

Curriculum Vitae

Dr. Dennis Ulbrich

E-Mail · Website · Address: on request



Employment

- **Research assistant** Bremen
Hochschule Bremen, School of Electrical Engineering and Computer Science 2.2025 — 5.2025
 - Project work: AI-based transmission, analysis, verification of handwritten documents
- **Lecturer in Mathematics** Bremen
Hochschule Bremen, School of Nature and Engineering 10.2024 — 3.2025
 - Mathematik 1
- **Postdoctoral researcher** Münster
Universität Münster, Fachbereich Mathematik, Institut f. Analysis u. Numerik 6.2023 — 6.2024
 - Research on discrete hypocoercivity within DFG project 456849348
 - Supervision: Prof. Dr. Marlies Pirner
 - Keywords:
 - * Hypocoercivity
 - * Kinetic equations
 - * BGK-type approximations
 - * Chemical reactions
 - * Entropy methods
- **Non-academic professional activities** Bremen
Professional internship at a consulting company 9.2022 — 2.2023
- **Lecturer in Mathematics** Bremen
Jacobs University Bremen 1.2022 — 6.2022
 - *Finite Mathematics* (lecture) and *Dynamical Systems* (seminar)
- **Research assistant (PhD student)** Bremen
University of Bremen, Department of Mathematics 4.2017 — 9.2021
 - Research within DFG project RA 27288/1-1
 - Research groups: Nonlinear Analysis and Applied Analysis, Stochastics and Dynamical Systems

- PhD thesis: *Ergodic theory of nonlinear waves in discrete and continuous excitable media*
 - * Advisors: Prof. Dr. Jens Rademacher (University of Hamburg), Prof. Dr. Marc Keßeböhmer (University of Bremen)
 - * Referees: Prof. Dr. Jens Rademacher, Prof. Dr. Ian Melbourne (Warwick University)
- Keywords:
 - * Nonlinear analysis
 - * Ergodic Theory
 - * PDE
 - * Excitable media
 - * Cellular automata
 - * Dynamical Systems

Education

- **Dr. rer. nat., Mathematics** Bremen
4.2017 — 9.2021
 - PhD thesis:
Ergodic theory of nonlinear waves in discrete and continuous excitable media
 - Advisors: Prof. Dr. Jens Rademacher (University of Hamburg), Prof. Dr. Marc Keßeböhmer (University of Bremen)
 - Referees: Prof. Dr. Jens Rademacher, Prof. Dr. Ian Melbourne (Warwick University)
 - cf. MGP
- **Brückensтипендиум** Bremen
4.2016 — 4.2017
 - Further studies
 - Extensions of the results of my Master's thesis
 - Successful acquisition of third-party funding (DFG) for my PhD project
- **M.Sc. and B.Sc., Mathematics** Bremen
until 4.2016
 - M.Sc. thesis:
Dynamics of the three-state 1D Greenberg-Hastings cellular automaton
 - * Referees: Prof. Dr. Jens Rademacher, Dr. Tony Samuel (University of Exeter)
 - B.Sc. thesis:
Unerwartete Fehler bei bedingten Erwartungswerten und Wahrscheinlichkeiten
 - * Referees: Prof. Dr. Werner Brannath (University of Bremen), Dr. Kurt Falk (University of Kiel)

Publications

Refereed journal articles:

- A. Pauthier, J.D.M. Rademacher, D. Ulbrich.
Weak and strong interaction of excitation kinks in scalar parabolic equations.
J Dyn Diff Equat. Published: 30 July 2021; Volume 35, pages 2199-2235, (2023), [DOI] [arXiv]
- M. Keßeböhmer, J.D.M. Rademacher, D. Ulbrich.
Dynamics and topological entropy of 1D Greenberg-Hastings cellular automata.
Ergodic Theory and Dynamical Systems. 2021;41(5):1397-1430, [DOI] [arXiv]

In preparation:

- L. Liu, M. Pirner, D. Ulbrich.
Discrete hypocoercivity for a nonlinear kinetic reaction model without initial close-to-equilibrium assumption.

Theses:

- D. Ulbrich.
Ergodic theory of nonlinear waves in discrete and continuous excitable media.
Diss., 2021, [DOI]

Other

Grants:

- Brückenstipendium, University of Bremen, Department of Mathematics, 4.2016 – 4.2017

Supervision:

- Student research project, University of Bremen, Department of Mathematics, 2021 – 2022

Organisation:

- Supporting several summer and winter schools, University of Bremen, 2016 – 2021
- Maintaining the Mathematical Collection of the University of Bremen and creating its website

IT skills:

- LaTeX: advanced
- Matlab, Mathematica, Java, C++, Oracle PL/SQL: basic

Languages:

- German: native
- English: C1 level

References:

on request