebra I Winter 2018

- **Teaching Assistant, University of Toronto St. George** 2014-2018
 - MAT 1601 (Graduate Probability II) Winter 2019
 - MAT 1600 (Graduate Probability I) Fall 2018
 - MAT 292 (Introductory ODEs) Fall 2017
 - MAT 224 (Linear Algebra II) Summer 2017
 - MAT 337 (Analysis), MAT475 (Problem Solving Seminar) Winter 2017
 - MAT 344 (Combinatorics) Fall 2016
 - MAT 237 (Multivariable Calculus) Summer 2016
 - MAT 334 (Complex Variables), MAT 223 (Linear Algebra I) Winter 2016
 - MAT 309 (Mathematical Logic) Fall 2015
 - MAT 235 (Multivariable Calculus) Summer 2015
 - MAT 136 (Calculus II) Winter 2015
 - MAT 135 (Calculus I) Fall 2014
- **Teaching Assistant, University of Toronto Scarborough** Summer 2015
 - MAT A36 (Integral Calculus)
- **Teaching Assistant, University of British Columbia** 2012-2013
 - MAT 217 (Introductory ODEs) Summer 2013
 - MAT 200 (Multivariable Calculus) Summer 2012

UNDERGRADUATE
SUPERVISION

- Yuxi Zheng (Undergraduate summer research program, Summer 2021)
- Vydhourie Thiyageswaran (Undergraduate senior thesis student, 2020-2021)
- George Bentley (Undergraduate summer research program, Summer 2020)

SERVICE

- Organizer, Princeton Topics in Probability Sesminar 2019-2020
- Referee for Journal of the European Mathematical Society, Transactions of the American Mathematical Society, Astérisque, Communications in Mathematical Physics, Annals of Probability, Probability Theory and Related Fields, Annals of Applied Probability, Electronic Journal of Probability, Electronic Communications in Probability, Probability and Mathematical Physics, ALEA - Latin American Journal of Probability and Mathematical Statistics, Journal of Applied Probability, Advances in Applied Probability