

# 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  
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  
*University of Bremen, Department of Mathematics* 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
- **Brückenstipendium** Bremen  
*University of Bremen, Department of Mathematics* 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  
*University of 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