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* (Vorlesung) und *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

- Englisch: C1 level

References: on request