

XINYU CHENG 程新宇

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地址 · 上海市杨浦区邯郸路 220 号复旦大学 5 号楼 406 室

🎓 教育背景

不列颠哥伦比亚大学 (UBC), 哲学博士	2017-2021
<ul style="list-style-type: none">方向: 偏微分方程的分析与数值算法博士论文: Analytical and numerical results for phase field, implicit free boundary, and fluid models.导师: Prof. Li, Dong & Prof. Wetton, Brian.	
不列颠哥伦比亚大学 (UBC), 理学硕士	2015-2017
<ul style="list-style-type: none">方向: 偏微分方程的分析与数值算法硕士论文: On the Stability of a Semi-Implicit Scheme of Cahn-Hilliard Type Equations.导师: Prof. Li, Dong & Prof. Wetton, Brian.	
香港中文大学 (CUHK), 理学学士	2011-2015
<ul style="list-style-type: none">方向: 基础数学与应用数学	

👤 工作经历

复旦大学, 青年研究员	2023 至今
<ul style="list-style-type: none">单位: 智能复杂体系基础理论与关键技术实验室	
复旦大学, 博士后研究员	2021-2023
<ul style="list-style-type: none">单位: 数学科学学院合作导师: 雷震	
不列颠哥伦比亚大学, 博士生助教讲师	2018-2019
<ul style="list-style-type: none">单位: 数学系课程: Math 110/001: Differential Calculus	
不列颠哥伦比亚大学, 研究生助教	2015-2021
<ul style="list-style-type: none">单位: 数学系课程: Math 300: Complex Analysis, Math 316: Partial Differential Equations, etc.	

🏆 基金项目

复旦大学	
<ul style="list-style-type: none">国自然青年科学基金 (30W)上海市“科技创新行动计划”自然科学基金面上项目 (20W)复旦大学 AI+ 课程资助 (20W)中国博士后科学基金特别资助 (站中) (18W)中国博士后科学基金面上 (8W)中国博士后国际交流计划引进项目 (40W)上海市“超级博士后”激励计划 (20W)	2024- 2024- 2024- 2022-2023 2022-2023 2021-2023 2021-2023

🏅 荣誉奖项

不列颠哥伦比亚大学	
<ul style="list-style-type: none">President's Academic Excellence Initiative PhD AwardInternational Doctoral FellowshipInternational Tuition AwardFaculty of Science Graduate Award	2020-2021 2017-2021 2015-2017 2015-2017

香港中文大学

- 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

🔧 相关技能

- 软件: L^AT_EX, MATHEMATICA, MS OFFICE, VISUAL STUDIO
- 编程: C++, C, MATLAB

📄 研究成果

已发表 (接收) 论文

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. (第一作者)
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. (第一作者)
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. (第一作者)
4. *Non-uniqueness of stationary weak solutions to the surface quasi-geostrophic equations*, joint with H. Kwon and D. Li, 2021, Comm. Math. Phys. 388, 1281–1295. (第一作者)
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. (第一作者)
6. *On the equivalence of classical Helmholtz equation and fractional Helmholtz equation with arbitrary order*, joint with D. Li and W. Yang, to appear in Comm. Contemp. Math. (第一作者)
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, SIAM J. Appl. Math., 2023, 83(1), 52-78. (第一作者)
8. *On the global well-posedness and scattering of the 3D Klein-Gordon-Zakharov system*, joint with J. Xu, Calc. Var. Partial Differential Equations, 63(17), 2024. (第一作者)
9. *Localization for general Helmholtz*, joint with D. Li and W. Yang, to appear in J. Diff. Eqn, 2024. (第一作者)

预印版论文

1. *Unconditionally stable exponential integrator schemes for the 2D Cahn-Hilliard equation*, preprint, submitted.
2. *Energy stable semi-implicit schemes for the 2D Allen-Cahn and fractional Cahn-Hilliard equations*, preprint, submitted.
3. *Energy stable semi-implicit schemes for the 3D Allen-Cahn equation*, preprint, submitted.
4. *Second order energy stable semi-implicit schemes for the 2D Allen-Cahn equation*, preprint, submitted.
5. *On a Sinc-type MBE model*, joint with D. Li, C. Quan and W. Yang. ArXiv:2106.16193.
6. *Uniform Boundedness of Highest Norm for 2D Quasilinear Wave*, joint with D. Li and J. Xu, submitted. ArXiv:2104.10019.
7. *Energy stability and convergence of Strang splitting method for Cahn-Hilliard equation*, joint with D. Li, in preparation.
8. *Global well-posedness for 2D quasilinear wave equations with non-compactly supported initial data*, joint with D. Li and J. Xu, preprint.
9. *Global well-posedness of a two dimensional wave-Klein-Gordon system with small non-compactly supported data*, submitted. ArXiv:2312.00821.
10. *On semi-implicit schemes for the incompressible Euler equations via the vanishing viscosity limit*, joint with Z. Luo and S. Wang, submitted. ArXiv:2406.12320.
11. *Global well-posedness and uniform-in-time vanishing damping limit for the inviscid Oldroyd-B model*, joint with Z. Luo, Z. Yang and C. Yuan, arXiv:2410.09340.

学术服务

完成以下期刊审稿服务: *Physica Scripta*, *IMA Journal of Numerical Analysis*, *Advances in Computational Mathematics*, *Fractional Calculus and Applied Analysis*, *Dynamics of Partial Differential Equations*.

学术活动

- 第四届国际生物数学建模、分析与应用研讨会, 报告人** 2024.06
- 主办方: 哈尔滨工程大学数学科学学院
 - 报告题目: Analytical and numerical results of PDE models from material sciences and biology.
- 非线性分析青年学术研讨会, 报告人** 2024.06
- 主办方: 武汉理工大学数学科学研究中心
 - 报告题目: Analytical and numerical results of PDE models from material sciences and biology.
- 三亚波国际前沿论坛, 参会** 2024.01
- 主办方: 清华三亚国际数学论坛
- 讨论班报告, 报告人** 2023.11
- 主办方: 上海科技大学数学科学研究所
 - 报告题目: Analytical and numerical results of some phase field and free boundary models.
- 学术访问, 访问学者** 2023.07-2023.08
- 邀请方: 华南理工大学数学学院
- 高维偏微分方程的分析和计算线上研讨会, 报告人** 2022.12
- 主办方: 南方科技大学和北京师范大学 (珠海校区)
 - 报告题目: Trigonometric type models in the recent study of phase field problems.
- 学术访问, 访问学者** 2021.02 - 2021.04
- 邀请方: 南方科技大学国际应用数学中心
- 天津大学偏微分方程研讨会, 报告人** 2019.08
- 主办方: 天津大学应用数学中心
 - 地点: 天津市
 - 报告题目: Computational, Asymptotic, and Rigorous Analysis of Fully Implicit Time Stepping for Allen-Cahn Dynamics.
- 学术访问, 访问学者** 2019.06 - 2019.08
- 邀请方: 天津大学应用数学中心吴奕飞教授
- SIAM Conference on Applications of Dynamical Systems, Invited minisymposium speaker** 2019.05
- 主办方: 美国工业与应用数学学会
 - 地点: Snowbird, UT, US
 - 报告题目: Computational, Asymptotic, and Rigorous Analysis of Fully Implicit Time Stepping for Allen-Cahn Dynamics.
- 学术访问, 访问学者** 2018.04
- 邀请方: 美国密歇根州立大学数学系 Keith Promislow 教授