Curriculum Vitae

Person

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Employment

01/2021 – present:	**Marie Skłodowska-Curie Global Postdoctoral Fellow** Outgoing phase: Courant Institute of New York University Host: Prof. Dr. Paul Bourgade Incoming phase: University of Geneva Host: Prof. Dr. Antti Knowles
09/2018 – 12/2020:	**Postdoctoral researcher** at University of Geneva Advisor: Prof. Dr. Antti Knowles
09/2014 – 08/2018:	**Doctoral student** at Institute of Science and Technology Austria Supervisor: Prof. László Erdős, PhD

University Education

08/2018:	**PhD in Mathematics** from Institute of Science and Technology Austria Title: *Dyson equation and eigenvalue statistics of random matrices*
09/2014:	**Master of Science Mathematics** from Ludwig-Maximilians university Munich Carathéodory prize for outstanding master thesis in Mathematics
09/2012:	**Bachelor of Science Mathematics** from Saarland university
09/2012:	**Bachelor of Science Physics** from Saarland university

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Honors and Prizes

- Research Membership at MSRI during the fall program 2021 (March 2021)
- Marie Skłodowska-Curie Global Postdoctoral Fellowship (February 2020)
- Carathéodory prize of Ludwig-Maximilians university Munich for outstanding master thesis in Mathematics (July 2015)

Research Interests

- Random Matrices, Random Graphs
- Probability theory
- Mathematical physics
- Functional analysis

Publications

[14] *The completely delocalized region of the Erdős-Rényi graph*, Electron. Commun. Probab. **27**, paper no. 10, 9 pp., arXiv:2109.03227, with *R. Ducatez* and *A. Knowles*.

[13] *Poisson statistics and localization at the spectral edge of sparse Erdős–Rényi graphs*, submitted, 2021, 79 pp., arXiv:2106.12519 with *R. Ducatez* and *A. Knowles*.

[12] *Local elliptic law*, Bernoulli **28** (2022), no. 2, 886–909, arXiv:2102.03335, with *T. Krüger*.

[11] *Delocalization transition for critical Erdős-Rényi graphs*, Comm. Math. Phys. **388** (2021), no. 1, 507–579, arXiv:2005.14180, with *R. Ducatez* and *A. Knowles*.

[10] *Inhomogeneous Circular Law for Correlated Matrices*, J. Funct. Anal. **281** (2021), no. 7, 109120, 73 pp., arXiv:2005.13533, with *T. Krüger*.

[9] *Spectral radius of random matrices with independent entries*, Probab. Math. Phys. **2** (2021), no. 2, 221–280, arXiv:1907.13631, with *L. Erdős* and *T. Krüger*.

[8] *Extremal eigenvalues of critical Erdős-Rényi graphs*, Ann. Probab. **49** (2021), no. 3, 1347–1401, arXiv:1905.03243, with *R. Ducatez* and *A. Knowles*.

[7] *The Dyson equation with linear self-energy: spectral bands, edges and cusps*, Doc. Math. **25** (2020), 1421–1539, arXiv:1804.07752, with *L. Erdős* and *T. Krüger*.

[6] *Correlated random matrices: Band rigidity and Edge universality*, Ann. Probab. **48** (2020), no. 2, 963–1001, arXiv:1804.07744, with *L. Erdős, T. Krüger* and *D. Schröder*.

[5] *Singularities of the density of states of random Gram matrices*, Electron. Commun. Probab. **22** (2017), no. 63, 13 pp., arXiv:1708.08442.

[4] *Location of the spectrum of Kronecker random matrices*, Ann. Inst. H. Poincaré Probab. Statist. **55** (2019), no. 2, 661–696, arXiv:1706.08343, with *L. Erdős, T. Krüger* and *Yu. Nemish*.

[3] *Local inhomogeneous circular law*, Ann. Appl. Probab. **28** (2018), no. 1, 148–203, arXiv:1612.07776, with *L. Erdős* and *T. Krüger*.

[2] *Local law for random Gram matrices*, Electron. J. Probab. **22** (2017), no. 25, 41 pp., arXiv:1606.07353, with *L. Erdős* and *T. Krüger*.

[1] *The local semicircle law for random matrices with a fourfold symmetry*, J. Math. Phys. **56** (2015), no. 10, arXiv:1506.04683.

Proceedings

[1] *Spectral radius of random matrices with independent entries*, in: Oberwolfach Rep. **16** (2019), no. 4, p. 3471.

Presentations at research seminars and conferences

- *Local inhomogeneous circular law*, Probability seminar, University of Lancaster, March 2017.
- *Local inhomogeneous circular law*, Random matrices and graphs seminar, Institut Henri Poincaré, Paris, May 2017.
- *Local inhomogeneous circular law*, Free probability seminar, Saarland University, November 2017.
- *Local inhomogeneous circular law*, Mathematical physics seminar, University of Geneva, December 2017.
- *Local inhomogeneous circular law*, Probability and mathematical physics seminar, Courant Institute, New York University, December 2017.
- *Local inhomogeneous circular law*, Random matrix seminar, University of Bielefeld, December 2017.
- *Local inhomogeneous circular law*, Probability and applications seminar, Queen Mary University of London, February 2018.

- *Dyson equation and the self-consistent density of states*, Annual meeting of the German mathematical society, section functional analysis, Paderborn, March 2018.
- *Correlated random matrices: Dyson equation and edge universality*, International congress on mathematical physics, contributed talk, Montreal, July 2018.
- *Correlated random matrices: Dyson equation and edge universality*, Structure theory seminar, TU Graz, December 2018.
- *What is a random matrix?*, Zurich graduate colloquium, March 2019.
- *Correlated random matrices: Dyson equation and edge universality*, Random Matrices and Random Graphs, Conference at CIRM Luminy, April 2019.
- *Extreme Eigenvalues of critical Erdős-Rényi graphs*, Analysis & Mathematical physics seminar, IST Austria, July 2019.
- *Extreme Eigenvalues and Eigenvectors of critical Erdős-Rényi graphs*, SwissMap General Meeting, Conference in Villars-sur-Ollon, September 2019.
- *Spectral radius of random matrices with independent entries*, Random matrix seminar, Bielefeld University, October 2019.
- *Extreme Eigenvalues and Eigenvectors of critical Erdős-Rényi graphs*, Probability seminar, Bonn University, October 2019.
- *Spectral radius of random matrices with independent entries*, Random Matrices, Conference at the Mathematical Research Institute Oberwolfach, December 2019.
- *Inhomogeneous circular law for correlated matrices*, Session on Random Matrices, Bernoulli-IMS One World Symposium 2020 (online meeting), August 2020. https://www.youtube.com/watch?v=3Ymin26DiH8
- *Poisson-statistics for extremal eigenvalues of subcritical Erdős-Rényi graphs*, Session on Statistical Mechanics and Random Structures, Young Researchers Symposium of International Congress on Mathematical Physics, Geneva, July 2021.
- *Localization and Delocalization in Erdős-Rényi graphs*, Probability Seminar, University of California San Diego, November 2021.
- *Localization and Delocalization in Erdős-Rényi graphs*, XVII Brunel-Bielefeld Workshop on Random Matrix Theory and Applications, online meeting, December 2021.
- *Localization and Delocalization in Erdős-Rényi graphs*, Probability Seminar, The City University of New York, March 2022.
- *Localization and Delocalization in Erdős-Rényi graphs*, Temple/Penn Probability Seminar, Temple University, Philadelphia, March 2022.
- *Localization and Delocalization in Erdős-Rényi graphs*, Probability Seminar, Massachusetts Institute of Technology, Cambridge, April 2022.
- *Localization and Delocalization in Erdős-Rényi graphs*, Probability and Statistical Physics Seminar, University of Chicago, April 2022.

Teaching Experience

Fall term 2020:	Teaching assistant for "Probability theory and statistics"
Spring term 2020:	Lecturer for "Random matrices & Universality II"
Fall term 2019:	Teaching assistant for "Random matrices & Universality I"
Spring term 2019:	Lecturer for "Introduction to random matrices"
Winter term 2016/2017:	Teaching assistant for "Mathematical Analysis"
Summer term 2016:	Teaching assistant for "Fourier transform"
Summer term 2014:	Tutor for "Mathematical Statistical Physics"
Winter term 2013/2014:	Tutor and marker for "Measure and integration theory in several variables"

Conferences, workshops and internships

February – April 2011:	Professional internship at the Max-Planck-institute for plasma physics in Munich
September 2013:	Masterclass "Free Probability and Operator Algebras" (WWU Münster)
June, July 2015:	Workshops on "Quantum Many-body Systems, Random Matrices and Disorder", ESI, Vienna
August 2016:	Young Researcher Symposium on Methods of Modern Mathematical Physics, Fields Institute, Toronto
August 2016:	Frontiers in Mathematical Physics, CRM, Montreal
June – July 2017:	Park City Mathematics Institute: Summer session on random matrices (Poster titled "Local inhomogeneous circular law")
December 2017:	XIII Brunel – Bielefeld Workshop, ZiF, Bielefeld (Poster titled "Local inhomogeneous circular law")
March 2018:	Annual meeting of the German mathematical society, Paderborn
June 2018:	Summer school in Probability and Mathematical Physics, IST Austria, Klosterneuburg
July 2018:	ICMP Young Researchers Symposium, Montreal
July 2018:	International congress on mathematical physics, Montreal
November 2018:	Brown measures and non-normal random matrices, Toulouse
February 2019:	Workshop on Statistical Mechanics, Les Diablerets
April 2019:	Random Matrices and Random Graphs, CIRM Luminy
August 2019:	From Many Body Problems to Random Matrices, BIRS, Banff
September 2019:	6th SwissMAP general meeting, Villars-sur-Ollon
December 2019:	Random Matrices, Mathematical Research Institute Oberwolfach
February 2020:	Workshop on Mathematical Physics, Les Diablerets
May 2020:	Online Random Matrices and Their Applications 2020, Online Conference
August 2020:	Bernoulli-IMS One World Symposium 2020, Online Conference
September 2020:	7th SwissMAP general meeting, Saanenmöser
July 2021:	ICMP Young Researchers Symposium, Geneva
August 2021:	International congress on mathematical physics, Geneva
August 2021:	Universality and Integrability in Random Matrix Theory and Interacting Particle Systems, Part 1, MSRI, Berkeley

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Service and Organization

- Main organizer of the mathematical physics seminar at the University of Geneva (2018 – 2020)
- Referee for several journals of mathematics

Scholarship

10/2012 – 09/2014:	Deutschlandstipendium paid by German government and Deutsche Telekom AG

Language skills

German (mother tongue), English (fluent), French (advanced knowledge)