Xinyu Cheng
Ph.D. in Mathematics

PERSONAL DETAILS

Address	Room 2004, Guanghua Tower, Fudan University, Shanghai, China
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EDUCATION

Doctor of Philosophy student in Mathematics   2021/08
University of British Columbia
Area: Analysis, dynamics and numerics in PDEs
PhD Thesis: Analytical and numerical results for phase field, implicit free boundary, and fluid models.
Advisers: Prof. Li, Dong & Prof. Wetton, Brian

Masters of Science in Mathematics   2017/08
University of British Columbia
Area: Analysis, dynamics and numerics in PDEs
MSc Thesis: On the Stability of a Semi-Implicit Scheme of Cahn-Hilliard Type Equations.
Advisers: Prof. Li, Dong & Prof. Wetton, Brian

Bachelor of Science in Mathematics   2015/06
The Chinese University of Hong Kong
Areas: Computational & Applied Maths; Enrichment Stream in Maths.

WORKING EXPERIENCE

Postdoc fellow   2021-present
the School of Mathematical Sciences at Fudan University

Full-time Instructor   2018-2019
Department of Mathematics, University of British Columbia
Math 110/001: Differential Calculus   2018-2019 Winter term 1

Full-time Teaching Assistant   2015-2021
Department of Mathematics, University of British Columbia

ACADEMIC VISITS AND EVENTS

Invited minisymposium speaker at CSIAM 2022   2022/09
China Society for Industrial and Applied Mathematics   Guangzhou, Guangdong, China

Academic Visitor   2021/02-2021/04

South University of Science and Technology of China   Shenzhen, Guangdong, China

Invited speaker at Workshop on Analysis and PDE   2019/08

Tianjin Center for Applied Mathematics (TCAM)   *Tianjin, China*

Academic Visitor   2019/06-2019/07

Tianjin University   *Tianjin, China*

Invited minisymposium speaker at SIAM Conference on Applications of Dynamical Systems   2019/05

Society for Industrial and Applied Mathematics   *Snowbird, UT, US*

Academic Visitor   2018/07

South University of Science and Technology of China   Shenzhen, Guangdong, China

Academic Visitor   2018/04

Michigan State University   *East Lansing, MI, US*

PIMS Graduate Mathematical Modelling in Industry Workshop   2016/08

Pacific Institute for the Mathematical Sciences   *Vancouver, BC, Canada*

HONORS & AWARDS

Fudan University

China Postdoctoral Science Special Fund(In-Station)	2022
China Postdoctoral Science Fund	2022
International Postdoctoral Exchange Fellowship	2021
Shanghai "Super Postdoc" Incentive Plan	2021

the University of British Columbia

President's Academic Excellence Initiative PhD Award	2020,2021
International Doctoral Fellowship	2017-2021
International Doctoral Fellowship Tuition Award	2017-2021
International Tuition Award	2015-2017
Faculty of Science Graduate Award	2015-2017

the Chinese University of Hong Kong

First Class Graduate Honor	2015
Morningside College Master's List	2014-2015
Science Faculty Dean's List	2014-2015
Morningside College Exchange Scholarship	2013
Wei Lun Exchange Scholarships	2013
Weishan Lake Academic Scholarship	2012,2013

RELEVANT SKILLS

Software:	LaTeX, Mathematica, MS Office, Visual Studio
Programming:	C++, C, Matlab

PUBLICATIONS

Published

1. *On the Spectral Gap of a Square Distance Matrix,* joint with D. Li, D. Shirokoff and B. Wetton, J Stat Phys, 2017, 166(3-4), 1029–1035.

2. *Asymptotic Behaviour of Time Stepping Methods for Phase Field Models,* joint with D. Li, K. Promislow and B. Wetton, J Sci Comput, 2021, 86(3), 1–34.

3. *On a parabolic Sine-Gordon model*, joint with D. Li, C. Quan and W. Yang, Numerical Mathematics: Theory, Methods and Applications, 2021, 14(4), 1068–1084.

4. *Non-uniqueness of stationary weak solutions to the surface quasi-geostrophic equations,* joint with H. Kwon and D. Li, 2021, Commun. Math. Phys. 388, 1281–1295.

5. *Global wellposedness for 2D quasilinear wave without Lorentz*, joint with D. Li, J. Xu and D. Zha, Dynam. Part. Differ. Eq., 2022, 19(2) , 123-140.

6. *On the equivalence of classical Helmoltz equation and fractional Helmoltz equation with arbitrary order*, joint with D. Li and W. Yang , to appear in Comm. Contemp. Math.

7. *Equivalent formulations of the oxygen diffusion problem and other implicit free boundary value problems and implications for numerical approximation*, joint with Z. Fu and B. Wetton, to appear in Siam J. Appl. Math.

Preprints

1. *Energy stable semi-implicit schemes for Allen-Cahn and fractional Cahn-Hilliard equations,* preprint. (47 pages.)

2. *On a Sinc-type MBE model*, joint with D. Li, C. Quan and W. Yang, submitted to Siam J. Appl. Math. ArXiv:2106.16193.

3. *Uniform Boundedness of Highest Norm for 2D Quasilinear Wave*, joint with D. Li and J. Xu, submitted. ArXiv:2104.10019.

4. *Stability analysis of BDF methods for gradient flows with L^2-bounded nonlinearity*, joint with D. Li, C. Quan and W. Yang, in preparation.

5. *Energy stability and convergence of Strang splitting method for Cahn-Hilliard equation*, joint with D. Li and C. Quan, in preparation.