

# Yunfeng Xiong

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CONTACT INFORMATION	School of Mathematical Sciences Peking University No. 5, the Summer Palace Road Beijing, 100871 China	mobile: +86-155-0120-0199 skype: xiongyf_math@hotmail.com e-mail: xiongyf@math.pku.edu.cn
RESEARCH INTERESTS	<ul style="list-style-type: none"><li>• Stochastic methods for many-body quantum dynamics</li><li>• Spectral method, semi-Lagrangian method for kinetic equations</li><li>• Probability theory and harmonic analysis</li><li>• Mathematical Finance</li><li>• Parallel and distributed computing</li></ul>	
RESEARCH EXPERIENCE	<b>Peking University</b> , Beijing, China <i>Boya Postdoctoral</i>	2020-
	<ul style="list-style-type: none"><li>• Instructor: Professor Yuan Zhang</li></ul>	
EDUCATION	<b>Peking University</b> , Beijing, China <i>Doctor of Science</i> , Computational Mathematics	2016-2020
	<ul style="list-style-type: none"><li>• Thesis: Many-body Wigner Dynamics: Branching Random Walk and Particle Annihilation</li><li>• Instructor: Professor Sihong Shao</li></ul>	
	<b>Peking University</b> , Beijing, China <i>Visiting student</i> , Computational Mathematics	2015-2016
	<ul style="list-style-type: none"><li>• Instructor: Professor Sihong Shao</li></ul>	
	<b>Zhejiang University</b> , Hangzhou, Zhejiang, China <i>Master of Science</i> , Computational Mathematics	2012-2015
	<ul style="list-style-type: none"><li>• Thesis: A comparison study of the classical and quantum Liouville-Poisson systems by Fourier transform method</li><li>• Instructor: Professor Qingbiao Wu</li></ul>	
	<b>Xi'an Jiaotong University</b> , Xi'an, Shannxi, China <i>Bachelor of Science</i> , Mathematics and Applied Mathematics	2008-2012
	<b>Xi'an Jiaotong University</b> , Xi'an, Shannxi, China <i>Bachelor of Economics</i> , 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

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, To appear in SIAM J. Numer. Anal., 2020, available at <https://arxiv.org/abs/1907.01897>.

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 programming and parallel computing via the Message Passing Interface (MPI) standard.