

Yang KUANG

CONTACT INFORMATION	Address : Room 07-25, Blk S17, National University of Singapore, 10 Lower Kent Ridge Road, Singapore 119076 Phone : +65 8452 8948 Email : matkuan@nus.edu.sg	
EDUCATION	PhD, Computational Mathematics , University of Macau, <i>2016.08 – 2019.08</i> <i>Advisor: Prof. Guanghui Hu</i>	
	MSc, Computational Mathematics , University of Macau, <i>2013.09 – 2016.06</i> <i>Advisor: Prof. Guanghui Hu</i>	
	BSc, Information and Computational Science , Wuhan University, <i>2009.09 – 2013.06</i>	
WORK EXPERIENCE	Research Fellow Department of mathematics, National University of Singapore <i>Mentor: Prof. Zhenning Cai</i> <i>2019.08 – present</i>	
RESEARCH INTERESTS	<ul style="list-style-type: none">• Efficient and adaptive numerical methods for density functional theory• Complex Langevin method in quantum chromodynamics	
IN PREPARATION	<ol style="list-style-type: none">1. Bin Gao, Guanghui Hu, Yang Kuang and Xin Liu, <i>An orthogonalization-free and adaptive method for geometry optimization of electronic structures.</i>2. Zhenning Cai and Yang Kuang, <i>On the regularization of complex Langevin method.</i>3. Yang Kuang and Guanghui Hu, <i>An h-adaptive finite element framework for density functional theory potential energy surface calculations.</i>	
UNDER REVIEW/REVISION	<ol style="list-style-type: none">1. Bin Gao, Guanghui Hu, Yang Kuang* and Xin Liu, <i>An orthogonalization-free parallelizable framework for all-electron calculations in density functional theory</i>, available at arXiv:2007.14228, submitted to SIAM Journal on Scientific Computing, 2020. (link)	
REFEREED JOURNAL ARTICLES	<ol style="list-style-type: none">1. Yang Kuang, Yedan Shen and Guanghui Hu, <i>An h-adaptive finite element method for Kohn–Sham and time-dependent Kohn–Sham equations</i>, Journal on Numerical Methods and Computer Applications (in Chinese), accepted, 2020.2. Zhenning Cai, Xiaoyu Dong and Yang Kuang, <i>On the validity of complex Langevin method for path integral computations</i>, SIAM Journal on Scientific Computing, 43(1), A685–A719, 2021. (link)3. Yang Kuang, and Guanghui Hu. <i>On stabilizing and accelerating SCF using ITP in solving Kohn-Sham equation</i>, Communications in Computational Physics, 28(3), 999–1018, 2020. (link)4. Yedan Shen, Yang Kuang, and Guanghui Hu. <i>An asymptotic-based adaptive finite element method for Kohn–Sham equation</i>, Journal of Scientific Computing, 79(1), 464–492, 2019. (link)5. Yang Kuang and Guanghui Hu. <i>An adaptive FEM with ITP approach for Steady Schrödinger equation</i>, International Journal of Computer Mathematics, 95(1), 187–201, 2018. (link)	

TALKS

1. Numerical investigations of Complex Langevin dynamics, June 17, 2020, 9th Symposium on Applied and Computational Mathematics, SIAM Student Chapter @NUS
2. An orthonormalization-free parallelizable algorithm for electronic structure calculation, November 10, 2019, Fudan University, The Workshop on Electronic Structure Calculations.
3. An efficient and adaptive finite element method for Kohn-Sham equation, July 28, 2018, University of Macau, 2018 Joint Annual Conference of Physical Societies in Guangdong-Hong Kong-Macao Greater Bay Area.
4. An efficient and adaptive finite element method for Kohn-Sham equation, June 24, 2018, University of Tokyo, 13th SIAM East Asian Section Conference 2018.

VISITING EXPERIENCE

- 2019.03.20 – 2019.04.10, Department of Mathematics, National University of Singapore, Singapore.
- 2015.08.10 – 2015.08.14, Institute of Computational Mathematics, Academy of Mathematics and Systems Sciences, Chinese Academy of Sciences, China.
- 2014.07.20 – 2014.08.01, School of Mathematical Sciences, Peking University, China.

CONFERENCES AND WORKSHOPS ATTENDED

- SIAM Student Chapter @NUS, 9th Symposium on Applied and Computational Mathematics, Jun 17, 2020.
- Workshop on Electronic Structure Calculations, Nov 9 – Nov 10, 2019, Fudan University, Shanghai, China.
- 2018 Joint Annual Conference of Physical Societies in Guangdong-Hong Kong-Macao Greater Bay Area, Jul 26 – Jul 29, 2018, University of Macau, Macau SAR.
- Summer school, Mathematics and Computations in Material Science, Jun 25 – Jul 6, 2018, Soochow University, Suzhou, China.
- 13th SIAM East Asian Section Conference 2018, Jun 22 – 25, 2018, University of Tokyo, Tokyo, Japan.
- Summer school and workshop, Focus Activity on Mathematical and Computational methods for Quantum and Kinetic Problems, Jun 7 – 14, 2017, Beijing Computational Science Research Center (CSRC), Beijing, China.
- Workshop on AFEPack, Jul 12 – 16, 2016, University of Macau, Macau SAR.
- SIAM: East Asian Section Conference 2016, Jun 20 – 22, 2016, University of Macau, Macau SAR.
- Summer school, Numerical methods for Partial Differential Equations, Aug 15 – 21, 2015, Peking University, Beijing, China.
- Workshop on AFEPack, Jun 25 – Jul 2, 2015, University of Macau, Macau SAR.
- The 5th International Conference on Scientific Computing and Partial Differential Equations, Dec 8 – 12, 2014, Hong Kong Baptist University, Hong Kong.

TEACHING
EXPERIENCE

Department of Mathematics, University of Macau

2013.09 – 2019.07

- *MATB 221 - Mathematical Analysis II (Tutorial section) (2018 Spring, 2017 Spring, 2014 Spring)*
- *MATB 212 - Mathematical Analysis I (Tutorial section) (2017 Fall, 2016 Fall, 2013 Fall)*
- *EDUC 491 - Seminar (Tutorial section) (2013 Fall)*