

Xiang Zhou

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- CURRENT POSITION ◇ Assistant Professor
Department of Mathematics, City University of Hong Kong (from 2012).
- PAST EXPERIENCE ◇ Research Associate
Division of Applied Math, Brown University, 2010-2012
- ◇ Research Associate
PACM, Princeton University, 2009-2010
- EDUCATION ◇ Ph.D. (2009), Princeton University
Program in Applied and Computational Mathematics
Advisor: Weinan E
Thesis title: *Noise-induced transition pathways in nongradient dynamical systems.*
- ◇ M.Sc.(2004), B.S.(2001), Peking University
School of Mathematical Sciences.
- RESEARCH & PUBLICATION LIST ◇ Finding Transition pathways on manifolds (with T. Li, X. Li, **Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal**, vol.14, pp. 173-206, 2016)
- ◇ Efficient calculations of transition states via iterative minimization formulation (with W. Gao and J. Leng, **J. Comp. Phys.** vol. 309, pp 69-87. 2016)
- ◇ An Iterative Minimization Formulation for Saddle Point Search (with W. Gao and J. Leng, **SIAM J. Numer. Anal.**, 53(4), pp.1786–1805, 2015)
- ◇ Efficient rare event simulation for failure problems in random media (with J. Liu and J. Lu, **SIAM J. SCI. COMPUT.**, 37(2), pp. A609–A624, 2015.)
- ◇ Escaping from an Attractor: Importance Sampling and Rest Points (with P. Dupuis and K. Spiliopoulos, **Ann. Appl. Prob.**, 25(5), 2909-2958, 2015)
- ◇ An explicit cross entropy method for mixture (with H. Wang, *ACM Transactions on Modeling and Computer Simulation (TOMACS)*, 25(1), pp. 6:1-6:20, 2014.)
- ◇ Extreme analysis of a random ordinary differential equation (with Jingchen Liu, **J. Appl. Probab.**, 51(4),pp.1021-1036, 2014.)
- ◇ On the failure probability of one dimensional random material under delta external force (with Jingchen Liu, **Comm. Math. Sci.**, 11(2013),499-521.)
- ◇ Failure of random materials: a large deviation and computational study (with Jingchen Liu) *Proceedings of the 2011 Winter Simulation Conference. Dec. 2011,pp 3779-3778.*
- ◇ Subcritical bifurcation in spatially extended systems (with Weinan E, Xiuyuan Cheng, **Nonlinearity**, 25(2012), 761).
- ◇ The Gentlest Ascent Dynamics, (with Weinan E, **Nonlinearity**, 24(2011), 1831).
- ◇ Study of the noise-induced transition and the exploration of the phase space for the Kuramoto-Sivashinsky equation using the minimum action method. (with Xiaoliang Wan, Weinan E, **Nonlinearity**, 23(2010),475)
- ◇ Study of noise-induced transitions in the Lorenz system using the minimum action method. (with Weinan E, **Comm. Math. Sci.**, 8(2009), 341-355)

- ◇ Time-varying perturbations can distinguish among integrate-to-threshold models for perceptual decision-making in reaction time tasks. (with KongFatt Wong-Lin and Philip Holmes, **Neural Computation**, 21(2009), 2336-2362)
- ◇ Adaptive minimum action method for the study of rare events. (with Weiqing Ren and Weinan E, **J. Chem. Phys.** 128(2008), 104111)
- ◇ Analysis of 1+1 dimensional stochastic model of liquid crystal polymer flows. (with Tiejun Li and Pingwen Zhang **Comm. Math. Sci.** 2(2004),295-316)

PREPRINT ◇

TEACHING
ACTIVITIES

- ◇ **Department of Mathematics, City University of Hong Kong**
2012 Fall: MA 2503 *Linear Algebra*.
2013 Spring : MA 3004 *Numerical Method*.
2013 Fall : MA 2503 *Linear Algebra* ; MA 4546 *Introduction to Stochastic Process*
2014 Spring : MA 3518 *Applied Statistics*
2014 Fall: MA 4546 *Introduction to Stochastic Process*
2015 Spring : MA 3518 *Applied Statistics*; MA 0101 *Basic Engineering Math*
2015 Fall: MA 4546 *Introduction to Stochastic Process*; MA 3518 *Applied Statistics*
- ◇ **Division of Applied Mathematics, Brown University**
2011 Fall: APMA1210 *Operations Research: Deterministic Methods*

SERVICE

- ◇ Journal refereeing :
Math. Psychology; Comm. Math. Sci.; J. Phys. A: Math. Theor.; Introduction to Operations Research by Hillier, 10edition; SCIENCE CHINA Mathematics; Pure and Applied Mathematics Quarterly; ARMA; SIAM Numerical Analysis; Comm. in Comp. Phys.; Computer Methods in Applied Mechanics and Engineering
- ◇ Journal Editor: *International Journal of Mathematics and Statistics*. (2015-2017).
- ◇ Co-organizer of [CityU MA Departmental Colloquia](#)
- ◇ Mini-symposium Organizer:
 - SIAM AN12 (July 2012, Minneapolis, MN). mini-symposium of “modeling of rare events” .
 - The 8th International Conference on Computational Physics (ICCP8) January, 2013, Hong Kong, mini-symposium of “modeling of rare events” .
 - SIAM UQ14 (April 2014, Savannah, GA). mini-symposium of “Efficient Algorithms for Rare Events” .
 - ICIAM 2015 (August 2015, Beijing). mini-symposium on “ Rare Events” .
 - SIAM UQ16 (April 2016, EPFL, Switzerland). mini-symposium of “Rare Events for Stochastic Dynamics and Random Fields” .
- ◇ Conference/Workshop Organizer:
 - [Workshop on Rare-event Stochastic Computing and Application](#), Jan. 2014. City University of Hong Kong.
 - Workshop in Stochastic and Multi-scale Modelling for Material Sciences and Biology. July 30, 2015. City University of Hong Kong.

TALKS

- ◇ RPI Applied Math Days (Nov. 2008, Troy, New York)
- ◇ SIAM DS 09 (May, 2009, Salt Lake City, Utah)
- ◇ SAMSU UQ workshop (Sept. 2011, North Carolina)
- ◇ CSIAM (Aug. 2012, Hefei, China)
- ◇ The 2nd Asia-Europe Forum on Methods and Perspectives of Risk Analysis, Sept. 2012, Hong Kong Advanced Institute for Cross-Disciplinary Studies, City University of Hong Kong
- ◇ (*invited talk*) International Workshop on Recent Advances in Scientific and Engineering Computing (Oct. 2012, Shanghai Jiao Tong University, Shanghai, China)

- ◇ The 2nd Workshop on Computational Methods for Applied Sciences , Dec. 2012, Columbia University, USA)
- ◇ International Workshop on Computational and Applied Mathematics, May, 2013, Huangshan, China, organized by Beijing Computational Science Research Center
- ◇ Hong Kong Math Society 2013 Annual General Meeting, May 30, 2013, City University of Hong Kong.
- ◇ SIAM Conference on Mathematical Aspects of Material Sciences (MS13), June, 2013, Philadelphia, USA.
- ◇ The 2nd Pacific Rim Mathematical Association Congress, June, 2013, Shanghai Jiao Tong University, Shanghai, China.
- ◇ The Seventh International Workshop on Applied Probability (IWAP 2014), June, 2014, Antalya, Turkey.
- ◇ The 9th International Conference on Computational Physics (ICCP9) January, 2014, Singapore, mini-symposium speaker.
- ◇ ICIAM, August, 2015, Beijing, mini-symposium speaker.

SUPERVISION ◇ PhD students:

- Yiqun Sun (2013 – curret),
- Shuting Gu (2014 – current),
- Qian Wang (2015 – current)

◇ Postdoctoral scholars:

- Dr. Junfei Cao (Jan. 2015 – Feb. 2016),
- Dr. Houying Zhu (April 2016 – current)

- ◇ Undergraduate students (for final year project): Liwei Wu, Yu Cao, Jianpeng Xiao, Yiqing Huang

GRANT

- ◇ CityU Start-Up Grant (2012-2014)
- ◇ [Teaching Start-Up Grant](#) (2013)
- ◇ [ECS\(109113\)](#) (2013/2016)
- ◇ [GRF\(11304314\)](#) (2014/2017)
- ◇ [GRF\(11304715\)](#) (2015/2018)