

# Ke Zhang

4106 Math Building  
Department of Mathematics  
University of Maryland  
College Park, MD, 20742

Office: 301.405.5071  
Cell Phone: 301.204.9129  
Email: [kezhang@math.umd.edu](mailto:kezhang@math.umd.edu)  
Homepage: <http://www.math.umd.edu/~kezhang/>

Born: August, 1981  
Citizenship: Chinese.

## Academic Positions

*Department of mathematics, University of Maryland*

Post-doctoral position, 07-10 academic years. (Sponsor: Vadim Kaloshin)

## Education

Ph.D., Mathematics, The Pennsylvania State University, 2001-2007

Thesis Adviser: Yakov Pesin

B.S., Applied Mathematics, Tsinghua University, Beijing, China, 1997-2001

Undergraduate Mentor: Zhiying Wen

## Research Interests

Dynamical systems and ergodic theory:

Ergodic theory, thermodynamic formalism, Hamiltonian systems, Arnold diffusion.

## Publications

Yakov Pesin, Samuel Senti and Ke Zhang. Lifting Measures to Inducing Schemes. *Ergodic Theory Dynam. Systems* 28 (2008), no. 2, 553–574. 37Axx (37D35)

Yakov Pesin and Ke Zhang. Thermodynamics of inducing schemes and liftability of measures. *Partially hyperbolic dynamics, laminations, and Teichmüller flow*, 289–305, Fields Inst. Commun., 51, Amer. Math. Soc., Providence, RI, 2007.

Yakov Pesin and Ke Zhang. Phase transitions for uniformly expanding maps. *J. Stat. Phys.*, 122(6):1095–1110, 2006.

Ph.D. Thesis. Thermodynamical formalism for maps with inducing schemes. The Pennsylvania State University, 2007.

## Preprint

Ke Zhang. Speed of Arnold diffusion for analytic Hamiltonians, 2009.

<http://www-users.math.umd.edu/~kezhang/files/speed-of-diffusion.pdf>

## Presentations

### *Invited Conference Talks*

*Almost dense orbit on an energy surface.* Workshop on dynamical systems and related topics, The Pennsylvania State University, 2009.

*Estimating the speed of Arnold diffusion.* Workshop on dynamical systems and related topics, University of Maryland, 2009.

*Lifting measures to Markov extensions.* Special session on smooth dynamical systems and ergodic theory, The 7th AIMS Conference on Dynamical Systems and Differential Equations, 2008.

### *Seminar Talks*

*Speed of Arnold diffusion for analytic Hamiltonian systems.* Dynamical Systems Seminar, Northwestern University, 2009.

*Optimality of Nekhoroshev Estimates.* Dynamics and Geometry Seminar, The Pennsylvania State University, 2009.

*Phase transition for uniformly expanding maps.* Dynamics and Geometry Seminar, The Pennsylvania State University, 2007.

## Teaching Experience

### *University of Maryland*

2007-2010, teaches 3 courses per year. Courses taught include Calculus I, II, III and Advanced Calculus with Applications.

### *The Pennsylvania State University*

2001-2007, taught 8-9 credits per year starting from 2002. Courses taught includes College Algebra, Calculus I, III, Differential Equations, Matrix Algebra. Worked as TA for Calculus I, Graph Theory, Game Theory.

*Detailed list of courses attached.*

## Awards and Honors

Pritchard Dissertation Fellowship, Mathematics Department, The Pennsylvania State University, Spring, 2006

Department Nomination, Graduate Assistant Outstanding Teaching Award, The Pennsylvania State University, Fall, 2006

Department Nomination, Alumni Dissertation award, The Pennsylvania State University, Fall, 2006

## Other Conferences and Workshops

*International Workshop on Global Dynamics Beyond Uniform Hyperbolicity*, Chicago, IL, 2006.

*Workshop on Dynamical Systems and Related Topics*, University of Maryland, Spring 2006-2009.

*Partially hyperbolic dynamics, laminations, and Teichmüller flow Workshop*, Fields Institute, Toronto, Canada, 2006 .

*Clay Mathematics Institute and MSRI Conference on Recent Progress in Dynamics*, Berkeley, CA, 2004.

*International Workshop on Robustness and Partial Hyperbolicity*, Búzios, Brazil, 2003.

*Workshop in Dynamical Systems and Related Topics*, The Pennsylvania State University, Fall 2002-2009.

## Professional Associations

Member, American Mathematical Society

## List of Courses Taught

### *The University of Maryland*

MATH 412, Advanced Calculus with Applications, Spring 2009

Math 241h, Calculus III (honor section), Spring 2009

Math 141h, Calculus II (honor section), Fall 2008

Math 140, Calculus I, large lecture, Spring 2008

Math 140h, Calculus I (honor section), 2 sections, Fall 2007

### *The Pennsylvania State University*

As instructor:

Math 220, Matrix Algebra, Spring 2007

Math 22, College Algebra, Fall 2006

Math 230, Calculus and Vector Analysis, Fall 2005

Math 231, Calculus of Several Variables, Spring 2005, Fall 2004 and Fall 2003

Math 251, Ordinary and Partial Differential Equations, Fall 2002

As recitation teacher:

Math 110, Techniques of Calculus, Spring 2003, Spring 2002

As teaching assistant:

Math 485, Graph Theory, Math 486, Game Theory, Math 501, Analysis