

# ZHAO YANG

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165 Altgeld Hall, 1409 W. Green Street Urbana, IL 61801

## EMPLOYMENT

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### University of Illinois at Urbana-Champaign, USA

- J.L Doob research assistant professor 08/2019-08/2022
  - Mentors: Professors Vera Hur and Jared Bronski.

## EDUCATION

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### Indiana University, Bloomington, USA

- Doctor of Philosophy, Mathematics 08/2013-05/2019
  - Advisor: Prof. Kevin Zumbrun;
  - Thesis: Traveling waves in an inclined channel and their stability;
  - College of Arts and Sciences Dissertation Research Fellowship (2018-2019).

- Master of Science, Applied Statistics 08/2016-05/2018

### Fudan University, Shanghai, China

- Bachelor of Science, Mathematics and Applied Mathematics 09/2009-06/2013

## INTERESTS

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### Mathematics: Nonlinear Partial Differential Equations

- traveling waves and their stability; application to fluid dynamics
- computation of Evans/Evans-Lopatinsky stability functions (parallel computing)
- numerical simulations of wave phenomena

### Statistics: Data analysis

- selected courses: Linear Model I&II, Time Series Analysis, Machine learning, Statistical Consulting

## COMPUTER SKILLS

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**Programming Languages:** Matlab, Python, C++, R, SAS, SPSS

**Type Setting:** LaTeX, Rmarkdown, Microsoft Office

## PUBLICATIONS

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10. Z. Yang and K. Zumbrun, *Phase-asymptotic stability of Lax or undercompressive viscous shock waves under  $L^1 \cap H^3$  perturbations*, in preparation.
9. Z. Yang and K. Zumbrun, *Numerical Evans function methods for computation of stability boundaries for periodic coefficient control*, in preparation.
8. S. Jung, Z. Yang, and K. Zumbrun, *Stability of strong detonation waves for Majda's model with general ignition functions*, in preparation.
7. M. Johnson, L. M. Rodrigues, Z. Yang, and K. Zumbrun, *Spectral stability of the Richard-Gavrilyuk roll-waves*, in preparation.
6. Z. Yang and K. Zumbrun, *Existence and Stability of hydraulic shock profiles of Richard-Gavrilyuk Model*, in preparation.

5. D. Marchesin, A. Mailybaev, Z. Yang, and K. Zumbrun, *Stability of degenerate traveling waves of  $2 \times 2$  balance system*, in preparation.
4. A. Sukhtayev, Z. Yang, and K. Zumbrun, *Spectral stability of hydraulic shock profiles*, accepted Physica D, arXiv:1810.01490.
3. Z. Yang and K. Zumbrun, *Stability of hydraulic shock profiles*, accepted Archive for Rational Mechanics and Analysis, arXiv:1809.02912.
2. Z. Yang and K. Zumbrun, *Convergence as period goes to infinity of spectra of periodic traveling waves toward essential spectra of a homoclinic limit*, accepted Journal de Mathématiques Pures et Appliquées, arXiv:1802.02830.
1. M. Johnson, P. Noble, L. M. Rodrigues, Z. Yang, and K. Zumbrun, *Spectral stability of inviscid roll-waves*, accepted Comm. Math. Phys., arXiv:1803.03484.

## AWARDS AND PRIZES

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April 2019	Outstanding Thesis Award
Aug. 2018 - May 2019	College of Arts and Sciences Dissertation Research Fellowship
May 2018 - Aug. 2018	Hazel King Thompson Summer Reading Fellowship
Jan. 2018 - May 2018	Spring Semester Research Assistantship
May 2017 - Aug. 2017	Hazel King Thompson Summer Reading Fellowship
April 2017	Schober Travel Award
April 2017	Graduate Student Travel Award
Aug. 2013 - May 2018	Full support for Math Phd program
2010, 2011, 2012	People's Scholarship
2011, 2012	Major Scholarship
Dec. 2010	National College Students' Physical Competition <b>1st Prize</b>
2010, 2011	Selected in Top-notch Talent Plan of China
Sept. 2008	Chinese Physics Olympiad (CPhO) <b>1st Prize</b>
Dec. 2005	National Olympiad in Informatics in Provinces (NOIP) <b>1st Prize</b>

## INVITED TALKS

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April. 22, 2019	<i>Traveling waves in an inclined channel and their stability</i> , PDE seminar, IUB
Jan. 29, 2019	<i>Traveling waves in an inclined channel and their stability</i> , HADES seminar, UIUC
Oct. 29, 2018	<i>Convergence of point and essential spectra in the homoclinic limit</i> , PDE seminar, IUB
July 12, 2018	<i>Spectral stability of roll waves in inclined shallow water flow</i> , SIAM annual meeting, Portland

## CONFERENCE PARTICIPATIONS AND ACADEMIC VISITS

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Jan. 26 - Mar. 07, 2018	Summer Program at IMPA, Rio de Janeiro, Brazil
May 18-19, 2017	Rocky Mountain Partial Differential Equations, Brigham Young University
Jan. 4-7, 2017	Joint Mathematics Meetings, Atlanta

## TEACHING AND GRADING

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2017, Fall	<i>M311 CALCULUS III</i> , recitation,
2017, Spring	<i>M371 ELEMENTARY COMPUTATIONAL METHOD</i> , grading, <i>M540 PARTIAL DIFFERENTIAL EQUATIONS I</i> , grading,
2016, Fall	<i>M413 INTRODUCTION TO ANALYSIS I</i> , grading, <i>M471 NUMERICAL ANALYSIS I</i> , grading,
2016, Summer	<i>M211 CALCULUS I</i> , recitation,
2016, Spring	<i>M211 CALCULUS I</i> , recitation (two sessions),
2015, Fall	<i>M212 CALCULUS II</i> , recitation (two sessions),
2015, Summer	<i>M119 BRIEF SURVEY OF CALCULUS I</i> , teaching,
2015, Spring	<i>M211 CALCULUS I</i> , recitation (two sessions),
2014, Fall	<i>M413 INTRODUCTION TO ANALYSIS I</i> , grading (two sessions),
2014, Spring	<i>M415 ELEMENTARY COMPLEX VARIABLES WITH APPLICATIONS</i> , grading, <i>S343 HONOR INTRODUCTION TO DIFFERENTIAL EQUATION</i> , grading,
2013, Fall	<i>M303 LINEAR ALGEBRA FOR UNDERGRADUATES</i> , grading (two sessions).