

Tomas Berggren, PhD
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EMPLOYMENT

Postdoc, August 2024 - Present,
Royal Institute of Technology (KTH), Department of Mathematics, Stockholm, Sweden.

Postdoctoral Associate, February 2024 - June 2024,
Massachusetts Institute of Technology, Department of Mathematics, Cambridge, MA.

Postdoctoral Fellow, February 2022 - January 2024,
Massachusetts Institute of Technology, Department of Mathematics, Cambridge, MA.

James Van Loo Postdoctoral Fellow and Assistant Professor, September 2020 - December 2021,
University of Michigan, Department of Mathematics, Ann Arbor, MI.

EDUCATION

Doctoral Programme in Mathematics, September 2015 - July 2020
Royal Institute of Technology (KTH), Stockholm, Sweden.
Supervisor: Professor Maurice Duits.
Dissertation: On determinantal point processes and random tilings with doubly periodic weights.

Master's Programme in Mathematics, January 2014 - June 2015,
Stockholm University, Stockholm, Sweden,

Bachelor's Programme in Mathematics, August 2010 - December 2012,
Lund University, Lund, Sweden.

JAM - Juggling And Music, February - May 2009,
University of Dance and Circus, Stockholm, Sweden.

The Art Programme - Circus, August 2004 - May 2007,
S:t Botvids Upper Secondary School, Stockholm, Sweden.

PUBLICATIONS

Preprints

T. Berggren, M. Nicoletti and M. Russkikh. Perfect t-embeddings and lozenge tilings, *arXiv preprint*, 2024. arXiv: 2408.05441 [math.PR].

T. Berggren and A. Borodin. Geometry of the doubly periodic Aztec dimer model, *arXiv preprint*, 2023. arXiv: 2306.07482 [math.PR].

Published

T. Berggren, M. Nicoletti and M. Russkikh. Perfect t-embeddings of uniformly weighted Aztec diamonds and tower graphs, *Int. Math. Res. Not. IMRN*, (7):5963–6007, 2024.

T. Berggren. Domino tilings of the Aztec diamond with doubly periodic weightings, *Ann. Probab.*, 49(4):1965-2011, 2021.

T. Berggren and M. Duits. Correlation functions for determinantal processes defined by infinite block Toeplitz minors, *Adv. Math.*, 356:106766, 48, 2019.

T. Berggren and M. Duits. Mesoscopic fluctuations for the thinned Circular Unitary Ensemble, *Math. Phys. Anal. Geom.*, 20(3):No. 19, 40 pp, 2017.

INVITED TALKS**Seminar talks**

- Probability Seminar*, MIT, Boston, 2024.
Informal Mathematical Physics Seminar, Columbia University, New York, 2024.
CMSA Probability Seminar, Harvard, Boston, 2024.
Penn/Temple Probability Seminar, UPenn, Philadelphia, 2024.
Colloquium, UMass Boston, Boston, 2023.
LA Probability Forum, UCLA, Los Angeles, 2022.
Probability Seminar, Cornell University, Ithaca, 2022.
MIT Integrable Probability Seminar, MIT, Cambridge, 2022.
Probability seminar, Durham University, Durham, online, 2021.
Classical analysis seminar, KU Leuven, Leuven, 2020.
Swedish Mathematical Society (SMS) autumn meeting, KTH, Stockholm, 2019.
Probability seminar, University of Wisconsin-Madison, Madison, 2019.
Integrable Systems and Random Matrix Theory seminar, University of Michigan, Ann Arbor, 2019.
Integrable Probability seminar, MIT, Boston, 2019.
Random Matrix Seminar, KTH, Stockholm, 2019.
Classical analysis seminar, KU Leuven, Leuven, 2018.
Random Matrix Seminar, KTH, Stockholm, 2018.
Random Matrix Seminar, KTH, Stockholm, 2017.
Stockholm Mathematics Centre (SMC) pre-colloquium, Albanova, Stockholm, 2017.

Conference talks

- Random Matrices and Scaling Limits*, Institute Mittag-Leffler, Stockholm, 2024.
Workshop I: Statistical Mechanics and Discrete Geometry, IPAM, LA, 2024.
Geometry, Statistical Mechanics, and Integrability Tutorials, IPAM, LA, 2024.
Riemann-Hilbert problems, Toeplitz matrices, and applications, AIM workshop, Pasadena, 2024.
Dimers2023: DIMERS ANR final conference, Paris, 2023.
Discretization in Geometry and Dynamics, Magdeburg, 2022.
Gaussian Fields in Random Matrix Theory, Institute Mittag-Leffler, Stockholm, 2018.

ADDITIONAL RESEARCH PRESENTATIONS

Presentation on the Presentation Session,
 Connections and Introductory Workshop: Universality and Integrability in Random Matrix Theory
 and Interacting Particle Systems, Part 2,
 September 2021, MSRI, online.

Presented a poster,
 XV Brunel–Bielefeld Workshop on Random Matrix Theory and Applications,
 December 2019, ZiF, Bielefeld University.

Presented a poster,
 XIV Brunel–Bielefeld Workshop on Random Matrix Theory and Applications,
 December 2018, Brunel University, London.

Presented a poster,
 XI Brunel–Bielefeld Workshop on Random Matrix Theory and Applications,
 December 2015, ZiF, Bielefeld University.

TEACHING EXPERIENCE

Instructor, Royal Institute of Technology (KTH), Stockholm, Sweden, August 2024 - October 2024.
SF1689 – Basic Course in Mathematics.

Instructor, University of Michigan, Ann Arbor, September 2020 - December 2021.
Math 116 – Calculus II, Math 525 – Probability theory.

TA, Royal Institute of Technology, Stockholm, September 2015 - July 2020.
Linear Algebra, Analysis in one variable, Multivariable Calculus, Complex analysis.

TA, Stockholm University, Stockholm, August 2014 - July 2015.
Mathematics 1, Optimization, Foundations of Mathematical Analysis.

TA, Lund University, Lund, August 2011 - January 2014.
Analysis 1, Algebra 1, Linear Algebra, Analysis in Several Variables.

ACADEMIC SERVICE

Referee appointments, 2022 - Present
Ann. Inst. Henri Poincaré D, Ann. Probab, Comm. Math. Phys., Indag. Math. (N.S.).

Co-Organizer, Probability seminar, MIT, September 2023 - June 2024.

Co-Organizer, Graduate student seminar in mathematics, KTH, September 2018 - June 2019.

AWARDS & HONORS

Stockholm Mathematics Centre Prize for Excellent Doctoral Dissertation 2019/2020.

Postdoctoral fellowship, provided by the Knut and Alice Wallenberg Foundation via the program for mathematics 2020. Financing a four-year postdoc position, two years at MIT and two years upon returning to Sweden, with start 2022.

Teacher assistant of the year, provided by the student board of the Physics chapter, KTH, 2017.

Mittag-Leffler Prize for Master Thesis in mathematics at Stockholm University, 2014/2015.

The Fremberg reward, provided by Lund Mathematical Society to the best first year student at Centre for Mathematical Sciences at Lund University, 2010/2011.

ADDITIONAL PROFESSIONAL EXPERIENCE

Tutor in mathematics, My Academy,
Stockholm, February 2014 - Maj 2014

Group leader/Coach/Member recruiter for member recruiters, Amnesty International,
Stockholm, August - November 2007, Mars - July 2008, February - July 2009

Actor / Acrobat, Byteatern - Kalmar County Theater,
Kalmar, August - December 2008

Pair acrobat, Ölands Summer Theater,
Öland, June - August 2005

LANGUAGES

English (fluent), Swedish (native)