

Siddhant Agrawal

MAILING INFORMATION	Department of Mathematics University of Colorado Boulder Campus Box 395 2300 Colorado Avenue Boulder, CO 80309-0395 USA
EMAIL	Siddhant.Agrawal@colorado.edu or siddhant26@gmail.com
HOMEPAGE	https://sites.google.com/site/siddhantmath/
RESEARCH INTERESTS	Partial Differential Equations
EMPLOYMENT	University of Colorado Boulder, Boulder, CO, USA Assistant Professor (Aug 2024 - current) Instituto de Ciencias Matemáticas (ICMAT), Madrid, Spain Postdoctoral Researcher (Nov 2021 - Aug 2024) University of Massachusetts Amherst, Amherst, MA, USA Visiting Assistant Professor (Sep 2018 - Aug 2021)
LONG TERM VISITS	Mathematical Sciences Research Institute, Berkeley, CA, USA Postdoctoral Fellow (Jan 2021 - May 2021)
EDUCATION	University of Michigan, Ann Arbor, MI, USA Ph.D. Mathematics (Sep 2013 - August 2018) <ul style="list-style-type: none">• Advisor: Prof. Sijue Wu Chennai Mathematical Institute, Chennai, India M.S. Mathematics (Aug 2011 - May 2013) Indian Institute of Technology, Bombay, India B.Tech Electrical Engineering (July 2007 - May 2011)
PAPERS	1. (S. Agrawal, A. Nahmod) Uniqueness of the 2D Euler equation on rough domains (33 pages) Accepted in the Journal of the EMS https://arxiv.org/abs/2308.12926 2. (S. Agrawal) Uniform in gravity estimates for 2D water waves (114 pages) Submitted https://arxiv.org/abs/2301.04599

3. (S. Agrawal, T. Alazard) *Refined Rellich boundary inequalities for the derivatives of a harmonic function*. Proc. Amer. Math. Soc. 151 (2023), no. 5, 2103–2113.
<https://arxiv.org/abs/2205.04756>
4. (S. Agrawal, N. Patel, S. Wu) *Rigidity of Acute Angled Corners for One Phase Muskat Interfaces*. Adv. Math. 412 (2023), Paper No. 108801, 71 pp.
<https://arxiv.org/abs/2111.09291>
5. (S. Agrawal, A. Nahmod) *Uniqueness of the 2D Euler equation on a corner domain with non-constant vorticity around the corner*. Nonlinearity 35 (2022), no. 6, 2767–2808.
<https://arxiv.org/abs/2009.14816>
6. (S. Agrawal) *Angled crested like water waves with surface tension II: Zero surface tension limit*. Mem. Amer. Math. Soc. 293 (2024), no. 1458, v+124 pp.
<https://arxiv.org/abs/2009.13469>
7. (S. Agrawal) *Angled crested like water waves with surface tension: Wellposedness of the problem*. Comm. Math. Phys. 383 (2021), no. 3, 1409–1526.
<https://arxiv.org/abs/1909.09671>
8. (S. Agrawal) *Rigidity of singularities of 2D gravity water waves*. J. Differential Equations 268 (2020), no. 3, 1220–1249.
<https://arxiv.org/abs/1807.05458>

INVITED TALKS

- Nonlinear waves seminar, CU Boulder Applied Math (October 2024)
- PDE and Applied Math Seminar, UC Davis (October 2024)
- Conference on the Incompressible Euler equation, Bedlewo, Poland (August 2024)
- Colloquium (online), University of Colorado Boulder (December 2023)
- Seminar as part of the program on Order and Randomness in PDEs, Institut Mittag-Leffler, Sweden (November 2023)
- Young Researchers in PDEs conference, ICMAT, Spain (Sept 2023)
- ICIAM 2023 Tokyo (online), Waseda University, Japan (August 2023)
- Fluid Summer Workshop, University of Granada, Spain (July 2023)
- Conference of Young Researchers of Real Sociedad de Matemáticas Española (RSME), León, Spain (Feb 2023)
- Workshop on Deterministic Dynamics and Randomness in PDE, Oberwolfach, Germany (May 2022)
- Fluid-Fair workshop, University of Seville (IMUS), Spain (April 2022)
- Virtual PDE Seminar (online), Brown University (April 2022)

PDE and Fluid Mechanics Seminar, ICMAT, Spain (Dec 2021)

Water waves and other interface problems seminar (online), MSRI Berkeley California (March 2021)

Applied Math and Analysis Seminar (online), Duke University (Nov 2020)

Differential Equations Seminar (online), University of Michigan (Oct 2020)

PDE and Differential Geometry Seminar (online), University of Connecticut (Oct 2020)

AMS Sectional Meeting (online), Pennsylvania State University (Oct 2020)

SIAM Conference on Analysis of PDEs, La Quinta, California (Dec 2019)

Joint Brown-BU-UMassAmherst Dynamics and PDE Seminar, Brown University (Nov 2019)

SIAM Annual Meeting Texas Louisiana Section, Southern Methodist University (Nov 2019)

Harmonic Analysis and Differential Equations Seminar, University of Illinois Urbana-Champaign (Oct 2019)

AMS Sectional Meeting, University of Wisconsin Madison (Sep 2019)

Analysis Seminar, Tata Institute of Fundamental Research - Centre for Applicable Mathematics, Bangalore, India (Jan 2019)

Analysis of Fluids Seminar, Princeton University (Dec 2018)

AMS Sectional Meeting, University of Michigan (Oct 2018)

FRG Conference in PDEs, University of Chicago (Oct 2018)

Applied Math Seminar, University of Massachusetts Amherst (Sep 2018)

Great Lakes Mathematical Physics Meeting, Michigan State University (June 2018)

SIAM Annual Meeting Great Lakes Section, Wayne State University (April 2018)

Differential Equations Seminar, University of Michigan (Dec 2017)

EXPOSITORY TALKS AND OUTREACH “What is the Navier Stokes equation?” - Math Club, CU Boulder (October 2024)

“Challenging math problems solved by amateur individuals” - El País (July 2024)
<https://elpais.com/ciencia/cafe-y-teoremas/2024-07-29/grandes-problemas-matematicos-resueltos-por-aficionados-que-hicieron-historia.html>

“The Mpemba effect: When hot water freezes faster than cold” - El País (March 2023)
<https://english.elpais.com/science-tech/2023-03-25/the-mpemba-effect-when-hot-water-freezes-faster-than-cold.html>

“What is the Navier Stokes equation?” - The What Is..? Graduate Seminar (TWIGS), University of Massachusetts Amherst (March 2021)

MENTORING

Mentored two undergraduate students Andrew Fischer-Garbutt and Skandesh Subramaniam as part of a REU project in the summer of 2021. The topic was “The zero dispersion limit for the Camassa Holm equation”.

TEACHING
EXPERIENCE

University of Colorado Boulder

Fall 2024 Instructor, Math 4470/5470 (PDEs)
Fall 2024 Instructor, Math 6310 (Intro to Real Analysis 1)

University of Massachusetts Amherst

Fall 2020 Instructor, Math 331 (Intro to ODEs, online)
Fall 2020 Instructor, Math 331 (Intro to ODEs, online)
Winter 2020 Instructor, Math 523H (Modern Analysis, partially online)
Winter 2020 Instructor, Math 331 (Intro to ODEs, partially online)
Fall 2019 Instructor, Math 523H (Modern Analysis)
Fall 2019 Instructor, Math 331 (Intro to ODEs)
Winter 2019 Instructor, Math 523H (Modern Analysis)
Winter 2019 Instructor, Math 331 (Intro to ODEs)
Fall 2018 Instructor, Math 331 (Intro to ODEs)
Fall 2018 Instructor, Math 331 (Intro to ODEs)

University of Michigan

Winter 2018 Instructor, Math 116 (Calculus II)
Fall 2017 Instructor, Math 116 (Calculus II)
Fall 2016 Teaching assistant, Math 526 (Discrete Stochastic Processes)
Fall 2015 Instructor, Math 116 (Calculus II)
Fall 2014 Instructor, Math 116 (Calculus II)
Winter 2014 Instructor, Math 116 (Calculus II)
Fall 2013 Instructor, Math 115 (Calculus I)

DEPARTMENTAL
SERVICE

Putnam supervisor for CU Boulder, Fall 2024

ORGANIZATION

Joint Organizer, Conference on “Recent trends in fluid mechanics”, ICMAT, Madrid, Spain (Sept 2022)

Joint Organizer, Career Development Seminar, MSRI (Jan 2021 - May 2021)

Joint Organizer, Analysis and PDE Seminar, University of Massachusetts Amherst (Sep 2019 - May 2020)

Joint Organizer, Graduate Student Analysis Seminar, University of Michigan, Ann Arbor (Jan 2015 - April 2016)

REVIEW AND
EVALUATION WORK
FOR JOURNALS

Discrete and Continuous Dynamical Systems, Cambridge Journal of Mathematics, Journal of Nonlinear Science, Indian Journal of Pure and Applied Mathematics, Duke Mathematical Journal, Revista Matemática Iberoamericana, Journal of the European Mathematical Society, Transactions of the American Mathematical Society, Advances in Mathematics, Journal of Differential Equations