

CURRICULUM VITAE

Bo Lin

Research Fellow

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EDUCATION

- **Ph.D.**, Applied Mathematics, National University of Singapore, Singapore *Aug. 2016 - Nov. 2020*
Thesis: Efficient and Accurate Parallel Simulations for Streamer Discharge in Three Dimensions
Supervisors: Professor Weizhu Bao, Professor Zhenning Cai
- **B.Sc.**, Information and Computing Science, Nanjing University, China *Sep. 2012 - Jun. 2016*
- **B.Fin.**, Finance (Double degree), Nanjing University, China *Sep. 2012 - Jun. 2016*

EMPLOYMENT

- Research Fellow, Department of Mathematics, National University of Singapore *Dec. 2020 - Present*

RESEARCH INTEREST

- Numerical simulation for plasma physics
- Structure-preserving algorithms for gas dynamics
- Efficient implementations in parallel computing

REFEREED JOURNAL PUBLICATIONS

Submitted and in Preparation

7. Zhenning Cai, **Bo Lin**. An entropic method for the convection equation and the Boltzmann equation, in preparation.
6. **Bo Lin**, Chijie Zhuang. Application of adaptive strategies to the fast multipole method in calculating photoionization, in preparation.
5. **Bo Lin**, Chijie Zhuang. Simulation of streamer discharges using adaptive mesh refinement and embedded boundary method, in preparation.
4. Zhenning Cai, Jingwei Hu, Yang Kuang, and **Bo Lin** (2021). An entropic method for discrete systems with Gibbs entropy. Submitted to *SIAM Journal on Numerical Analysis* (under 1st review). (arXiv: 2106.12428)

Published and Accepted

3. **Bo Lin**, Chijie Zhuang, Zhenning Cai, Rong Zeng, and Weizhu Bao (2020). Accurate and efficient calculation of photoionization in streamer discharges using fast multipole method. *Plasma Sources Science and Technology*, 29(12), 125010.
2. Chijie Zhuang, **Bo Lin**, Rong Zeng, Lei Liu, and Min Li (2020). 3-D parallel simulations of streamer discharges in air considering photoionization. *IEEE Transactions on Magnetics*, 56(3), 1-4.

1. **Bo Lin**, Chijie Zhuang, Zhenning Cai, Rong Zeng, and Weizhu Bao (2020). An efficient and accurate MPI-based parallel simulator for streamer discharges in three dimensions. *Journal of Computational Physics*, 401, 109026.

HONORS AND AWARDS

- Top Graduate Tutors (top 20% of all graduate tutors) in Department of Mathematics for Academic Year 2018/19, National University of Singapore, 2019.
- Finalist of the 7th BGCE Student Paper Prize, SIAM Conference on Computational Science and Engineering (CSE19), 2019.
- SIAM Student Travel Award, 2019.
- First-Class Prize of Outstanding Bachelor's Thesis, Nanjing University, 2016.
- Outstanding Graduate Award, Nanjing University, 2016.
- National Scholarship, China, 2014.

PROFESSIONAL ACTIVITIES

Invited Talks

- “An entropic scheme for systems with mass conservation” (virtual), Nanjing University of Aeronautics and Astronautics, Nanjing, China, Jul. 19, 2021.
- “An adaptive mesh refinement method and its parallel implementation in plasma simulations” (virtual), Forum on fluid interface and adaptive methods (in Chinese), Beijing, China, Jun. 5, 2021.
- “A parallel simulator for streamer discharges in three dimensions”, Workshop on Modeling and Simulation for Quantum Condensation, Fluids and Information, Singapore, Nov. 18–22, 2019. (slides)
- “An efficient and accurate parallel simulator for streamer discharges in three dimensions”, The 7th NUS Graduate Symposium in Mathematics, Singapore, Apr. 22, 2019.
- “An efficient and accurate parallel simulator for streamer discharges in three dimensions”, SIAM Conference on Computational Science and Engineering (CSE19), Spokane, Washington, USA, Feb. 25 – Mar. 1, 2019.

Improvement to Software

- PETSc version 3.10 (<https://lists.mcs.anl.gov/pipermail/petsc-announce/2018/000068.html>)
- Chombo

Professional Services

- Student Chapter Representative to SIAM Student Days, Spokane, Washington, USA, Feb. 24–28, 2019. (Funded by SIAM Chapter Representative Funding)

TEACHING EXPERIENCES

National University of Singapore

Teaching Assistant in the Department of Mathematics for the following courses:

- MA1521 Calculus for Computing, Semester 2, 2019/20
- MA2213 Numerical Analysis I, Semester 1, 2019/20
- MA1521 Calculus for Computing, Semester 1 & 2, 2018/19
- CS1231 Discrete Structures, Semester 2, 2017/18
- MA3110 Mathematical Analysis II, Semester 2, 2017/18
- MA1521 Calculus for Computing, Semester 1, 2017/18