

Address

Mathematisches Institut
Ludwig-Maximilians-Universität München
Theresienstraße 39
80333 München

ACADEMIC EXPERIENCE

University Munich Postdoctoral researcher in the working group of Prof. Phan Thanh Nam	since 04/2024
University Munich Replacement of professorship 'W3-Professur für Mathematik' (‘Vertretungsprofessur’)	03/2023-03/2024
Replacement of professorship 'W2-Professur für Mathematik' (‘Vertretungsprofessur’)	10/2022-03/2023
Institute of Science and Technology Austria Postdoc in the group of Prof. Robert Seiringer ISTplus postdoctoral fellow	10/2021 -10/2022 10/2019 -10/2021

ACADEMIC EDUCATION

University of Zurich Zurich Graduate School in Mathematics PhD thesis <i>Mathematical properties of many-body quantum systems</i> supervised by Prof. Benjamin Schlein	09/2015 - 09/2019
University of Munich, Technical University of Munich Elite Master Course <i>Theoretical and Mathematical Physics</i> Master thesis <i>Energy levels of dipoles in graphene</i> supervised by Prof. Heinz Siedentop (grade 1.0)	10/2013-09/2015
University of Leipzig Bachelor of Science in Physics Bachelor thesis <i>Quantum energy inequalities</i> supervised by Prof. Rainer Verch (grade 1.0)	10/2010-09/2013
Geschwister-Scholl-Gymnasium Taucha Abitur (final grade 1.0)	08/2002-08/2010

AWARDS

Research in pairs program, MFO Oberwolfach in collaboration with Dr. Lea Bossmann (IST Austria), Dr. Nikolai Leopold (University of Basel) and Prof. Sören Petrat (Jacobs University Bremen)	2021
--	------

ISTplus postdoctoral fellowship by IST Austria and the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 754411	10/2019-10/2021
Scholarship of German Academic Scholarship Foundation (Studienstiftung des deutschen Volkes)	10/2010-09/2015
Invitation to 62nd Meeting of the Nobel Laureates of Physics Lindau	07/2012
Manfred von Ardenne Prize Prize for skilled works in physics for high-school graduates awarded by Helmholtz Zentrum Dresden Rossendorf supervised by Prof. Wolfgang Oehme (University of Leipzig) and Wolfgang Rieger Poster at <i>DPG Frühjahrstagung 2011</i> .	2010

RESEARCH ARTICLES

Preprints

- [21] Exponential Control of Excitations for Trapped BEC in the Gross-Pitaevskii Regime
N. Behrmann, C. Brennecke, S. Rademacher
arXiv:2501.15803
- [20] Local enhancement of the mean-field approximation for bosons
M. Lemm, S. Rademacher, J. Zhang
arXiv:2412.13868
- [19] Generating function for quantum depletion of Bose-Einstein condensates
S. Rademacher
arXiv:2410.13576
- [18] Limit theorems for empirical measures of interacting quantum systems in Wasserstein space
L. Portinale, S. Rademacher, D. Virosztek
arXiv:2312.00541
- [17] Ground state of Bose gases interacting through singular potentials
L. Boßmann, N. Leopold, S. Petrat, S. Rademacher
arXiv:2309.12233

Publications

- [16] Out-of-time-ordered correlators of mean-field bosons via Bogoliubov theory
M. Lemm, S. Rademacher
QUANTUM vol. 9, p. 1587 (2025), arXiv:2312.01736
- [15] Exponential bounds of the condensation for dilute Bose gases
P.T. Nam, S. Rademacher
Trans. Amer. Math. Soc., in press, arXiv:2307.10622
- [14] Large deviations for the ground state of weakly interacting bosons
S. Rademacher
Annales Henri Poincaré, (2024), <https://doi.org/10.1007/s00023-024-01463-w>, arXiv:2301.00430
- [13] Traveling waves and the effective mass for the regularized Landau-Pekar equations
S. Rademacher
Calculus of Variations and Partial Differential Equations 63, no 121, (2024), arXiv:2211.08198

- [12] Dependent random variables in quantum dynamics.
S. Rademacher
Journal of Mathematical Physics volume 63, (8), (2022), arXiv:2112.04817
- [11] Large deviation estimates for weakly interacting bosons.
S. Rademacher and R. Seiringer
Journal of Statistical Physics volume 188 (9), (2022), arXiv:2112.01999
- [10] The effective mass problem for the Landau-Pekar equations.
D. Feliciangeli, S. Rademacher and R. Seiringer
Journal of Physics A: Mathematical and Theoretical 55, 015201 (2022), arXiv:2107.03720
- [9] A large deviation principle for many-body quantum dynamics
K. Kirkpatrick, S. Rademacher, B. Schlein
Annales Henri Poincaré, 22, 2595-2618 (2021), arXiv:2010.13754
- [8] Persistence of the spectral gap for the Landau-Pekar equations
D. Feliciangeli, S. Rademacher, R. Seiringer
Letters in Mathematical Physics, 111 (19), (2021), arXiv:2009.06430
- [7] Landau-Pekar equations and quantum fluctuations for the dynamics of a strongly coupled polaron
N. Leopold, D. Mitrouskas, S. Rademacher, B. Schlein and R. Seiringer
Pure and Applied Analysis 3-4, 653–676 (2021), arXiv:2005.02098
- [6] Central limit theorem for Bose gases interacting through singular potentials
S. Rademacher
Letters in Mathematical Physics, 110, 2143- 2174 (2020), arXiv:1908.11672
- [5] The Landau-Pekar equations: Adiabatic theorem and accuracy
N. Leopold, S. Rademacher, B. Schlein, R. Seiringer
Analysis & PDE, 14, 2079- 2100 (2021), arXiv:1904.12532
- [4] Central limit theorem for Bose-Einstein condensates
S. Rademacher, B. Schlein
Journal of Mathematical Physics, 60 (7), 071902 (2019), arXiv:1903.00365
- [3] From Hartree dynamics to the relativistic Vlasov equation
E. Dietler, S. Rademacher, B. Schlein
Journal of Statistical Physics, 172 (2), p. 1345-1364, (2018), arXiv: arXiv:1709.02711
- [2] Mean field evolution of fermions with Coulomb interaction
M. Porta, S. Rademacher, C. Saffirio, B. Schlein
Journal of Statistical Physics, 166 (6), 1345-1364 (2017) , arXiv:1608.05268
- [1] Accumulation rate of bound states of dipoles in graphene
S. Rademacher and H. Siedentop
Journal of Mathematical Physics, 57, 042105 (2016), arXiv:1507.02155

EDITORIAL WORK

Optimal transport on quantum structures

Book in the series of *Bolyai Society Mathematical Studies*

Publication date 10/2024

Joint editorial work with Prof. Jan Maas (IST Austria), Dr. Tamás Tiktos (Rényi Institute Budapest), and Dr. Dániel Viosztek (Rényi Institute Budapest)

Including lecture notes of Prof. Eric Carlen, Prof. Alessio Figalli, Prof. Francois Golse and Prof. Dario Trevisan

ARTICLES FOR A GENERAL AUDIENCE

[i] Numbers speak louder than words: A first approach to an evidence based discussion on under-represented groups in mathematical physics

S. Cenatiempo and S. Rademacher

IAMP (International Association of Mathematical Physics) news bulletin, April 2022

<http://www.iamp.org/bulletins/Bulletin-Apr2022-print.pdf>**[ii] Voices of women in mathematical physics: A series of five interviews**

G. Basti, C. Boccato, L. Bossmann, S. Cenatiempo, E. Giacomelli, G. Marcelli and S. Rademacher

IAMP (International Association of Mathematical Physics) news bulletin, April 2022

<http://www.iamp.org/bulletins/Bulletin-Apr2022-print.pdf>

TALKS AT CONFERENCES

Emergent phenomena in many-body quantum systems , CIRM, Marseille Invited Speaker	12/2025
Non-commutative Optimal Transport (Workshop in the framework of longterm program) IPAM at University of California Invited Speaker	04/2025
New Directions in Correlated Quantum Systems , Oberwolfach Invited Speaker	02/2025
Calculus of Variations and applications , Bonn Invited Speaker	09/2024
Non-commutative optimal transport , Cortona Invited Speaker for lecture series	09/2024
AMS-UMI meeting 2024 , Palermo Invited Speaker for Sepcial Session	07/2024
International Congress on Mathematical Physics , Strassbourg Contributed Talk	07/2024
Mathematics of Many-body Fermionic Systems , MFO Oberwolfach Invited Speaker	11/ 2023
Many-Body Quantum Systems , MFO Oberwolfach Invited Speaker	09/ 2023
Analysis of Relativistic Quantum Systems , CIRM, Marseille Invited Speaker	01/ 2023
DMV Jahrestagung , Berlin Invited Speaker in the session <i>Complex quatum systems</i>	09/ 2022
AMS-SMF-EMS joint international meeting , Grenoble Invited Speaker	07/ 2022
Mathematical results of many-body quantum systems , conference in Herrsching Invited Speaker	06/ 2022
ICMP (International Congress on Mathematical Physics), Geneva Contributed talk, Poster in the human rights session	08/2021

Nonlinear Dynamics in Quantum Mechanics , online Minisymposium at Bremen Invited talk	10/2020
The Analysis of Complex Quantum Systems: Large Coulomb Systems and Related Matters , CIRM, Marseille. Invited talk	10/2019
Many-Body Quantum Systems , MFO, Oberwolfach. Invited talk	09/2019
Mathematical Challenges in Quantum Mechanics , Rome. Contributed talk	02/2018

TALKS IN SEMINARS

Oberseminar mathematische Physik Research seminar at the FAU Erlangen	11/2024
Oberseminar mathematische Physik Tübingen Research seminar at the University Tübingen	05/2024
Rényi research seminar Research seminar at the Alfréd Rényi Institute of Mathematics in Budapest	05/2024
Oberseminar mathematische Physik Tübingen Research seminar at the University Tübingen	06/2023
Seminar der AG Wirtschaftsmathematik & Stochastik online Seminar at University Leipzig	01/ 2023
Oberseminar Mathematische Physik Oberseminar at LMU Munich	11/ 2022
Mathematical Physics Seminar , online Seminar at University of Texas, Austin	11/2021
Math Seminar KIAS , online seminar at Korea Institute for Advanced Studies	03/2021
Seminar der AG Angewandte Analysis online seminar at MPI for MiS, Leipzig	11/2020
Munich-Aarhus-Santiago Mathematical Physics Seminar , online seminar	10/2020
Tübingen - Zürich Meeting in Mathematical Physics Seminar in Tübingen	07/2019
Mathematical Physics and Analysis Seminar Oberseminar at ISTA Austria	02/2019

ORGANIZATION OF CONFERENCES

Workshop for young researchers in analysis and mathematical physics at LMU member of scientific committee together with Dr. Sylvain Ervedoza (Université de Bordeaux), Dr. Christèle Etchegaray (Inria Bordeaux Sud-Ouest), Prof. Arnaud Triay (LMU)	10/2023
---	---------

Mini-Symposium at annual DMV Meeting 2023 TU Illmenau joint organization with Prof. Siedentop (LMU Munich)	25/09/ 2022-28/09/2023
School 'Optimal transport on Quantum Structures'	19/09/ 2022-23/09/2022
Workshop 'Optimal transport on Quantum Structures' Erdős Conference Center, Alfréd Rényi Institute of Mathematics, Budapest joint organization with Prof. Jan Maas (IST Austria), Dr. Tamás Tiktos (Rényi Institute Budapest), and Dr. Dániel Viosztek (IST Austria).	26/09/ 2022-30/09/2022

ORGANIZATION OF SEMINARS

TUM-LMU Young Researcher Seminar Research seminar on topics in mathematical physics jointly organized between research groups at LMU and TU Munich joint organization with Dr. Amanda Young (TU Munich)	starting 10/2022
GAuS Seminar German Austrian Swiss seminar in analysis and PDE Online seminar on topics in mathematical physics, analysis and PDE joint organization with Dr. Christoph Kehle (ITS ETH Zurich, Switzerland) and Dr. Konstantin Merz (TU Braunschweig, Germany)	since 11/2020
Looney Seminar informal seminar among postdocs and PhD students Online seminar on topics in mathematical physics joint organization with Dr. Daniele Dimonte (University Basel, Switzerland) and Dr. Alessandro Olgati (University Zurich)	since 07/2020

TEACHING EXPERIENCE

University of Munich Lecturer for "Stochastik" Lecturer for "Mathematik für Naturwissenschaftler:innen II" Tutor for "Analysis 2 für Statistik" Lecturer for "Mathematik für Naturwissenschaftler:innen I" Tutor for "Numerik"	fall semester 2023/24 spring semester 2023 spring semester 2022/23 fall semester 2022/23 fall semester 2022/23
University of Zurich Tutor for Analysis 1,2, Functional Analysis and <i>Study Center</i>	2015-2019
University of Munich, Student employee Tutor for Analysis 1,2	2013-2015
University Leipzig, Student Employee Corrector for homework in Theoretical Mechanics, Theoretical Electrodynamics	2012-2013

VOLUNTARY MENTORING EXPERIENCE

Association of women in mathematical physics

<https://www.awmp-mathphys.org>

founding member of association of women in mathematical physics

since 2022

Organization of different measures to support female researchers
(networking events, informative meetings and articles, seminars etc.)

Mentoring program for female refugees

founding member of the organization SEET (Support Education, Empower Together) Zürich,
a study support program for female refugees founded in 2018

Organization of funding and of the mentoring program

since 2018

(including workshops, coachings and network events)

Mentor for a female Sudanese physicist

since 2020

Mentor for children from socially disadvantaged families

Arche Kinderbegleitung Zürich

2016-2019

Kinder und Jugendhilfe Arche München

2013-2015

REFEREE ACTIVITY

Referee reports for *Communications in Mathematical Physics*, *Journal of Statistical Physics*, *Journal of Mathematical Physics* and *SIAM Journal on Mathematical Analysis*.

LANGUAGES

German (native), English (fluent), French (good)

Simone Rademacher

January 2025.