Scott Weady

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162 5th Avenue
New York, NY, 10010
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Research Interests

Active matter, fluid dynamics, moving boundary problems, numerical simulation, partial differential equations.

Employment

Flatiron Research Fellow Sep 2022 - Present
Center for Computational Biology, Flatiron Institute, Simons Foundation, New York, NY

Education

PhD, Mathematics Sep 2022
Courant Institute of Mathematical Sciences, New York University, New York, NY
Advisors: Leif Ristroph and Michael J. Shelley
Thesis: *Dynamics of moving bodies and boundaries in active and natural convective flows.*

Bachelor of Science, Mathematics Dec 2017
Yale University, New Haven, CT
Advisors: John S. Wettlaufer and Larry Wilen
Thesis: *Circuit bounds on stochastic transport in the Lorenz equations.*

Publications

1. Panyu Chen, Scott Weady, Severine Atis, Takumi Matsuzawa, Michael J. Shelley, and William T. M. Irvine. From spin to swarm: collective dynamics of self-propelled active vortlet suspensions. *Under Review*, 2024.
2. Scott Weady. Variational bounds and nonlinear stability of an active nematic suspension. *Under review*, 2024.
3. Samuel Boury, Scott Weady, and Leif Ristroph. Yardangs sculpted by heterogeneous erosion. *Under review*, 2024.
4. Suryanarayana Maddu, Scott Weady, and Michael J. Shelley. Learning fast, accurate, and stable closures of a kinetic theory of an active fluid. *Journal of Computational Physics*, 504, 2024.
5. Scott Weady, David B. Stein, Alexandra Zidovska, and Michael J. Shelley. Conformations, correlations, and instabilities of a flexible fiber in an active fluid. *Physical Review Fluids*, 9, 2024.
   Editor's suggestion. Selected for Physical Review Fluids Journal Club.
6. Samuel Boury, Scott Weady, and Leif Ristroph. Sculpting the Sphinx. *Physical Review Fluids*, 8, 2023.
   Associated with the Milton van Dyke poster award.
7. Scott Weady, David B. Stein, and Michael J. Shelley. Thermodynamically consistent coarse-graining of polar active fluids. *Physical Review Fluids*, 7, 2022.
   Editor's suggestion.
8. Scott Weady, Michael J. Shelley, and David B. Stein. A fast Chebyshev method for the Bingham closure with application to active nematic suspensions. *Journal of Computational Physics*, 457, 2022.
9. Scott Weady, Joshua Tong, Alexandra Zidovska, and Leif Ristroph. Anomalous convective flows carve pinnacles and scallops in melting ice. *Physical Review Letters*, 128, 2022.
   On the Cover. Featured in Physics.
10. Scott Weady, Sahil Agarwal, Larry Wilen, and John S. Wettlaufer. Circuit bounds on stochastic transport in the Lorenz equations. *Physics Letters A*, 382(26), 2018.

Conferences & Talks

Invited

Chromatin Club, *New York University*, April 2024

Physical Review Fluids Journal Club, *American Physical Society*, February 2024

Applied and Computational Math Seminar, *University of Wisconsin*, February 2024

AIM Seminar, *University of Michigan*, November 2021

Contributed

APS Division of Fluid Dynamics Annual Meeting, November 2023

International Congress on Industrial and Applied Mathematics, August 2023

APS March Meeting, March 2023

Active Matter in Complex Environments, *Aspen Center for Physics*, January 2023

US National Congress on Theoretical and Applied Mechanics, June 2022

APS March Meeting, March 2022

Modeling & Simulation Group Seminar, *Courant Institute*, February 2022

APS Division of Fluid Dynamics Annual Meeting, November 2021

Modeling & Simulation Group Seminar, *Courant Institute*, December 2020

APS Division of Fluid Dynamics Annual Meeting, November 2017

Mathematical Association of America MathFest, August 2016

Awards & Grants

Milton van Dyke Award, *APS DFD Gallery of Fluid Motion*, 2023

Milton van Dyke Award, *APS DFD Gallery of Fluid Motion*, 2022

Wilhelm Magnus Memorial Prize, *New York University*, 2022

Peter D. Lax Scholarship, *New York University*, 2022

Moses A. Greenfield Research Prize, *New York University*, 2021

NSF Graduate Research Fellowship, 2019 - 2022

MacCracken Fellowship, *New York University*, 2018

Dean's Fellowship Program, *New York University*, 2018

International Summer Award, *Yale University*, 2014

M. Albert Geib Scholar, *Yale Club of New Haven*, 2013

National Hispanic Scholar, 2013

Teaching

Teaching Assistant, Department of Mathematics
Courant Institute, New York University, New York, NY
- Introduction to Computer Simulation (Undergraduate), Spring 2021
- Modeling and Simulation in Science, Engineering, and Economics (Undergraduate), Fall 2020

Course Grader, Department of Mathematics
Courant Institute, New York University, New York, NY
- Numerical Methods I (Graduate), Fall 2019

Course Grader, Department of Mathematics
Yale University, New Haven, CT
- Calculus I (Undergraduate), Spring 2016
- Calculus I (Undergraduate), Fall 2015
- Calculus I (Undergraduate), Fall 2014

Volunteer Teacher, IRIS (Integrated Refugee & Immigrant Services) Jan 2018 - July 2018
New Haven, CT

Volunteer Teacher, MathCounts Sep 2013 - Dec 2015
New Haven, CT

Service

Seminar & Conference Organization

Flatiron-Wide Autumn Meeting Oct 2023
Flatiron Institute, Simons Foundation, New York, NY

Active Matter Festival, Modeling & Simulation Group Seminar Feb 2022
Courant Institute, New York University, New York, NY

AM-SURE (Summer Undergraduate Research) Summer 2021
Courant Institute, New York University, New York, NY

Modeling & Simulation Group Seminar Sep 2020 - May 2021
Courant Institute, New York University, New York, NY

Graduate Student-Postdoc Seminar Sep 2018 - May 2020
Courant Institute, New York University, New York, NY

Reviewer for refereed journals

Journal of Computational Physics
Journal of Fluid Mechanics
Physical Review E
Physical Review Fluids
Physical Review Letters
PRX Life
Soft Matter

Updated April 15, 2024