

# Curriculum Vitae — Dr. Jichen Yang

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## Personal data

Born on January 2, 1990 in Beijing, married to Chen Gai.

## Contact

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## Research interests

Dynamics of ordinary and partial differential equations, pattern formation, nonlinear waves, stability analysis, fractional calculus and differential equations, anomalous diffusion.

## Employment

- 11/23 – now      Lecturer, School of Mathematical Sciences, Harbin Engineering University, Harbin, China.
- 12/20 – 11/23    Postdoctoral Fellow, School of Mathematics (Zhuhai), Sun Yat-sen University, Zhuhai, China.
- 06/20 – 09/20    Postdoctoral Fellow, Department of Mathematics, Jacobs University Bremen, Germany.

## Education

- 10/15 – 03/20    Doctoral student in Mathematics.  
Faculty 3 Mathematics and Computer Science, University of Bremen, Germany.  
Doctor of Natural Sciences (Dr.rer.nat.). Grade: magna cum laude.  
Advisor: Prof. Jens Rademacher.
- 09/19 – 06/15    Postgraduate in Applied Mathematics.  
School of Mathematics and Physics, China University of Geosciences, China.  
Master of Science. Grade: 88/100. Advisor: Prof. Anping Liu.
- 09/08 – 06/12    Undergraduate in Information and Computing Science.  
School of Mathematics and Physics, China University of Geosciences, China.  
Bachelor of Science. Grade: 85/100. Thesis advisor: Prof. Anping Liu.

## Grants, scholarships & awards

- Degree completion stipend, University of Bremen, Germany, 10/19 – 03/20.
- Impulse Grants Travel Expenses Allowances, CRDF University of Bremen, Germany, 2017.
- Outstanding Master's Degree Thesis in Hubei Province, China, 2016.
- PhD Scholarship, 48 months, China Scholarship Council, China, 10/15 – 09/19.
- National Scholarship, China, 2014.
- Outstanding Graduate Student, China, 2013 – 2014.
- Second Prize in National Post-Graduate Mathematic Contest in Modeling, China, 2013.
- Second Prize in China University of Geosciences Postgraduate Scientific Papers Report, China, 2013.
- Yuan Yu Mei Outstanding Graduate Student Scholarship, China, 2013.
- Graduate School Scholarship, China, 2012 – 2014.

- Outstanding Bachelor's Degree Thesis in Hubei Province, China, 2012.
- National Endeavor Fellowship, China, 2011.
- Academic Scholarship, China, 2009 – 2012.

## Preprints

1. J. Yang, J.D.M. Rademacher, E. Siero. The impact of advection on the stability of stripes on lattices near planar Turing instabilities, *arXiv:2002.12579*, 2020.
2. J. Yang, J.D.M. Rademacher, E. Siero. The impact of advection on large-wavelength stability of stripes near planar Turing instabilities, *arXiv:1912.11294*, 2020.

## Publications

1. S. Jing, L. Xue, J. Yang. Backward bifurcation arising from decline of immunity against emerging infectious diseases. Accepted at Applied Mathematics Letters, *arXiv:2406.01957*, 2024.
2. P. Holst, J.D.M. Rademacher, J. Yang. Rotating convection with horizontal kinetic energy backscatter. Accepted refereed chapter in Nonlinear Dispersive Waves in the book series Lecture Notes in Mathematical Fluid Mechanics, *arXiv:2310.08294*, 2023.
3. J. Li, C. Liu, T. Long, J. Yang. The stability of smooth solitary waves for the  $b$ -family of Camassa-Holm equations. *Physica D*, 463:134182, 2024.
4. F. Achleitner, G. Akagi, C. Kuehn, J.M. Melenk, J.D.M. Rademacher, C. Soresina, J. Yang. Fractional Dissipative PDEs. In: P. G. Kevrekidis, J. Cuevas-Maraver (eds.), Fractional Dispersive Models and Applications, Nonlinear Systems and Complexity, vol. 37, pp. 53-122, 2024.
5. A. Prugger, J.D.M. Rademacher, J. Yang. Rotating shallow water equations with bottom drag: bifurcations and growth due to kinetic energy backscatter. *SIAM Journal on Applied Dynamical Systems*, 22(3):2490–2526, 2023.
6. A. Prugger, J.D.M. Rademacher, J. Yang. Geophysical fluid models with simple energy backscatter: explicit flows and unbounded exponential growth. *Geophysical & Astrophysical Fluid Dynamics*, 116(5–6):374–410, 2022.
7. J. Yang, J.D.M. Rademacher. Reaction-subdiffusion systems and memory: spectra, Turing instability and decay estimates. *IMA Journal of Applied Mathematics*, 86(2):27–73, 2021.
8. J. Yang, A. Liu, T. Liu. Forced oscillation of nonlinear fractional differential equations with damping term. *Advances in Difference Equations*, 2015(1):1–7, 2015.
9. J. Yang, M. Wang, X. Zhang, A. Liu. Oscillation of nonlinear impulsive hyperbolic equations of neutral type (Chinese). *Journal of Biomathematics* 29(4):1–5, 2014.
10. L. Xiao, J. Yang, G. Liu, A. Liu. Oscillation of neutral type nonlinear impulsive hyperbolic equations with several delays. *Applied Mechanics and Materials* 275–277:843–847, 2013.
11. J. Yang, A. Liu, G. Liu. Oscillation of solutions to neutral nonlinear impulsive hyperbolic equations with several delays. *Electronic Journal of Differential Equations* 2013(27):1–10, 2013.

## Theses

- Diffusion, Advection and Pattern Formation. PhD Thesis, University of Bremen, 2020, <https://doi.org/10.26092/elib/21>.
- Oscillation of Differential Equations. Master Thesis, China University of Geosciences, 2015.

## Co-organised conferences

- The 10th Annual Conference of Biomathematics Committee of Chinese Mathematical Society, Harbin, China, July 15–19, 2024
- The Fourth International Symposium on Modeling, Analysis and Applications in Biomathematics, Harbin, China, June 14–16, 2024

## Co-organised mini-symposium

- “Nonlinear Waves and Patterns”, SIAM Conference on Applications of Dynamical Systems, 2019.

## Invited talks

- 07/11/21 The role of advection on long-wavelength stability of stripes near Turing bifurcation. Zhuhai Conference on Ordinary Differential Equations and Dynamical Systems, Zhuhai, China, November 5–7, 2021
- 18/05/21 Spectra, Turing instability and decay estimates for reaction-subdiffusion systems. Hangzhou Normal University, Hangzhou, China.
- 28/11/20 Spectra, Turing instability and decay estimates for reaction-subdiffusion systems. Mathematical Colloquium, China University of Geosciences, Wuhan, China.
- 14/05/20 The role of advection on the stability of stripes near planar Turing instabilities (online). Lehrstuhlseminar Analysis und Modellierung, University of Stuttgart, Germany.
- 29/04/20 The role of advection on the stability of stripes near planar Turing bifurcation (online). Angewandte Analysis Oberseminar, Martin Luther University Halle-Wittenberg, Germany.
- 13/01/20 The role of advection on the stability of stripes near planar Turing instabilities (online). Dynamical Systems Seminar, Boston University, USA.
- 03/12/19 Spectral analysis and decay estimates for reaction-subdiffusion equations. Computational Analysis Seminar, Jacobs University, Germany.
- 18/11/19 Spectral analysis and decay estimates for reaction-subdiffusion equations. Oberseminar Dynamics, Technical University of Munich, Germany, November 18–19, 2019.
- 21/05/19 The role of advection for patterns near Turing instabilities in planar reaction-diffusion systems. Minisymposium talk at SIAM Conference on Applications of Dynamical Systems, Snowbird, USA, May 19–23, 2019.
- 25/04/18 Spectra, stability and energy estimates for reaction subdiffusion equations. Dynamical Systems and Geometry Oberseminar, University of Bremen, Germany.

## Contributed talks

- 01/06/24 Bifurcations in shallow water equations with horizontal kinetic energy backscatter and bottom drags. The 14th International Conference on Recent Advances in Applied Dynamical Systems, Xinyang, China, May 30 – June 2, 2024.
- 02/07/23 Bifurcations in shallow water equations with energy backscatter and bottom drags. The 10th National Conference on Qualitative Theory of Differential Equations, Wuhan, China, June 30 – July 2, 2023.
- 31/08/22 Bifurcations in shallow water equations with bottom drag and kinetic energy backscatter (online). SIAM Conference on Nonlinear Waves and Coherent Structures, Bremen, Germany, August 30 – September 2, 2022.
- 20/07/18 Spectra, stability and energy estimates for reaction subdiffusion equations. The 5th annual International Conference-School ‘Dynamics, Bifurcations, and Chaos’, Nizhny Novgorod, Russia, July 16–20, 2018.

29/05/18 Spectra, stability and energy estimates for reaction subdiffusion equations. Summer School on Fractional and Other Nonlocal Models, Basque Center for Applied Mathematics, Bilbao, Spain, May 28–31, 2018.

## Posters

09/07/19 Spectral, stability and energy estimates for reaction sub-diffusion systems. Equadiff 2019, Leiden, Netherlands, July 8–12, 2019.

24/05/17 Spectrum and Turing instabilities for sub-diffusion reaction systems. SIAM Conference on Applications of Dynamical Systems, Snowbird, USA, May 21–25, 2017.

## Conferences

- The 19th Annual Conference of Singular Perturbation Committee of the Chinese Mathematical Society, Linyi, China, July 26–29, 2024
- The Tenth Shanghai International Symposium on Nonlinear Sciences and Applications, Xuzhou, China, July 22–27, 2024
- 2024 Tianyuan International Workshop on Dynamical Systems and Applications, Hangzhou, China, June 7–9, 2024
- The 5th International Symposium on Biological Mathematics and Medical Applications, Nanjing, China, May 24–26, 2024
- Zhuhai Conference on Ordinary Differential Equations and Dynamical Systems, Zhuhai, China, November 17–19, 2023
- Zhuhai Conference on Ordinary Differential Equations and Dynamical Systems, Zhuhai, China, October 28–30, 2022
- Conference on Mathematical Biology and Dynamical Systems, Sun Yat-sen University, Zhuhai, China, April 10, 2021
- The 7th Bremen Summer School and Symposium ‘Dynamical systems - pure and applied’, University of Bremen, Germany, August 5–9, 2019.
- The 6th Bremen Winter School and Symposium ‘Dynamical systems and turbulence’, University of Bremen, Germany, March 12–16, 2018.
- The 15th winter school in Dynamical Systems of the DANCE (Dinámica, Atractores y Nolinealidad: Caos y Estabilidad) Spanish network, Rtns 2018, University of La Rioja, Spain, January 22–26, 2018.
- Workshop ‘Analysis and PDE’, Leibniz University Hannover, Germany, October 4–6, 2017.
- The 5th Bremen Winter School and Symposium ‘Dynamical systems and fluids’, Universität of Bremen, Germany, March 27–31, 2017.
- The 14th winter school in Dynamical Systems of the DANCE (Dinámica, Atractores y Nolinealidad: Caos y Estabilidad) Spanish network, Rtns 2017, University of Vigo, Spain, January 23–26, 2017.
- Symposium ‘Mathematics, waves and geophysical flow’, University of Bremen, Germany, December 15–16, 2016.
- Short course ‘Numerical continuation with AUTO and PDE2PATH’, University of Bremen, Germany, September 20–21, 2016.
- Patterns of Dynamics, Free University of Berlin, Germany, July 25–29, 2016.
- The 4th Bremen Winter School and Symposium: Dynamics, Chaos and Applications, University of Bremen, Germany, March 14–18, 2016.

**Teaching assistant**

- Tutorials in Calculus, China University of Geosciences, First semester 2014 – 2015.
- Tutorials in Calculus, China University of Geosciences, Second semester 2013 – 2014.
- Tutorials in Partial Differential Equation, China University of Geosciences, First semester 2013 – 2014.
- Tutorials in Linear Algebra, China University of Geosciences, Second semester 2012 – 2013.

**Language**

Chinese, English.

**Skills**

Mathematica, Matlab.

Harbin, August 1, 2024