Yunfeng Xiong

CONTACT INFORMATION	School of Mathematical Sciences	mobile: +86-155-0120-0199
	Peking University	skype: xiongyf_math@hotmail.com
	No. 5, the Summer Palace Road	e-mail: xiongyf@math.pku.edu.cn
	Beijing, 100871 China	homepage: xiongyf-kuma.github.io

RESEARCH INTERESTS

- Stochastic methods for many-body quantum dynamics
- Spectral method, semi-Lagrangian method for kinetic equations
- Probability theory and harmonic analysis
- Mathematical Finance
- Parallel and distributed computing

RESEARCH EXPERIENCE

Peking University, Beijing, China

Boya Postdoctoral　　　　　　　　　　　　　　　　　　　　　　　　　*2020-*

- Instructor: Professor Yuan Zhang

EDUCATION

Peking University, Beijing, China

Doctor of Science, Computational Mathematics　　　　　　　　　*2016-2020*

- Thesis: Many-body Wigner Dynamics: Branching Random Walk and Particle Annihilation
- Instructor: Professor Sihong Shao

Peking University, Beijing, China

Visiting student, Computational Mathematics　　　　　　　　　　*2015-2016*

- Instructor: Professor Sihong Shao

Zhejiang University, Hangzhou, Zhejiang, China

Master of Science, Computational Mathematics　　　　　　　　　*2012-2015*

- Thesis: A comparison study of the classical and quantum Liouville-Poisson systems by Fourier transform method
- Instructor: Professor Qingbiao Wu

Xi'an Jiaotong University, Xi'an, Shannxi, China

Bachelor of Science, Mathematics and Applied Mathematics　　*2008-2012*

Xi'an Jiaotong University, Xi'an, Shannxi, China

Bachelor of Economics, Finance (Minor)　　　　　　　　　　　　*2008-2012*

HONOURS AND AWARDS

Elite PhD candidates of Computational and Applied Mathematics, Peking University	*2016-2020*
National Scholarship, Peking University	*2019*
President Scholarship, Peking University	*2017,2018*
Honor student, Xi'an Jiaotong University	*2011*
Siyuan Scholarship, Xi'an Jiaotong University	*2009,2010,2011*

PAPERS AND
PREPRINTS

Z. Cai, Y. Xiong and Y. Zhang, On (non-)monotonicity and phase diagram of finitary random interlacement, Submitted for publication, 2020, available at https://arxiv.org/abs/2010.14254.

Y. Xiong and S. Shao, Overcoming the numerical sign problem in Wigner dynamics via particle annihilation, Submitted for publication, 2020, available at http://arxiv.org/abs/2008.05161.

S. Shao and Y. Xiong, SPADE: Sequential-clustering Particle Annihilation via Discrepancy Estimation, Submitted for publication, 2020, available at http://arxiv.org/abs/2005.05129.

S. Shao and Y. Xiong, Branching random walk solutions to the Wigner equation, SIAM J. Numer. Anal., 2020, 58(5): 2589-2608.

Z. Chen, Y. Xiong and S. Shao, Numerical methods for the Wigner equation with unbounded potential, J. Sci. Comput., 2019, 79(1): 345-368.

Y. Xiong and S. Shao, The Wigner Branching Random Walk: Efficient implementation and performance evaluation, Commun. Comput. Phys., 2019, 25(3), 871-910.

S. Shao and Y. Xiong, A branching random walk method for many-body Wigner quantum dynamics, Numer. Math. Theor. Meth. Appl., 2019, 12(1), 21-71.

Y. Xiong, Z. Chen and S. Shao, An advective-spectral-mixed method for time-dependent many-body Wigner simulations, SIAM J. Sci. Comput., 2016, 38(4), B491-B520.

PROGRAMMING
SKILLS

Adept at Fortran and C progamming and parallel computing via the Message Passing Interface (MPI) standard.