

Sameer Iyer

Contact	Department of Mathematics University of California, Davis Davis, CA 95616 Email: samiyer@ucdavis.edu Citizenship: USA	
Appointments	UC Davis, Department of Mathematics Assistant Professor (Tenure Track)	July 2021 -
	Princeton University, Department of Mathematics NSF Postdoctoral Fellow	September 2018 - June 2021
Short Term Appointments	Stanford University, Department of Mathematics Visiting Assistant Professor	April 2023-June 2023
	Brown University, Division of Applied Mathematics Postdoctoral Research Associate	June 1 - June 30, 2018
Education	Brown University, Ph.D. in Applied Mathematics (Ph.D. Advisor: Yan Guo) Brown University, Sc.M in Applied Mathematics, Brown University, Sc.B in Applied Mathematics, <i>magna cum laude</i>	2013 - 2018 2018 2012
Awards & Honors	UC Davis Hellman Fellowship Outstanding Dissertation Award in the Physical Sciences (Joukowsky Family Foundation), Dunmi-Ji Award in Applied Mathematics for graduating Ph.D.'s. Rohn-Truell Prize in Applied Mathematics (undergraduate award shared with Nadejda Drenska) Phi Beta Kappa (undergraduate)	2023-2024
Funding & Grants	NSF Mathematical Sciences Postdoctoral Research Fellowship (DMS-1802940) NSF Standard Grant (DMS-2306528)	2018 - 2021 2023-2026
Research Interests	Partial Differential Equations, Fluid Mechanics	
Publications & Preprints	<ol style="list-style-type: none">J. Bedrossian, S. He, S. Iyer, F. Wang <i>Uniform Inviscid Damping and Inviscid Limit of the 2D Navier-Stokes Equations with Navier Boundary Conditions</i> preprint May 2024, 157 pages arXiv: 2405.19249J. Bedrossian, S. He, S. Iyer, F. Wang <i>Pseudo-Gevrey Smoothing for the Passive Scalar Equations near Couette</i> preprint May 2024, 130 pages arXiv: 2405.19233S. Iyer, Y. Maekawa <i>Local Rigidity of the Couette Flow for the Stationary Triple-Deck Equations</i> preprint May 2024, 24 pages arXiv: 2405.10532S. Iyer <i>Stability of the Favorable Falkner-Skan Profiles for the Stationary Prandtl Equations</i> preprint March 2024, 59 pages arXiv: 2403.07791	

4. J. Bedrossian, S. He, S. Iyer, F. Wang
Stability threshold of nearly-Couette shear flows with Navier boundary conditions in 2D
preprint October 2023, 37 pages
arXiv: 2311.00141
5. T.D. Drivas, S. Iyer, T.T. Nguyen
The Feynman-Lagerstrom criterion for boundary layers
Arch. Rational Mech. Anal. (2024)
DOI: 10.1007/s00205-024-01991-z, arXiv: 2308.15447
6. A.D. Ionescu, S. Iyer, H. Jia
On the Stability of Shear Flows in Bounded Channels, II: Non-monotonic Shear Flows
Vietnam J. Math. (2024)
DOI: 10.1007/s10013-023-00661-z, arXiv: 2301.00288
7. S. Iyer, N. Masmoudi
Higher regularity theory for a mixed-type parabolic equation
preprint December 2022, 36 pages
arXiv: 2212.08735
8. D. Gerard-Varet, S. Iyer, Y. Maekawa
Improved well-posedness for the Triple-Deck and related models via concavity
J. Math. Fluid. Mech. (2023)
DOI: 10.1007/s00021-023-00809-4 arXiv: 2205.15829
9. Y. Guo, S. Iyer
Validity of Steady Prandtl Layer Expansions
Comm. Pure Appl. Math. (2023)
DOI: 10.1002/cpa.22109 arXiv: 1805.05891
10. S. Iyer, N. Masmoudi
Reversal in the Stationary Prandtl Equations
preprint March 2022, 103 pages
arXiv: 2203.02845
11. T. Buckmaster, S. Iyer
Formation of Unstable Shocks for 2D Isentropic Compressible Euler
Comm. Math. Phys. 389, (2022) 197-271.
DOI: 10.1007/s00220-021-04271-z arXiv: 2007.15519
12. S. Iyer, N. Masmoudi
Boundary Layer Expansions for 2D Navier-Stokes Flows
Ars Inveniendi Analytica (2021)
DOI: 10.15781/64dc-7z92, arXiv: 2103.09170
13. S. Iyer, C. Zhou
Corrigendum to “Stationary inviscid limit to shear flows”
J. Differ. Equ. 289 (2021) 279-288
DOI: 10.1016/j.jde.2021.04.015
14. S. Iyer, N. Masmoudi
Global in x Stability of Steady Prandtl Expansions for 2D Navier-Stokes Flows
preprint March 2021, 73 pages
arXiv: 2008.12347
15. Y. Guo, S. Iyer
Regularity and Expansion for Steady Prandtl Equations
Comm. Math. Phys. 382, (2021), 1403-1447.
DOI: 10.1007/s00220-021-03964-9 arXiv: 1903.08086
16. S. Iyer, V. Vicol
Real Analytic Local Wellposedness for the Triple Deck
Comm. Pure Appl. Math. 74 (2021), no.8, 1641-1684.
DOI: 10.1002/cpa.21894 arXiv: 1905.07640

17. S. Iyer
On Global-in-x Stability of Blasius Profiles
Arch. Rational Mech. Anal. 237 (2020), 951-998.
DOI: 10.1007/s00205-020-01523-5 arXiv: 1812.03906

18. Y. Guo, S. Iyer
Steady Prandtl Layer Expansions with External Forcing
Quart. Appl. Math. (accepted January 2023)
DOI: 10.1090/qam/1655 arXiv: 1810.06662

19. S. Iyer, C. Zhou
Steady Inviscid Limit to Shear Flows
J. Differ. Equ. 267 (2019), no. 12, 7135-7153.
DOI: 10.1016/j.jde.2019.07.017 arXiv: 1711.05664

20. S. Iyer
Steady Prandtl Layers over a Moving Boundary: Non-Shear Euler flows
SIAM J. Math. Anal. 51 (2019) no. 3 1657-1695.
DOI: 10.1137/18M1207351 arXiv: 1705.05936

21. S. Iyer, B. Sandstede
Mixing in Reaction Diffusion Systems: Large Phase Offsets
Arch. Rational Mech. Anal. 233 (2019) no.1, 323-384.
DOI: 10.1007/s00205-019-01358-9 arXiv: 1610.06527

22. S. Iyer
Global Steady Prandtl Expansion Over a Moving Boundary, III
Peking Math. J. 3 (2020) 47-102.
DOI: 10.1007/s42543-019-00015-0 arXiv: 1609.05397

23. S. Iyer
Global Steady Prandtl Expansion Over a Moving Boundary, II
Peking Math. J. 2 (2019) 354-437.
DOI: 10.1007/s42543-019-00014-1 arXiv: 1609.05397

24. S. Iyer
Global Steady Prandtl Expansion Over a Moving Boundary, I
Peking Math. J. 2 (2019) 155-238.
DOI: 10.1007/s42543-019-00011-4 arXiv: 1609.05397

25. S. Iyer
Steady Prandtl Boundary Layer Expansion of Navier-Stokes Flows over a Rotating Disk.
Arch. Rational Mech. Anal. 224 (2017), no.2, 421-469.
DOI: 10.1007/s00205-017-1080-9 arXiv: 1609.05397

Research Talks

AMS Special Session, Mathematical Fluid Dynamics, San Francisco, CA	May 2024
Small Scale Dynamics in Incompressible Fluid Flows, AIM, Pasadena, CA	November 2023
KGTU Mathematics Workshop for Young Researchers, Kyoto University, Kyoto, Japan	October 2023
Penn State University, Applied Math Colloquium, State College, PA (virtual)	September 2023
University of Chile CMM PDE Seminar, Santiago, Chile	August 2023
Joint UCLA-Caltech-USC Analysis Seminar, Los Angeles, CA	May 2023
AMS Special Session, Nonlinear PDEs in Fluid Dynamics, Fresno, CA	May 2023
Lehigh University Applied Math and Analysis Seminar (virtual)	May 2023
University of Minnesota PDE Seminar, Minneapolis, MN	April 2023
AMS Special Session, Dynamics of Nonlinear PDE, Atlanta, GA	March 2023
CAMS Colloquium, USC, Los Angeles, CA	February 2023
UC Berkeley Analysis and PDE Seminar, Berkeley, CA	November 2022
Stanford University PDE Seminar, Stanford, CA	October 2022
International PDE Conference, Shanghai Jiao-Tong University (Virtual)	July 2022
London PDE Seminar Series	June 2022
University of Pittsburgh Department Colloquium	April 2022
City University of Hong Kong (Virtual)	March 2022

	SIAM Conference Analysis of PDEs (virtual)	March 2022
	UC Davis PDE/Applied Math Seminar, Davis, CA	March 2022
	Hamiltonian Methods and Asymptotic Dynamics, ICERM (Virtual)	December 2021
	Department Seminar, Shanghai Jiao-Tong University (Virtual)	July 2021
	Boundary Layers in Fluids, Cergy Paris University, Paris, France (Virtual)	June 2021
	AMS Western Sectional, San Francisco, CA (Virtual)	April 2021
	Nonlinear Evolution PDE, Shanghai, China (Virtual)	December 2020
	UMD PDE Seminar (Virtual)	October 2020
	OU Analysis Seminar (Virtual)	October 2020
	MU-MST Joint Analysis Seminar (Virtual)	September 2020
	UC Davis Department Colloquium	January 2020
	UC Davis PDE Seminar	October 2019
	Brown University PDE Seminar	September 2019
	NYU Abu-Dhabi Seminar	June 2019
	Courant Analysis Seminar	April 2019
	University of Pennsylvania Analysis Seminar	April 2019
	AMS Conference, Special Topics Singularities in Fluid Flows, Honolulu, Hawaii	March 2019
	Workshop on Theory of Boundary Layers and Related Topics, Shanghai, China	December 2018
	UCSD Analysis Seminar	October 2018
	University of Chicago FRG Conference	October 2018
	Princeton University New Faculty Talk	October 2018
	UCLA Analysis Seminar	January 2018
	University of Texas - Austin Analysis Seminar	December 2017
	University of Wisconsin - Madison PDE-Geometric Analysis Seminar	October 2017
	Brown University PDE Seminar	September 2017
	Brown/ Boston University PDE Seminar	December 2016
	Princeton University Analysis of Fluids Seminar	December 2016
	University of Virginia Harmonic Analysis and PDE Seminar	November 2016
	UMass Boston Physics Colloquium	October 2016
	Brown/ Boston University PDE Seminar	April 2016
	Brown University PDE Seminar	November 2015
	Deterministic and Stochastic Partial Differential Equations, Brown University	October 2015
Minicourses	Summer School: (In)-Stability Phenomena in Fluid Mechanics, 5 Lecture Minicourse: "Recent Progress in Stationary Boundary Layers" CY Advanced Studies, Cergy, Paris, France	May 2024
	Winter School: Boundary and Singularity in Fluid Mechanics Minicourse: "Hydrodynamic Stability and Boundary Layers" Simons Center for Geometry and Physics, Stony Brook, NY	January 2025 (upcoming)
Outreach Talks	COSMOS Summer Program, UC Davis	July 2024 (upcoming)
	Lightning Talk for Prospective Graduate Students, UC Davis	March 2024
	Careers in Academia, Keio University, Tokyo, Japan	October 2023
	Davis Math Day Conference, UC Davis	April 2022
	Lightning Talk for Prospective Graduate Students, UC Davis	February 2022
	Faculty Research Seminar (FRS), UC Davis	January 2022
Organization	Winter School: Boundary and Singularity in Fluid Mechanics	January 2025 (upcoming)
Teaching	MAT201A: Analysis (Graduate), UC Davis, Instructor,	Fall 2023
	MAT127B: Real Analysis, UC Davis, Instructor,	Fall 2023
	MAT127A: Real Analysis Section B01, UC Davis, Instructor,	Winter 2023
	MAT127A: Real Analysis, Section C01-C02, UC Davis, Instructor,	Winter 2023
	MAT21B: Integral Calculus, UC Davis, Instructor,	Fall 2022
	MAT21B: Integral Calculus, UC Davis, Instructor,	Winter 2022
	MAT127A: Real Analysis, UC Davis, Instructor,	Fall 2021
	MAT201: Multivariable Calculus, Princeton University, Instructor	Spring 2021
	MAT201: Multivariable Calculus, Princeton University, Instructor	Fall 2020
	MAT 175: Multivariable Calculus for Economics/ Life Sciences, Instructor	Spring 2020
	MAT 201: Multivariable Calculus, Princeton University, Instructor	Fall 2019
	APMA 0360: Methods of Applied Mathematics II (ODE/ PDE), Brown University, Teaching Assistant	Spring 2015

Editorial

Communications on Pure and Applied Analysis

2024 -

Academic Service

• **2023 - 2024 (UC Davis)**

GPC (Graduate Placement Committee):

Graduate Admissions Committee:

UC Davis Analysis and Applied Math Seminar

Fall 2023, Winter 2024

Member of GGAM

Thesis Committee: Ryan-Chris Moreno Vasquez

2021 -

Thesis Committee: Kyle Chickering

2023 -

Thesis Committee: Gavin Pandya

2023 -

Thesis Committee: Allen (Yifeng) Chen

2024 -

Qualifying Exam Committee: Gavin Pandya

September 2023

Initial Advising: Kessler, Thomson

Referee Service:

July 1, 2023 - June 30, 2024:

Adv. Math. (1), Comm. Math. Sci. (1), Phys. D: Nonlinear Phenom.(1)

• **2022 - 2023 (UC Davis)**

UC Davis Fellowship Committee

Winter 2023

Mathematics Department Displays Committee

Winter 2023

OGTA (Outstanding Graduate TA) Review Committee

Spring 2023

UC Davis Analysis and Applied Math Seminar

Fall 2022, Winter 2023

Thesis Committee: Ryan-Chris Moreno Vasquez

2021 -

Thesis Committee: Kyle Chickering

2023 -

Qualifying Exam Committee: Kyle Chickering

November 2022

Reading Course: Ken Brown

Spring 2023

Grant Reviewer for French ANR (agence national de la reserche)

Spring 2023

Member of GGAM

Outreach Events:

Presentation workshop for undergrads, UC Davis Mathematics Department

February 2023

MC for Davis Math alumni panel

May 2023

• **2021 - 2022 (UC Davis)**

Graduate Admissions Committee, UC Davis Mathematics Department

Winter 2022

Graduate Admissions Committee, UC Davis GGAM

Winter 2022

Thesis Committee: Ryan-Chris Moreno Vasquez

2021 -

UC Davis Analysis and Applied Math Seminar

Fall 2021

Member of GGAM

Outreach Events:

Coffee with Profs, UC Davis

December 2021

Pizza with Faculty, UC Davis

November 2021

Applied Math/ PDE Seminar Meet and Greet Organization, UC Davis

October 2021

• **2018 - 2021 (Princeton University)**

Princeton Analysis of Fluids Seminar

Fall 2018 - Spring 2021

• **Referee Service (prior to 7.1.2023):**

Inventiones Mathematicae, Journal of European Mathematical Society (JEMS), Advances in Mathematics, Archive for Rational Mechanics and Analysis, Communications in Pure and Applied Mathematics, Communications in Mathematical Physics, Communications in Mathematical Sciences, SIAM J. Mathematical Analysis, Journal of Mathematical Fluid Mechanics, Annales Institute Henri Poincare, Calculus of Variations and PDE, Discrete Continuous Dynamical Systems (DCDS), International Mathematics Research Notices (IMRN), Israel Journal of Mathematics, Journal of Differential Equations, Journal of Mathematical Physics, Mathematische Annalen, Peking Math. Journal, Physica D, Science China Mathematics, Analysis & PDE