CURRICULUM VITAE

DR PHILIPP GOHLKE
Friedrich Schiller University Jena
philipp.gohlke@uni-jena.de

POSITIONS AND FELLOWSHIPS

Research Associate — Sep. 2025 – present
Friedrich Schiller University Jena — Jena, Germany

Postdoctoral Research Fellow — Mar. 2025 – Aug. 2025
Friedrich Schiller University Jena — Jena, Germany

Postdoctoral Research Fellow — Oct. 2022 – Sep. 2024
Lund University — Lund, Sweden

Research Associate and Teaching Assistant — Oct. 2017 – Sep. 2022
Bielefeld University, Faculty of Mathematics — Bielefeld, Germany

Research Fellow — Jan. 2019 – Dec. 2019
Rice University — Houston, Texas

EDUCATION

PhD in Mathematics — Jul. 2018 – Jan. 2022
Bielefeld University, Germany | Rice University, Houston, Texas

- Supervisors: Prof. Michael Baake, Prof. David Damanik
- Title: Aperiodic Order and Singular Spectra
- Honors: Summa cum laude

Master of Science | ***Mathematical Physics*** — Oct. 2015 – Sep. 2017
Bielefeld University

GRANTS AND SCHOLARSHIPS

Walter Benjamin Fellowship — 2022 – 2025
German Research Foundation (DFG)

Research scholarship — 2017 – 2018
Bielefeld University

Student scholarship — 2012 – 2017
Studienstiftung des deutschen Volkes

PUBLICATIONS

Peer-reviewed publications

1. Rauzy fractals of random substitutions (with A. Mitchell, D. Rust and T. Samuel), *Adv. Math.*, to appear; `arXiv:2401.06732`
2. Orbit separation dimension as complexity measure for primitive inflation tilings (with M. Baake and F. Gähler), *Ergod. Th. Dynam. Syst.* **45** (2025) 2992–3020.
3. Fast dimension spectrum for a potential with a logarithmic singularity (with G. Lamprinakis and J. Schmeling), *J. Stat. Phys.* **191** (2024): 40
4. Spectral Characteristics of Schrödinger Operators Generated by Product Systems (with D. Damanik and J. Fillman), *J. Spectr. Theory* **12** (2023) 1659–1718
5. Measure theoretic entropy of random substitution subshifts (with A. Mitchell, D. Rust and T. Samuel), *Ann. Henri Poincaré* **24** (2023) 277–323
6. Zero Measure Spectrum for Multi-Frequency Schrödinger Operators (with J. Chaika, D. Damanik and J. Fillman), *J. Spectr. Theory* **12** (2022) 573–590

7. On a family of singular continuous measures related to the doubling map (with M. Baake, M. Coons and J. Evans), *Indag. Math.* **32** (2021) 847–860
8. Spectral properties of Schrödinger operators associated to almost minimal substitution systems (with B. Eichinger), *Ann. Henri Poincaré* **22** (2021) 1377–1427
9. Inflation word entropy for semi–compatible random substitutions, *Monatsh. Math.* **192** (2020) 93–110
10. Ergodic frequency measures for random substitutions (with T. Spindeler), *Studia Math.* **55** (2020) 265–301
11. Scaling properties of the Thue–Morse measure (with M. Baake, M. Kesseböhmer and T. Schindler), *Discr. Contin. Dyn. Syst.* **39** (2019) 4157–4185
12. Shifts of finite type and random substitutions (with D. Rust and T. Spindeler), *Discr. Contin. Dyn. Syst.* **39** (2019) 5085–5103

Preprints

1. Generalized Thue-Morse measures: spectral and fractal analysis (with M. Kesseböhmer and T. Schindler), *preprint* (2025); `arXiv:2509.22109`
2. A classification of intrinsic ergodicity for recognisable random substitution systems (with A. Mitchell), *preprint* (2024); `arXiv:2411.06201`
3. Spectral theory of regular sequences: parametrisation and spectral characterisation (with M. Coons, J. Evans and N. Mañibo), *preprint* (2023); `arXiv:2307.15185`

Research Talks

Invited seminar talks

Multifractal analysis of spectral measures – Friedrich Schiller University Jena	Jun. 2025
Rauzy fractals of (random) substitutions – Leipzig University	May 2025
Rauzy fractals of random substitutions – University of St. Andrews	Mar. 2024
Orbit separation dimension of primitive inflation tilings – Leipzig University	Feb. 2024
Sampling unbounded observables along chaotic orbits – Lund University	Aug. 2023
Schrödinger operators and dynamical systems – Institut de Mathématiques de Marseille (online)	Nov. 2022
Zero measure spectrum for multi-freq. Schrödinger operators – One World Numeration Seminar	Jan. 2022
The Thue–Morse measure: multifractal analysis – Lund University, Sweden	Dec. 2021
Multifractal analysis of the Thue–Morse measure – The Open University (online)	Nov. 2021
Notions of disorder for random substitutions – Birmingham University, UK (online)	Sep. 2021
Diffraction of random substitution & weakly ergodic Markov chains – Bielefeld, Germany (online)	Feb. 2021
Schrödinger operators and aperiodic order – Istanbul Technical University	Feb. 2020
Schrödinger operators with quasi-periodic potentials – Bielefeld University	Sep. 2020

Invited talks at conferences and scientific meetings

Multifractal analysis - from number theory to dynamical systems — Jul. 2025
Chemnitz – Jena: The fractal connection — Jena, Germany

(Non)-intrinsic ergodicity of random substitutions — Oct. 2024
Workshop on random substitutions (online participation) — Marseille, France

Orbit separation dimension of primitive inflation tilings — Aug. 2024
Algebra, Analysis and Aperiodic Order — Bielefeld, Germany

Rauzy fractals of (random) substitutions — Jun. 2024
B-free systems and generalisations — Krakow, Poland

Scaling properties of the Thue–Morse measure Sep. 2023
Aspects of Aperiodic Order Oberwolfach, Germany

Schrödinger operators with substitutive potentials beyond linear complexity Jul. 2019
15. International Symposium on Orthogonal Polynomials, Special Functions and Applications Linz, Austria

Contributed talks

(Non)-intrinsic ergodicity of random substitutions Mar. 2025
Dynamical Systems, Operator Theory, Graphs and Spectral Theory Jena, Germany

Teaching Experience

Tutor and grading

Complex Analysis I & II	Winter 2021, Summer 2022
Probability Theory and Statistics	Summer 2021
Fourier Analysis and Markov Chains	Winter 2020
Symmetries in Physics	Summer 2020
Ergodic Theory I & II	Winter 2018, Summer 2019
Theoretical Physics	Winter 2013, Winter 2015

Courses and projects

Undergraduate Research: Measuring the size of fractals Spring 2024
Lund University, 5 Students Lund, Sweden

Mini-Course (5 Lectures): Multifractal Analysis for diffraction measures Spring 2019
Rice University Houston, Texas

Community Involvement

Referee for 9 journals
Acta Crystallogr. Sect. A | Ann. Henri Poincaré | Electron. J. Combin. | Indag. Math. | Linear Algebra Appl. | Monatsh. Math. | Proc. Amer. Math. Soc. | Qual. Theory Dyn. Syst. | Stochastic Process. Appl.

Panel member for MSc proposal defense Dec. 2023
Ateneo de Manila University (online) Manila, Philippines

Skills

Languages: German (Native), English (fluent), Swedish, Spanish, Turkish
IT: LaTeX, Python , MATLAB, Mathematica