Charlotte Dietze
Curriculum Vitae

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Education

since 2021 | **PhD student in Mathematics**,
Ludwig-Maximilians-Universität München, Munich, Germany
Supervisor: Phan Thành Nam
Thesis title: "Spectral estimates for singular systems"
PhD thesis submitted on 4 February 2025
Expected defense date: March 2025

2019-2020 | **Master of Advanced Study in Pure Mathematics**,
Unversity of Cambridge, St John's College, Cambridge, United Kingdom
Essay: "On Self Similar Solutions to Nonlinear Evolution Equations"
Essay setter: Pierre Raphaël

2018-2021 | **Master of Science, Mathematics**,
Ludwig-Maximilians-Universität München, Munich, Germany
Master's Thesis: "Dispersive Estimates for Nonlinear Schrödinger Equations with External Potentials", Supervisor: Phan Thành Nam

2018-2021 | **Master of Science, Theoretical and Mathematical Physics**,
Ludwig-Maximilians-Universität München and Technical University of Munich, Munich, Germany

2015–2018 | **Bachelor of Science, Mathematics (minor in Statistics)**,
Ludwig-Maximilians-Universität München, Munich, Germany
Bachelor's Thesis: "On the Thomas-Fermi-von Weizsäcker Functional", Supervisor: Heinz Siedentop

Long-term research stays

09/2024 – 12/2024,
03/2024 – 05/2024,
10/2022 – 04/2023 | **Invited researcher**, *Institut des Hautes Études Scientifiques*, Bures-sur-Yvette, France
Research stays of in total 12 months, Mentor: Laure Saint-Raymond, supported by the Engie Foundation and the Jean-Paul Gimon Fund

September 2016 | **Internship**, *Max Planck Institute for Mathematics*, Bonn, Germany
One-month research internship, topic: Multiple Zeta Values, Mentor: Claire Glanois

Publications

Published papers and papers accepted for publication in journals

2023 | *joint work with Lea Boßmann and Phan Thành Nam. Focusing dynamics of 2D Bose gases in the instability regime. accepted for publication in Analysis & PDE*

2024 | *joint work with Ayman Kachmar and Vladimir Lotoreichik. Isoperimetric inequalities for inner parallel curves. J. Spectr. Theory. 14, 4 (2024)*

2024 | *joint work with Phan Thành Nam. Hardy-Sobolev interpolation inequalities. arXiv:2312.11249. Calc. Var. 63, 184 (2024)*

2021 | *Dispersive Estimates for Nonlinear Schrödinger Equations with External Potentials. J. Math. Phys. 62, 111502 (2021)*

Preprints

2024   *joint work with Phan Thành Nam. Minimizing sequences of Sobolev inequalities revisited. arXiv:2412.08616*

2024   *joint work with Konstantin Pankrashkin. Peculiar behavior of the principal Laplacian eigenvalue for large negative Robin parameters. arXiv:2412.04061*

2024   *joint work with Larry Read. Concentration of eigenfunctions on singular Riemannian manifolds. arXiv:2410.20563*

2024   *joint work with Yves Colin de Verdière, Maarten de Hoop and Emmanuel Trélat. Weyl formulae for some singular metrics with application to acoustic modes in gas giants. arXiv:2406.19734*

2023   *Semiclassical estimates for Schrödinger operators with Neumann boundary conditions on Hölder domains. arXiv:2304.01587*

2017   *joint work with Chokri Manai, Christian Nöbel and Ferdinand Wagner. Totally odd depth-graded multiple zeta values and period polynomials. arXiv:1708.07210*

Proceedings and books

2023   *Spectral estimates for Schrödinger operators with Neumann boundary conditions on Hölder domains. Oberwolfach reports 49/2023, p.27*

2023   *Weyl's law for Neumann Schrödinger operators on Hölder domains. In: Séminaire Laurent Schwartz — EDP et applications (2022-2023), Exposé no. 9, 8 p.*

2022   *joint work with Jinyeop Lee. Uniform in Time Convergence to Bose-Einstein Condensation for a Weakly Interacting Bose Gas with an External Potential. In: Proceedings of INdAM Quantum Meetings 2022*

Competitions

2015   German National Mathematics Competition (*Bundeswettbewerb Mathematik*), national winner (*Bundessiegerin*)

Organisation of Workshops

2023   Co-organizer of "Workshop for young researchers in analysis and mathematical physics" at Ludwig-Maximilians-Universität München, Germany (three days) third-party funds for the workshop : BayFrance, LMU-Bordeaux Research Cooperation Program

Invited Talks

Invited talks at conferences and workshops

November 2024 — *Workshop Eigenvalue Estimates for Laplace and Schrödinger Operators, University of Stuttgart*, Stuttgart, Germany.

June 2024 — *Equadiff 2024, Karlstad university*, Karlstad, Sweden.
two talks in different minisymposia

May 2024 — *Instabilities in geophysical fluids, Accademia Nazionale delle Scienze detta dei XL*, Rome, Italy.

October 2023 — *Mini-Workshop: Mathematics of Many-body Fermionic Systems, Mathematisches Forschungsinstitut Oberwolfach*, Oberwolfach, Germany.

September 2023 — *Annual Conference of the German Mathematical Society (DMV), Mini-symposium on Mathematical Analysis of Complex Quantum Systems, Technical University of Ilmenau*, Ilmenau, Germany.
(two talks, one of them substituting for Lea Boßmann)

September 2023 — *Mini-workshop for Young Researchers on Analysis Mathematical Physics, Ewha Womans University*, Seoul, South Korea.

August 2023 — *Workshop of Young Researchers in Mathematical Physics, Ludwig-Maximilians-Universität München*, Westerham, Germany.

July 2022 — *2nd IST Austria Summer School in Analysis and PDEs, IST Austria*, Klosterneuburg, Austria.

Invited talks at seminars

December 2024 — *Analysis and Probability Seminar (online), Max Planck Institute for Mathematics in the Sciences*, Leipzig, Germany.

November 2024 — *Analysis Seminar, École Polytechnique Fédérale de Lausanne*, Lausanne, Switzerland.

November 2024 — *Spectral Geometry in the Clouds, Online Seminar*

November 2024 — *Analysis Seminar, Universität Freiburg*, Freiburg, Germany.

November 2024 — *Séminaire analyse, géométrie et modélisation, Cergy-Paris université*, Cergy-Pontoise, France.

October 2024 — *Séminaire des doctorants, Laboratoire de Mathématiques d'Orsay*, Orsay, France.

October 2024 — *Séminaire de physique mathématique, Institut Fourier*, Grenoble, France.

May 2024 — *Probability and analysis informal seminar, Institut des Hautes Études Scientifiques*, Bures-sur-Yvette, France.

January 2024 — *Mathphys Analysis Seminar, Institute for Science and Technology Austria*, Klosterneuburg, Austria.

December 2023 — *Analysis Seminar, Carl von Ossietzky Universität Oldenburg*, Oldenburg, Germany.

May 2023 — *Analysis & Probability Seminar, Chalmers and Göteborgs universitet*, Göteborg, Sweden.

April 2023 — *LMU-TUM Junior Researcher Seminar, Ludwig-Maximilians-Universität München*, Munich, Germany.

February 2023 — *Séminaire Équations aux dérivées partielles, Institut de recherche mathématique de Rennes*, Rennes, France.

January 2023 — *Séminaire Laurent Schwartz, École polytechnique*, Palaiseau, France.

January 2023	*Séminaire Problèmes Spectraux en Physique Mathématique,* *Institut Henri Poincaré*, Paris, France.
December 2022	*Probability and analysis informal seminar,* *Institut des Hautes Études Scientifiques*, Bures-sur-Yvette, France.
July 2022	*Analysis and Mathematical Physics Seminar,* *Ludwig-Maximilians-Universität München*, Munich, Germany.
February 2022	*Séminaire Landau, Institut de recherche mathématique de Rennes (IRMAR)*, Rennes, France.
February 2022	*GAuS Seminar, Technische Universität Braunschweig*, Braunschweig, Germany.

Contributed Talks

September 2024	*Aspect2024 : Asymptotic Analysis and Spectral Theory 2024, Institut Elie Cartan de Lorraine, University of Lorraine*, Metz, France.
July 2024	*Young Researcher Symposium (International Congress of Mathematical Physics),* *Université de Strasbourg*, Strasbourg, France.
January 2023	*Graduate Student Seminar,* *Ludwig-Maximilians-Universität München*, Munich, Germany.
March 2022	*INdAM Quantum Meetings, Workshop I, Politecnico di Milano*, Milan, Italy.

Poster presentations

June 2023	*New Trends in Mathematical Fluid Dynamics, Institut Fourier*, Grenoble, France.
June 2022	*Harmonic Analysis, Stochastics and PDEs, University of Edinburgh*, Edinburgh, United Kingdom.

Teaching Experience

2021, 2023, 2024	**Teaching assistant at the Ludwig-Maximilians-Universität München** Mathematical Quantum Mechanics, Numerical Analysis, Functional Analysis (four weeks), Analysis I (three weeks)
2020	**Supervisor at the University of Cambridge** Analysis of Functions
2017-2019	**Tutor at the Ludwig-Maximilians-Universität München** Preparatory course in mathematics (twice), Trial course in mathematics for pupils, Analysis I, Analysis III, Functional Analysis (two terms)

Reviewer for Journals

Comptes Rendus Mathématique

Languages

German	Native speaker
English	IELTS overall band score: 8.0 (2019); DAAD Language Certificate C1 (2018)
French	DELF B2 (2014); DAAD Language Certificate C1 (2018)
Chinese	HSK 3 (2013)
Spanish	A2