

CURRICULUM VITAE

Fan Bai

Department of Mathematics
Florida State University
Tallahassee, Florida 32306
E-mail: fb18b@fsu.edu

Education

- PhD Candidate in Mathematics, 2018-present, Florida State University, Tallahassee, Florida
- PhD Candidate in Mechanics, 2010-present, Shanghai Jiao Tong University, Shanghai
- Bachelor of Science in Engineering Mechanics, 2006-2010, Shanghai Jiao Tong University, Shanghai

Publications

- Bai, F., Bertram, R. and Karamched, B.R. Bistability and Noise may Underlie Neuronal Polarization. (Submitted)
- Bai, F., Bertram, R. and Karamched, B.R., 2021. A closed-loop multi-scale model for intrinsic frequency-dependent regulation of axonal growth. Mathematical biosciences, p.108768.
- Bai, F. and Sun, R., 2019. A theoretical analysis of receptor-mediated endocytosis of nanoparticles in wall shear flow. Biophysical Reviews and Letters, 14(02), pp.75-99.
- Bai, F. and Sun, R., 2019. Numerical investigation of the hydrodynamic interaction between two capsules in a shear flow. Chinese Journal of Hydrodynamics, 34(3), p308.
- Bai, F., Wu, J. and Sun, R., 2018. An investigation of endocytosis of targeted nanoparticles in a shear flow by a statistical approach. Mathematical biosciences, 295, pp.55-61.
- Fu, Y., Wang, Y., Bai, F., Wu, J., Sun, R. and Dong, C., 2015. The effect of concentration ratio on tumor cell adhesion in shear flow. Journal of Medical Biomechanics, 30(5), pp.392-396.
- Bai, F., Dong, C., Cao, C. and Sun, R., 2015. Investigation of cell aggregation on the substrate of a parallel-plate flow chamber. Cellular and Molecular Biology, 61(2), pp.86-93.

Conferences

- A Closed-Loop Multi-Scale Model for Intrinsic Frequency-Dependent Regulation of Axonal Growth (presentation), SIAM Conference on the Life Sciences (LS22), Pittsburgh, Pennsylvania, USA.
- A theoretical investigation of a frequency-dependent regulation of axonal growth (presentation), 44th SIAM Southeastern Atlantic Section Conference, Auburn, Georgia, USA, 2021.
- Modeling of cell aggregation near substrate in a parallel-plate flow chamber using population balance dynamics (poster), 14th International Congress of Biorheology and 7th International Conference on Clinical Hemorheology, Istanbul, Turkey, 2012.
- Modeling of cell aggregation near wall in a parallel-plate flow chamber (poster), World Congress on Medical Physics and Biomedical Engineering (WC2012), Beijing, China, 2012.

Teaching

- Recitation TA of the graduate course "Fluid Mechanics" at the Department of Engineering Mechanics, Shanghai Jiao Tong University (09/2012-01/2013, 09/2013-01/2014, 09/2014-01/2015)
- Grader of the undergraduate course "Ordinary Differential Equations" at UM-SJTU Joint Institute, Shanghai Jiao Tong University (10/2011-12/2011)
- Lab TA for the undergraduate course "College Algebra", "Precalculus", "Business Calculus" and "Trigonometry" at the Department of Mathematics, Florida State University (09/2018-07/2020)
- Precalculus solo instructor at the Department of Mathematics, Florida State University (08/2020-12/2020)
- Calculus 1 recitation instructor at the Department of Mathematics, Florida State University (01/2021-04/2021)
- Calculus 1 solo instructor at the Department of Mathematics, Florida State University (05/2021-07/2021)

- Calculus 2 solo instructor at the Department of Mathematics, Florida State University (01/2022-04/2022)
- Calculus 3 solo instructor at the Department of Mathematics, Florida State University (08/2021-12/2021, 05/2022-07/2022, 08/2022-present)

Awards

- Shanghai Scholarship (2007)
- Academic Excellence Scholarship of Shanghai Jiao Tong University (2007-2008)
- Academic Excellence Scholarship of Shanghai Jiao Tong University (2008-2009)
- Excellent Bachelor Thesis Award (2010)
- Excellent Teaching Award (2022)

Professional Service

- Review for Cellular and Molecular Bioengineering

Membership

- American Mathematical Society (AMS) (2018 -Present)

Talks

- A probabilistic model of receptor-mediated nanoparticle endocytosis in wall shear flow. Florida State University Biomathematics Seminar, November 28 2018.
- Kinetic models of gene expression including non-coding RNAs. Florida State University Biomathematics Seminar, March 27 2019.
- Excitability of neurons. Florida State University Biomathematics Journal Club, June 19 2019.
- Simple models of neuron. Florida State University Biomathematics Journal Club, July 9 2019.
- Potassium channels and chloride channels. Florida State University Biomathematics Journal Club, October 23 2019.
- Entrainment and synchronization. Florida State University Biomathematics Journal Club, February 19 2020.
- Gap junctions and neural field models. Florida State University Biomathematics Journal Club, February 26 2020.
- On "Self-organized system-size oscillation of a stochastic lattice-gas model". Florida State University Biomathematics Journal Club, November 18 2020.
- On "Growth, collapse, and stalling in a mechanical model for neurite motility". Florida State University Biomathematics Journal Club, April 7 2021.
- Networks in their surrounding contexts. Florida State University Biomathematics Journal Club, September 8 2021.
- Network effects. Florida State University Biomathematics Journal Club, October 27 2021.
- Temporal programs and the global structure of transcription networks. Florida State University Biomathematics Journal Club, February 09 2022.
- Kinetic proofreading and conformational proofreading. Florida State University Biomathematics Journal Club, March 02 2022.
- Machineries regulating vesicle traffic. Florida State University Biomathematics Journal Club, September 07 2022.

Computer Skills

- Languages: C, C++, Python, Matlab
- Tools and Applications: LATEX, MS Office tools or equivalent
- Operating Systems: Windows, Linux