Patrick Flynn

Contact Information

University of California, Los Angeles
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Research Interests

Partial differential equations, kinetic theory, fluid equations

Education

Brown University
Ph.D. in Applied Mathematics (2018-2023)
M.S. in Applied Mathematics (2020)
Advisor: Benoit Pausader

Oregon State University
B.S. in Mathematics and Physics (2014-2018)
Summa Cum Laude

Employment

University of California, Los Angeles
Hedrick Assistant Adjunct Professor (2023-Present)

Publications and Preprints

1. Negative regularity mixing for random volume preserving diffeomorphisms (with Jacob Bedrossian and Sam Punshon-Smith). *arXiv preprint* arXiv:2410.19251 (2024). link
2. Local well-posedness of the Vlasov-Poisson-Landau System and Related Models. (Accepted to *Kinetic and Related Models*) *arXiv preprint* arXiv:2310.00777 (2023). link
3. The massless electron limit for the Vlasov-Poisson-Landau system (with Yan Guo). *Communications in Mathematical Physics* 405.2 (2024): 27. (2024). link
4. Scattering map for the Vlasov–Poisson system (with Zhimeng Ouyang, Benoit Pausader, and Klaus Widmayer). *Peking Mathematical Journal* (2021): 1-28. link
5. The vanishing surface tension limit of the Muskat problem (with Huy Q. Nguyen). *Communications in Mathematical Physics* 382.2 (2021): 1205-1241. link
6. Self-organized clusters in diffusive run-and-tumble processes (with Quinton Neville, and Arnd Scheel). *Discrete and Continuous Dynamical Systems-Series S* 13.4 (2019): 1187-1208. link

Invited Talks

UC Davis PDE and Applied Math Seminar (October 2023)

New England Dynamics Seminar, UMass Amherst (April 2023)

Princeton University Fluids Seminar (February 2023)

Boston University Dynamics Seminar (September 2022)

Brown University PDE Seminar (September 2022)

University of Barcelona, Mathematical Analysis Seminar (June 2022)

University of Michigan, Differential Equations Seminar (March 2022)

Online North East PDE and Analysis Seminar (February 2021)

Teaching Experience

Spring	2024	Instructor, Math 136, Partial Differential Equations, UCLA
Winter	2024	Instructor, Math 135, Ordinary Differential Equations, UCLA
Fall	2023	Instructor, Math 31B, Integration and Infinite Series, UCLA
Fall	2023	Instructor, Math 135, Ordinary Differential Equations, UCLA
Fall	2022	Instructor, Single Variable Calculus, Part II, Brown University
Spring	2020	Teaching Assistant, Applied Partial Differential Equations, Brown University
Fall	2019	Teaching Assistant, Applied Partial Differential Equations, Brown University

Honors and Awards

2020–2023	National Science Foundation Graduate Research Fellowship
2018–2020	Presidential Fellowship, Brown University

Outreach and service

2020	Mentor for applied math directed reading program on stochastic control
2019	Led student workshop on the Rayleigh-Taylor instability at applied math graduate student retreat
2021-current day	Referee for the following journals: Quarterly of Applied Math, Nonlinearity, Studies in Applied Mathematics, Archive of Rational Mechanics and Analysis.

Undergraduate Research Experience

2018	Computational Physics Student Summer Workshop Advisors: Juan Saenz, Jesse Canfield Los Alamos National Laboratory
2017	Complex Systems REU Advisor: Arnd Scheel, Department of Mathematics University of Minnesota, Twin Cities