ANKUR GUPTA

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EDUCATION AND TRAINING

2012-17: Massachusetts Institute of Technology (MIT)
PhD, Chemical Engineering, M.S., Chemical Engineering Practice
Thesis Adviser: Prof. Patrick S. Doyle and Prof. T. Alan Hatton

2008-12: Indian Institute of Technology (IIT) Delhi
B.Tech, Chemical Engineering, Presidents Gold Medal
Thesis Adviser: Prof. Shantanu Roy

RESEARCH AND PROFESSIONAL EXPERIENCE

2021 - Present: University of Colorado, Boulder
Assistant Professor, Chemical and Biological Engineering Department
(by courtesy) Applied Mathematics Department
(by courtesy) Materials Science and Engineering Program
Principal Investigator: Laboratory of Interfaces, Flow and Electrokinetics (LIFE)

2017-2020: Princeton University
Postdoctoral Research Associate, Mechanical and Aerospace Engineering
Mentor: Prof. Howard A. Stone

RESEARCH IMPACT SNAPSHOT

Scholarly impact	Google Scholar: >3,800 citations; h-index: 25; 57 research articles and 1 book chapter
Independent output	32 papers since joining CU Boulder (20 as corresponding author with student as first authors) Corresponding-author publications in PNAS, Matter, Science Advances, and Journal of Fluid Mechanics, among others
Major recognitions	NSF CAREER; AFOSR YIP; Soft Matter Lectureship; C&EN Talented Twelve; AIChE 35 Under 35; Lyklema Early Career Award
Research support	Secured >$2.08M extramural funding ($1.23M as PI; $0.85M as co-PI; $1.37M direct share)
Invited talks	32 invited talks, including Area Plenary (AIChE Fluid Mechanics), invited speaker at APS Global, ELKIN, ACS Fall, and seminars at leading national and international institutions
Visibility	Coverage in The New York Times, National Geographic, The New Yorker, CNN, C&EN, and others. Multiple podcasts and top-5% Altmetric papers

Selected Awards & Honors

- Dean's Faculty Fellowship (2026)
- Soft Matter Lectureship (2025)
- Area Plenary, Fluid Mechanics, AIChE (2025)
- Chemical and Engineering News Talented Twelve (2025)
- Air Force Office of Scientific Research Young Investigator (2025)
- John and Mercedes Peebles Innovation in Education Award (2024)
- Johannes Lyklema Early Career Award in Electrokinetics (2024)
- ChBE Undergraduate Teaching Award (student-voted 2024; faculty-voted 2023)
- ChBE Graduate Teaching Award, (student-voted 24, 23, 22, 21; faculty-voted 2022, 2024)
- American Institute of Chemical Engineers (AIChE) 35 under 35, 2023
- Dream Chemistry Lecture, Physical Chemistry of the Polish Academy of Sciences, 2023
- Session Keynote Speaker, Emulsions, foams and surfactants, ACS Colloids 2023
- NSF CAREER Award, 2023
- Soft Matter Emerging Investigator, RSC Journals, 2023
- Graduates of the Last Decade (GOLD), Alumni Award, IIT Delhi, 2022
- CU Next Award for Innovation in Teaching, 2022
- ACS Petroleum Research Fund, Doctoral New Investigator, 2022
- Defense Advanced Research Project Agency (DARPA) Riser, 2022
- Hugh Hampton Young Fellow, MIT, 2017
- Presidents Gold Medal, IIT Delhi, 2012

Research Summary

My group, Laboratory of Interfaces, Flow, and Electrokinetics (LIFE), leverages mathematical tools to tackle interdisciplinary problems across colloidal physics, microhydrodynamics and electrochemistry. Our research aims to illuminate the underlying principles governing these systems which could help advances in material discovery, energy storage devices and miniaturized lab-on-a-chip devices. Collectively, three of the papers led by our group have has been profiled in The New York Times, Science Magazine Newsletter, The New Yorker, CNN, The Knowable Magazine, Yahoo News, CU Boulder Today, The Discover Magazine, Chemical & Engineering News, Popular Mechanics, Interesting Engineering, and many others.

Publications

Google Scholar profile, >3,800 citations, h-index=25
Author of 57 research articles and 1 book chapter (55 published/accepted, 3 under review).

Work from University of Colorado Boulder

‡ denotes corresponding author, graduate trainee, undergraduate trainee and postdoc trainee

32 total, 29 published/accepted, 3 submitted, **20 as corresponding author with students as first-author**

1. R. R. Raj, J. A. Carter , A. Gupta‡, C.W.Shields IV‡, Emergence and exploitation of multiple peaks in microstructure-driven acoustic streaming, *under review*
2. G. Origer, R. Raj, N. Jarvey, P. N. Zavala, W Smith, and A. Gupta‡, Rethinking electrochemical balance sheets: A systematic approach on modeling concentration and flux profiles inside a multicomponent cell, *under review*, [arxiv link]
3. M. Kelly, E. Dunn, E. Spickermann, J. Gruber, C. Lasalde, P. N. Zavala, E. Lucas, A. Gupta, H. Atwater and W. Smith‡, The Missing Piece: Nanometer Scale Imaging to Develop Quantitative Descriptors of Bipolar Membrane Junction Structure, *under review*
4. J. Pfeilsticker, E. Coleman, T. Krueger, A. Gupta, and W. Smith‡, Spatially mapping the CO2 alkaline sorbent diffuse microenvironment using operando Raman spectroscopy, *accepted*, ACS Energy Letters **IF: 18.2**
5. B. Rives, F. Henrique, P. J. Zuk and A. Gupta‡, *Geometrically induced acceleration for charging dynamics of electrical double layers in a nanopore with sloped walls*, *accepted*, Journal of Physical Chemistry C [arxiv link] **IF: 3.2**
6. D. Duong, A. Ganguly, A. Gupta and S Shin‡, *Salt-mediated bi-directional propulsion of oil droplets in confined spaces*, Newton (Cell Press), 100405, 2026 [link] **IF: N/A**
7. E. Coleman, and A. Gupta‡, *A pinch of salt in a pinch of salt: Diffusiophoresis in concentration gradients of three ionic species*, Next Materials, 10, 101431, 2026 [link] **IF: N/A**
8. S. Mirfendereski, and A. Gupta‡, *Imperfect Turing patterns: Diffusiophoretic assembly of hard spheres via reaction-diffusion instabilities*, Matter (Cell Press), 9, 102513, 2026 [link] **IF: 17.5**
   Featured in The New York Times, Science Magazine Newsletter and 40 other news stories. Top 5% of all research outputs scored by Altmetric with Attention Score >280.
9. H. R. Sudhakar, A. Gupta and A. G. Rajan‡, *Near-Electrode Anion Dehydration and Field-Dependent Dielectric Response Govern Double Layer Capacitance*, Physical Review E, 112, 055503, 2025 [link] **IF: 2.4**
10. A. Shi, S. Mirfendereski, A. Gupta and D.K. Schwartz‡, *Electrokinetic Nanoparticle Transport in an Interconnected Porous Environment: Decoupling Cavity Escape and Directional Bias*, Proceedings of the National Academy of Sciences, 122, e2514874122, 2025 [link] **IF: 11.1**
11. E. Coleman, and A. Gupta‡, *Diffusiophoresis in acid-base reaction fronts with and without isoelectric point: When, why and where the particles focus*, Physical Review Fluids, 10, 103701, 2025 [link] **IF: 2.8**
12. R. R. Raj, N. B. Day, A. Gupta, and C. W. Shields IV‡, *Transport of adoptive cell transfers with magnetic helical microrobots*, Small, e05946, 2025 [link] **IF: 13.6**
13. B. M. Alessio, and A. Gupta‡, *Fisher-KPP model with chemotaxis over fractal terrains*, Physical Review E, 112, 024213, 2025 [link] **IF: 2.4**
14. F. Henrique, and A. Gupta‡, *Parallel Warburg elements describe ionic transport in nanopores*, PRX Energy, 4, 023009, 2025 [link] **IF: N/A**
15. A. R. Duarte, C. P. Thome, W. S. Hoertdoerfer, C. Praetzel, A. Pellicciotti, A. Gupta, M. A. Bevan, C. W. Shields IV‡, Dielectrophoresis-based polarizability measurement (DPM) for predicting induced-charge electroosmotic flows from modified surfaces, accepted, Advanced Functional Materials, 2424557, 2025 [link] **IF: 19.0**

16. A. Ganguly, S. Roychowdhury and A. Gupta‡, *Unified mobility expressions for externally-driven and self-phoretic propulsion of particles*, Journal of Fluid Mechanics, 994, A2, 2024 [link] **IF: 3.7**
17. F. Henrique, P. J. Zuk, and A. Gupta‡, *A network model to predict ionic transport in porous materials*, Proceedings of the National Academy of Sciences, 121, e2401656121, 2024 [link] **IF: 11.1**
    Featured in Chemical & Engineering News, Popular Mechanics, Interesting Engineering, MSN and 100 other news stories. Top 5% of all research outputs scored by Altmetric with Attention Score >800.
18. A Shah, S. Pathak, K. Lin, S. Garaj, M. Z. Bazant, A. Gupta and P. S. Doyle‡, *A universal approximation for conductance blockade in thin nanopore membranes*, Nano Letters, 24, 4776, 2024 [link] **IF: 9.1**
19. A. Al Harraq, M. Feng, H. Gauri, R. Devireddy, A. Gupta, Q. Sun‡, and B. Bharti‡, *Magnetic control of non-magnetic living organisms*, ACS Applied Materials & Interfaces, 16, 7339, 2024 [link] **IF: 8.3**
20. R. R Raj, A. Ganguly, C. Becker, C. W. Shields IV and A. Gupta‡, *Motion of an active bent-rod with an articulating hinge: Exploring mechanical and chemical modes of swimming*, Frontiers in Physics, 11, 2023 (invited article) [link] **IF: 1.9**
21. A. Ganguly, B. M. Alessio and A. Gupta‡, *Diffusiophoresis: A novel transport mechanism - Fundamentals, applications, and future opportunities*, Frontiers in Sensors, 4, 2023 (invited article) [link] **IF: N/A**
22. B. M. Alessio, and A. Gupta‡, *Diffusiophoresis-enhanced biological Turing patterns*, Science Advances, 9, eadj2457, 2023 [link] **IF: 11.7**
    Featured in CNN, The Knowable Magazine, Yahoo News, CU Boulder Today, The Discover Magazine and 40 other news stories. Selected as a top discovery of CU Boulder 2023. Top 5% of all research outputs scored by Altmetric with Attention Score >430.
23. J. G. Lee, C.P. Thome, Z. Cruse, A. Ganguly, A. Gupta, and C. Wyatt Shields IV‡, *Magnetically locked Janus particle clusters with orientation-dependent motion in AC electric fields*, Nanoscale, 15, 16268, 2023 [link] **IF: 5.2**
24. A. H. Christensen, A. Gupta, G. Chen, W. S. Peters, M. Knoblauch, H. A. Stone, and K. H. Jensen‡, *Optimal geometry for surface-enhanced diffusion*, Physical Review E, 108, 045101, 2023 [link] **IF: 2.4**
25. N. Jarvey, F. Henrique, and A. Gupta‡, *Asymmetric rectified electric fields in multicomponent electrolytes with surface reactions*, Soft Matter, 19, 6032, 2023 [link] **IF: 2.8**
26. A. Seal, U. Tiwari, A. Gupta, and A. G. Rajan‡, *Incorporating ion-specific van der Waals and soft repulsive interactions in the Poisson-Boltzmann theory of electrical double layers*, Physical Chemistry Chemical Physics, 25, 21708, 2023 [link] **IF: 2.9**
27. J.G. Lee, R. R. Raj, C. P. Thome, N. B. Day, P. Martinez, N. Bottenus, A. Gupta, and C. Wyatt Shields IV‡, *Bubble-Based microrobots with rapid circular motions for epithelial pinning and drug delivery*, Small, 2300409, 2023 [link] **IF: 13.6**
28. A. Ganguly, and A. Gupta‡, *Going in circles: Slender body analysis of a self-propelling bent rod*, Physical Review Fluids, 08, 014103, 2023 [link] **IF: 2.8**

29. R. R. Raj, C. Wyatt Shields IV, and A. Gupta‡, *Two-dimensional diffusiophoretic colloidal banding: Optimizing the spatial and temporal design of solute sinks and sources*, Soft Matter, 19, 892, 2023 [link] **IF: 2.8**
    Selected as a HOT article by editors of Soft Matter, part of a collection for Emerging Investigators in Soft Matter series
30. F. Henrique, P. J. Zuk, A. Gupta‡, *Effects of asymmetry in valence and diffusivities on transport of a binary electrolyte in a cylindrical pore*, Electrochimica Acta, 433, 141220, 2022 [link] **IF: 5.8**
31. N. Jarvey, F. Henrique, A. Gupta‡, *Ion transport in an electrochemical cell: A theoretical framework to couple dynamics of double layers and redox reactions for multicomponent electrolyte solutions*, Journal of the Electrochemical Society, 169, 093506, 2022 [link] **IF: 3.0**
32. F. Henrique, P. J. Zuk, A. Gupta‡, *Charging dynamics of electrical double layers inside a cylindrical pore: Predicting the effects of arbitrary pore size*, Soft Matter, 18, 198, 2022 [link] **IF: 2.8**

Work prior to University of Colorado Boulder

33. B. M. Alessio, S. Shim, A. Gupta, H. A. Stone‡, *Diffusioosmosis-driven dispersion of colloids: a Taylor dispersion analysis with experimental validation*, Journal of Fluid Mechanics, 94, A23, 2022 [link]
34. A. Gupta, A.R. Konicek, M.A. King, A. Iqtidar, M. Yeganeh, H.A. Stone‡, *The effect of gravity on the shape of a droplet on a fiber: Nearly axisymmetric profiles with experimental validation* , Physical Review Fluids, 6, 063602, 2021 [link]
35. B.M. Alessio, S. Shim, E. Mintah, A. Gupta, H.A. Stone‡, *Diffusiophoresis and diffusioosmosis in tandem: Two-dimensional particle motion in the presence of multiple electrolytes*, Physical Review Fluids, 6, 054201, 2021 [link]
36. A. Gupta‡, A. Govind Rajan, Emily A. Carter, H.A. Stone‡, *Thermodynamics of electrical double layers with electrostatic correlations*, The Journal of Physical Chemistry C, 124, 26830, 2020 [link]
37. A. Gupta‡, A. Govind Rajan, Emily A. Carter, H.A. Stone‡, *Ionic layering and overcharging in a Poisson-Boltzmann model*, Physical Review Letters, 125, 188004, 2020 [link]
38. A. Gupta‡, P. J. Zuk ‡, H.A. Stone ‡, *Charging dynamics of overlapping double layers in a cylindrical nanopore*, Physical Review Letters, 126, 076001, 2020 [link]
39. A. Gupta, S. Shim, H.A. Stone‡, *Diffusiophoresis: From dilute to concentrated electrolytes*, Soft Matter, 16, 6975, 2020 [link], *Highlighted in inside front cover*
40. A. Gupta‡, *Nanoemulsions*, invited book chapter in *Nanoparticles for Biomedical Applications: Fundamental Concepts, Biological Interactions and Clinical Applications*, edited by Eun Ji Chung, Lorraine Leon and Carlos Rinaldi, Elsevier pulication [link]
41. J.L. Wilson, S. Shim, E. Yu, A. Gupta, H.A. Stone‡, *Diffusiophoresis in multivalent electrolytes*, Langmuir, 36, 7014, 2020 [link]
42. A. Gupta, S. Shim, L. Issah, C. McKenzie, H.A. Stone‡, *Diffusion of multiple electrolytes cannot be treated independently: Model predictions with experimental validation*, Soft Matter, 15, 9965, 2019 [link]

43. Y. Liu, B. Rallabandi, L. Zhu, A. Gupta, H.A. Stone‡, *Pattern formation in oil-in-water emulsions exposed to a salt gradient*, Physical Review Fluids, 4, 084307, 2019 [link]
44. A. Gupta, B. Rallabandi, H.A. Stone‡, *Diffusiophoretic and diffusioosmotic velocities for mixtures of valence-asymmetric electrolytes*, Physical Review Fluids, 4, 043702, 2019 [link]
45. K. Singh, A. Gupta, A. Buchner, F. Ibis, J.W. Pronk, D. Tam, H.B. Eral‡, *A low-cost centrifugal homogenizer for emulsification & mechanical cell lysis*, Journal of Colloidal and Interface Science, 547, 127, 2019 [link]
46. A. Gupta, H. A. Stone‡, *Electric double layers: Effect of asymmetry in electrolyte valence on steric effects, dielectric decrement and ion-ion correlations*, Langmuir, 34, 11971, 2018 [link]
47. A. Gupta, H. Lee, P.S. Doyle‡, *Oil recovery from micropatterned triangular troughs during a surfactant flood*, Langmuir, 34, 10644, 2018 [link]
48. A.Z.M. Badruddoza, A. Gupta, B.L. Trout, A.S. Myerson, P.S. Doyle‡, *Low energy nanoemulsions as templates for the formulation of hydrophobic drugs*, Advanced Theraputics, 1700020, 2018 [link]
49. A. Gupta, H. Lee, P.S. Doyle‡, *Controlled liquid entrapment over patterned sidewalls in confined geometries*, Physical Review Fluids, 2, 094007, 2017 [link]
50. A. Gupta, A.Z.M. Badruddoza, T.A. Hatton, P.S. Doyle‡, *A general route for nanoemulsion synthesis using low energy methods at constant temperature*, Langmuir, 33, 7118, 2017 [link]
51. H. Lee, A. Gupta, T.A. Hatton, P.S. Doyle‡, *Controlled entrapment of liquid isolated chambers through photo-patterned obstacles*, Physical Review Applied, 7, 004013, 2017 [link]
52. A. Gupta, V. Narsimhan, T.A. Hatton, P.S. Doyle‡, *Kinetics of change in droplet size during nanoemulsion formation*, Langmuir, 32, 11551, 2016 [link]
53. S.G.Lee, H. Lee, A. Gupta, P.S. Doyle‡, *Site-selective in situ grown carbonate micromodels with tunable geometry, porosity, and wettability*, Advanced Functional Materials 26, 4896, 2016 [link]
54. A. Gupta, H.B. Eral, T.A. Hatton, P.S. Doyle‡, *Nanoemulsions: Formation, properties and applications*, Soft Matter, 12, 2826, 2016 [link]
55. A. Gupta, H.B. Eral, T.A. Hatton, P.S. Doyle‡, *Controlling and predicting droplet size of nanoemulsions: Scaling relations with experimental validation*, Soft Matter, 12, 1452, 2016 [link]
56. G.C.L. Goff, J. Lee, A. Gupta, W.A. Hill, P.S. Doyle‡, *High-throughput contact flow lithography*, Advanced Science, 2, 10, 2015 [link]
57. H. Lee, R.L. Srinivas, A. Gupta, P.S. Doyle‡, *Sensitive and multiplexed on–chip microRNA profiling in oil–isolated hydrogel chambers*, Angewandte Chemie, 127, 2507, 2015 [link]
58. A. Gupta, S. Roy‡, *Euler–Euler simulation of bubbly flow in a rectangular bubble column: Experimental validation with radioactive particle tracking*, Chemical Engineering Journal, 225, 818, 2015 [link]

FUNDING

Secured over $2.08M in extramural research funding ($1.23M as PI, $850K as co-PI, $1.37M direct share

Awarded and Ongoing

1. PI on NSF CAREER Award, *CAREER: Towards a Comprehensive Theoretical Framework to Predict Multiscale and Multicomponent Electrolyte Transport in Porous Media*, $517,000, Dates: 02/2023 – 01/2028
2. Co-PI (PI: John Falconer, co-PI: Ankur Gupta, Will Medlin) on NSF IUSE, *Collaborative Research: Comparing Effectiveness of Web-based Interactive Digital Experiments to Physical Experiments for Engineering Classrooms*, $750,000 (my share: $75,000), Dates: 07/2024 – 06/2027
3. Co-PI (PI: Oana Luca, co-PI: Gupta) on Lab Venture Challenge 2025, *Magnetically Enhanced Electrolysis for Low-Cost Hydrogen Production*, $100,000 (my share: $20,000), Dates: 01/2026 – 05/2027
4. PI on AFOSR Young Investigator Program 2025, *Embedding Autonomy in Microscale Systems via Reaction-Diffusion Instabilities*, $450,000, Dates: 10/2025 – 09/2028

Awarded and completed

1. PI on ACS Petroleum Research Fund Doctoral New Investigator Award, *Nonequilibrium Analysis of Active Droplets Driven by Micellar Solubilization: Effect of In-Situ Change in Droplet Shape and Inter-Droplet Interactions*, $110,000, Dates: 09/2022 – 08/2024
2. PI on Research & Innovation Seed Grant Program, *Motion of Ellipsoidal Microparticles in Physiological Flows*, $49,985, Dates: 07/2023 – 12/2024
3. PI on CU Next Award, *Interactive Simulations Based on Neural Networks to Teach Undergraduate Fluid Mechanics*, $107,000, Dates: 09/2022 – 05/2025

Pending

1. PI (co-PI: Toney) on NSF Electrochemical Systems, *An Integrated Experimental and Theoretical Investigation into Dynamics of Electrochemical Double Layers*, $695,000
2. PI (co-PI: Zuk, Gupta, Drummond) on ERC Synergy Grant, *Stationary Thermodynamics for Electrokinetics and ElectrochemisTRy (STEER)*, 10,000,000 EUR (my share: 2,200,000 EUR)
3. PI (co-PI: Hind, Bhamla) on AFOSR whitepaper, *Predictive Laws of Migration in Complex Gradient Environments Across Scales*, $900,000

Declined

Submitted 30+ competitive proposals since 2021 to NSF, DOE, DoW (AFOSR, ONR, ARO, DARPA), Simons Foundation, Keck Foundation, Sloan Foundation, and Packard Foundation.

- 8 invited full proposals following white-paper or pre-proposal selection
- 4 proposals advanced to agency or foundation final stages
- Multiple large-scale center or multi-PI collaborations (>$1M scale)
- Repeated submissions to prestigious early-career competitions (Packard, Sloan, Camille-Dreyfus, DOE Early Career, DARPA YFA), demonstrating sustained effort and competitiveness.

INVITED TALKS

* denotes international presentation

Presentations from University of Colorado Boulder

1. Invited Speaker*, 16th International Symposium on Electrokinetics, Hague, Netherlands, 06/24/2026
2. Chemical Engineering, Caltech, 04/16/2026
3. Chemical Engineering, Stanford University, 04/04/2026
4. Invited Speaker, APS Global, Denver, 03/16/2026
5. Mechanical Engineering, Yale University, 03/04/2026
6. Chemical Engineering, University of Illinois Chicago, 01/22/2026
7. Invited Speaker*, AI for Materials and Sustainability, Abu Dhabi, 12/16/2025
8. Chemical Engineering, MIT, 11/14/2025
9. Area Plenary, Fluid Mechanics, AIChE 2025, Boston, 11/03/2025
10. Invited Speaker*, International Conference on Micro Nano Fluidics, 11/01/2025 *remote)*
11. Mathematical Biology, Applied Mathematics, CU Boulder, 10/16/2025
12. Chemical Engineering, University of Washington Seattle, 10/14/2025
13. Emerging Leaders, AES Electrophoretic Society, SciX 2025, Convington, 10/07/2025
14. C&E News Talented 12 symposium, ACS Fall 2025, DC, 08/18/2025
15. Chemical and Biomedical Engineering, University of Wyoming, 03/24/2025
16. Invited Speaker*, Masters Union, Gurugram, India, 12/09/2024
17. Invited Speaker*, Rishihood University, Sonipat, India 11/25/2024
18. Invited Speaker*, Indian Institute of Technology (IIT) Delhi, India, 11/12/2024
19. Nonlinear Waves Seminar, Applied Mathematics, CU Boulder, 10/08/2024
20. Johannes Lyklema Early Career Award Honorary Lecture*, 15th International Symposium on Electrokinetics, Seville, Spain, 09/18/2024
21. Invited Speaker*, 15th International Symposium on Electrokinetics, Seville Spain, 09/18/2024
22. Invited Speaker, Innovation Day, Science History Institute, Philadelphia, Philadelphia, 09/09/2024 (*remote*)
23. Chemical and Biological Engineering, University of Wisconsin, Madison, 04/23/2024
24. Brigham Young University, Chemical Engineering, 11/30/2023
25. Dream Chemistry Lecture, Physical Chemistry of the Polish Academy of Sciences, Warsaw, Poland, 07/13/2023
26. ACS Colloids, Keynote in Emulsions, foams and Surfactants, NC State, 06/06/2023
27. Stanford University, Fluid Mechanics Seminar 05/03/2022
28. National Renewable Energy Laboratory, 04/08/2022 (*remote*)
29. Los Alamos National Laboratory, Physics Colloquium, 02/03/2022 (*remote*)
30. Baylor University, Mechanical Engineering, 10/07/2021 (*remote*)
31. University of Florida, Chemical Engineering, 10/04/2021 (*remote*)
32. Complex Fluids Seminar Series, Carnegie Melon University, 04/16/2021 (*remote*)

Presentations prior to University of Colorado Boulder

33. Soft Matter Coffee Hour (SMATch), Princeton University, Chemical Engineering, 09/16/2020 (*remote*)
34. University of Alberta*, Chemical Engineering, Edmonton, Canada, 04/15/2019
35. National University of Singapore*, Chemical Engineering, Singapore, 04/01/2019
36. Case Western Reserve University, Chemical Engineering, 03/25/2019
37. Michigan State University, Chemical Engineering, 03/05/2019
38. University of Colorado Boulder, Chemical Engineering, 02/28/2019
39. Colorado School of Mines, Chemical Engineering, 02/21/2019
40. University of Oklahoma, Chemical Engineering, 02/15/2019
41. Indian Institute of Technology (IIT) Delhi*, Chemical Engineering, India, 02/05/2019
42. Indian Institute of Science (IISc) Bangalore*, Chemical Engineering, India, 01/30/2019
43. University of California Davis, Chemical Engineering, 01/10/2019
44. University of Wisconsin Madison, Chemical Engineering, 12/05/2018
45. University of Waterloo*, Chemical Engineering, Waterloo, Canada, 08/31/2018
46. Ryerson University*, Mechanical and Industrial Engineering, Toronto, Canada, 08/29/2018
47. Ryerson University*, Chemical Engineering, Toronto, Canada, 08/29/2018
48. McMaster University*, Chemical Engineering, Hamilton, Canada, 08/28/2018
49. McGill University*, Chemical Engineering, Montreal, Canada, 08/24/2018
50. University of Toronto*, Chemical Engineering, Toronto, Canada, 08/08/2018
51. University of British Columbia*, Mechanical Engineering, Vancouver, Canada, 08/02/2018
52. Air Products, Allentown Pennsylvania, 03/03/2017
53. Complex Fluids Group, Princeton University, 12/19/2016
54. The Dow Chemical Company, Midland, Michigan, 10/25/2016
55. Indian Institute of Technology (IIT) Delhi*, Chemical Engineering, India, 03/18/2016

CONTRIBUTED PRESENTATIONS

Presentations from University of Colorado Boulder

Dates listed as start dates of the conference, list includes talks presented, talks scheduled are not included

1. S. Mirfendereski and A. Gupta, *Diffusiophoretic Assembly of Finite-Size Cells via Reaction–Diffusion Chemical Signal: Imperfect Turing Patterns*, 78th APS-Division of Fluid Dynamics Meeting, Houston, TX, 11/23/25
2. S. Mirfendereski, L. Bayer, and A. Gupta, *Diffusiophoresis-Driven Exclusion Zone Formation Near an Ion-Exchange Interface and Onset of Hydrodynamic Instability: Experiments and Simulations*, 78th APS-Division of Fluid Dynamics Meeting, Houston, TX, 11/23/25
3. E. J. Coleman and A. Gupta, *pH-Dependent Focusing of Diffusiophoretic Particles*, 78th APS-Division of Fluid Dynamics Meeting, Houston, TX, 11/23/25

4. S. Mirfendereski, A. Gupta, *Diffusiophoretic Exclusion Zone Formation Near Ion-Exchange Membrane and the Onset of Flow Instability*, 2025 Annual AIChE Meeting, Boston, MA, 11/03/25
5. S. Mirfendereski and A. Gupta, *Roles of Diffusiophoresis and Electrokinetic Phenomena in Suspensions: From Biological Pattern Formation and Exclusion Zone Dynamics to Suspension Mechanical Responses*, 2025 Annual AIChE Meeting, Boston, MA, 11/03/25
6. R. Raj, E. Cutting, A. Gupta, and C. Wyatt Shields IV, *Reconciling Gap Distance Predictions via Theoretical and Experimental Analyses of Magnetic Janus Rollers*, 2025 Annual AIChE Meeting, Boston, MA, 11/03/25.
7. R. Raj, N. Dey, M. Loomis, E. Cutting, A. Gupta, and C. Wyatt Shields IV, *Biohybrid Helix–Macrophage Magnetic Microrobots for Cellular Transport through Mucus and Dispersion over Boundaries*, 2025 Annual AIChE Meeting, Boston, MA, 11/03/25
8. S. Mirfendereski and A. Gupta, *Imperfect Turing Patterns: Diffusiophoretic Assembly of Hard Spheres via Reaction–Diffusion Instabilities*, 2025 Annual AIChE Meeting, Boston, MA, 11/03/25
9. A. Ganguly, S. Roychowdhury, Z. Cruse, and A. Gupta, *A Theoretical Study of the Phoretic Motion of Patchy Spherical and Spheroidal Particles through Unified Mobility Expressions*, 2025 Annual AIChE Meeting, Boston, MA, 11/03/25
10. R. Raj, J. Carter, A. Gupta, and C. Wyatt Shields IV, *Frequency-Dependent Streaming Flows and Motions from Acoustically Powered Microrobots*, 2025 Annual AIChE Meeting, Boston, MA, 11/03/25
11. A. Ganguly, R. Rai, P. Suarez Davila, C. Becker, and A. Gupta, *Chemical and Mechanical Actuation of Bent-Rod Microparticles Near a Wall*, 2025 Annual AIChE Meeting, Boston, MA, 11/03/25
12. E. Coleman and A. Gupta, *pH-Dependent Focusing of Diffusiophoretic Particles*, 2025 Annual AIChE Meeting, Boston, MA, 11/03/25
13. P. N. Romero, D. Vigil-Fowler, W. A. Smith, and A. Gupta, *Ion Transport in Charged Nanoporous Networks*, 2025 The Electrochemical Society Meeting, Chicago, IL, 10/12/25
14. R. R. Raj, A. Gupta, C. W. Shields IV, *Frequency-dependent streaming flows from acoustically actuated bubbles and sharp edges*, 77$^{\text{th}}$ APS-Division of Fluid Dynamics, Salt Lake City, UT, 11/24/24
15. P. Romero, W. A. Smith, A. Gupta, *Reduced-Order Model of Multicomponent Electrolyte Transport in Bipolar Membranes*, 77$^{\text{th}}$ APS-Division of Fluid Dynamics, Salt Lake City, UT, 11/24/24
16. B. Rives, F. Henrique, A. Gupta, *Charging dynamics of electrical double layers in a pore with an axially varying radius: Impact of pore shape and roughness*, 77$^{\text{th}}$ APS-Division of Fluid Dynamics, Salt Lake City, UT, 11/24/24
17. S. Mirfendereski, E. Coleman, A. Gupta, *Particle-Level simulations using diffusiophoresis and cellular automata to create dynamic Turing patterns*, 77$^{\text{th}}$ APS-Division of Fluid Dynamics, Salt Lake City, UT, 11/24/24
18. A. A. Harraq, M. Feng, H. Gauri, A. Gupta, Q. Sun, B. Bharti, *Magnetic Manipulation of Living Organisms without Hybridization*, 2024 AIChE Annual Meeting, San Diego, CA, 10/27/2024

19. F. Henrique, A. Gupta, *Kirchhoff's Laws Get an Upgrade: Double-Layer Dynamics in Pore Networks Described By a De Levie Circuit for an Effective Electrochemical Potential of Charge*, 2024 AIChE Annual Meeting, San Diego, CA, 10/27/2024
20. S. Mirfendereski, A. Gupta, *Merging Turing Patterns and Cellular Automata: Simultaneously Assembling and Evolving Structures Via Diffusiophoresis*, 2024 AIChE Annual Meeting, San Diego, CA, 10/27/2024
21. F. Henrique, P. J. Zuk, A. Gupta, *A Network Model for Ionic Transport in Charged Porous Materials*, ELKIN 2024, Seville, Spain, 09/18/2024
22. F. Henrique, A. Gupta, *Charging dynamics of asymmetric electrolytes in porous media can be represented by magnetically coupled transmission lines*, ACS Fall 2024, Denver, CO, 08/19/2024
23. A. Ganguly, S. Roychowdhury, A. Gupta, *Unified mobility expressions for externally driven and self-phoretic propulsion of particles*, ACS Fall 2024, Denver, CO, 08/19/2024
24. R. R. Raj, A. Gupta, C. W. Shields IV, *Design-driven motion of microrobots powered by acoustic streaming flows*, ACS Fall 2024, Denver, CO, 08/19/2024
25. S. Mirfendereski, B. M. Alessio, E. Coleman, A. Gupta, *Merging Turing patterns and cellular automata: Simultaneously assembling and evolving structures via diffusiophoresis*, ACS Fall 2024, Denver, CO, 08/19/2024
26. N. Jarvey, A. Gupta, *Decomposing total current into capacitive and Faradaic contributions: A theoretical model based on Poisson-Nernst-Planck Equations with Frumkin-Butler-Volmer kinetics*, ACS Fall 2024, Denver, CO, 08/19/2024
27. P. Romero, P. Brimley, W. A. Smith, A. Gupta, *Reduced-order modeling of ion transport in bipolar membranes for electrochemical CO2 capture and conversion*, ACS Fall 2024, Denver, CO, 08/19/2024
28. A. Ganguly, R. R. Raj, C. W. Shields IV, A. Gupta,*Beyond the scallop theorem: Exploring combined mechanical and chemical propulsion mechanisms of a bent rod actuator*, ACS Fall 2024, Denver, CO, 08/19/2024
29. F. Henrique, P. J. Zuk, A. Gupta, *Kirchhoff's laws get an upgrade: Double-layer dynamics in pore networks described by a de Levie circuit for an effective electrochemical potential of charge*, ACS Fall 2024, Denver, CO, 08/19/2024
30. R. R. Raj, N. Day, N. Loomis, E. Cutting, A. Gupta, C. W. Shields IV, *Macrophage transport with helical microrobots: Cell attachment, locomotion, and delivery through mucus*, ACS Fall 2024, Denver, CO, 08/19/2024
31. A. Gupta, *Electrolyte transport in electrochemical capacitors: Impact of porous geometry and EDL-redox coupling*, ACS Fall 2024, Denver, CO, 08/19/2024
32. B. Rives, F. Henrique, A. Gupta, *Effects of pore shape and roughness on charging dynamics of electrical double layers*, ACS Fall 2024, Denver, CO, 08/19/2024
33. A. A. Harraq, M. Feng. H. Gauri, R. Devireddy, A. Gupta, Q. Sun, B. Bharti, *Magnetic fields to manipulate non-magnetic living organisms*, 98th American Chemical Society, Colloids and Interface Science, Seattle, WA, 06/23/2024

34. A. Ganguly, S. Roychowdhury, A. Gupta, *A unified mobility expressions for externally driven and self-phoretic propulsion of particles*, 98th American Chemical Society, Colloids and Interface Science, Seattle, WA, 06/23/2024
35. A. Ganguly, R. R. Raj, C. Becker, A. Gupta, *Motion of catalytically active bent rods with an articulating hinge*, 98th American Chemical Society, Colloids and Interface Science, Seattle, WA, 06/23/2024
36. S. Mirfenderski, B. M. Alessio, E. Coleman, A. Gupta, *Diffusiophoresis-Enhanced Turing Patterns: Continuum and Particle-level Simulations*, 98th American Chemical Society, Colloids and Interface Science, Seattle, WA, 06/23/2024
37. N. Jarvey, F. Henrique, A. Gupta, *Asymmetric rectified electric and concentration fields in multicomponent electrolytes with surface reactions*, 98th American Chemical Society, Colloids and Interface Science, Seattle, WA, 06/23/2024
38. F. Henrique, A. Gupta, *Optimization of Pore Shapes for Electrokinetic Flows Produced by Double-Layer Charging*, 98th American Chemical Society, Colloids and Interface Science, Seattle, WA, 06/23/2024
39. F. Henrique, A. Gupta, *Magnetically Coupled Transmission Lines for Double-Layer Charging of Asymmetric Electrolytes in Confinement*, 98th American Chemical Society, Colloids and Interface Science, Seattle, WA, 06/23/2024
40. N. Jarvey, A. Gupta, *A theoretical model to decompose total current into its capacitive and Faradaic contributions for pseudcoapacitors*, 98th American Chemical Society, Colloids and Interface Science, Seattle, WA, 06/23/2024
41. B. M. Alessio, A. Gupta, *Diffusiophoresis as a mechanism to study human population migration patterns*, 76th APS- Division of Fluid Dynamics, Washington DC, 11/19/2023
42. B. M. Alessio, A. Gupta, *Diffusiophoresis-enhanced Turing patterns*, 76th APS- Division of Fluid Dynamics, Washington DC, 11/19/2023
43. F. Henrique, P. J. Zuk, A. Gupta, *Kirchhoff's Laws Based on Electrochemical Potential of Charge Dictate Double-Layer Charging in Porous Media*, 76th APS- Division of Fluid Dynamics, Washington DC, 11/19/2023
44. N. Jarvey, F. Henrique, A. Gupta, *Asymmetric rectified electric and concentration fields in multicomponent electrolytes with surface reactions*, 76th APS- Division of Fluid Dynamics, Washington DC, 11/19/2023
45. A. Ganguly, S. Roychowdhury, A. Gupta, *Impact of interaction potential lengthscale and surface heterogeneity on phoretic and autophoretic mobilities: Moving beyond the slip velocity approach*, 76th APS- Division of Fluid Dynamics, Washington DC, 11/19/2023
46. R. R. Raj, J. G. Lee, A. Gupta, C. W. Shields IV, *Effect of geometric design on the motion of microrobots due to acoustic streaming flows*, 76th APS- Division of Fluid Dynamics, Washington DC, 11/19/2023
47. B. M. Alessio, R. R. Raj, and A. Gupta, *Diffusiophoresis-enhanced Turing patterns*, 2023 AIChE Annual Meeting, Orlando, FL, 11/06/2023
48. A. Ganguly, R. R. Raj, C. Baker and A. Gupta, *Self-propelling bent rods: Exploring chemical and mechanical modes of swimming*, 2023 AIChE Annual Meeting, Orlando, FL, 11/06/2023

49. F. Henrique, N. Jarvey, P. J. Zuk and A. Gupta, *Modified Kirchhoff's law for electrical-double-layer charging in porous media*, 2023 AIChE Annual Meeting, Orlando, FL, 11/06/2023
50. A. Ganguly, S. Roychowdhury, and A. Gupta, *Phoretic and Self-Phoretic Motion of Microparticles With Arbitrary Interaction Potentials*, 97th American Chemical Society, Colloids and Interface Science, Raleigh, NC, 06/04/2023
51. A. Ganguly and A. Gupta, *Slender body analysis of a self-propelling bent rod*, 97th American Chemical Society, Colloids and Interface Science, Raleigh, NC, 06/04/2023
52. R. R. Raj, J. G. Lee, A. Gupta, and C. W. Shields IV, *Impact of geometry on the frequency-dependent response of acoustic microrobots*, 97th American Chemical Society, Colloids and Interface Science, Raleigh, NC, 06/04/2023
53. F. Henrique, P. J. Zuk, and A. Gupta, *Effective Kirchoff's Laws for Double-Layer Charging in Porous Media*, 97th American Chemical Society, Colloids and Interface Science, Raleigh, NC, 06/04/2023
54. B. M. Alessio and A. Gupta, *Programmable colloidal assembly: Turing patterns induced via diffusiophoresis*, 97th American Chemical Society, Colloids and Interface Science, Raleigh, NC, 06/04/2023
55. N. Jarvey, F. Henrique and A. Gupta, *AREFs in multicomponent electrolytes with electrochemical reactions due to imbalance in ionic strength*, 97th American Chemical Society, Colloids and Interface Science, Raleigh, NC, 06/04/2023
56. N. Jarvey, F. Henrique and A. Gupta, *Coupled ionic transport due to double layers and redox reactions: Impact of multiple ions, background electrolytes, and Frumkin-Butler-Volmer Kinetics*, 97th American Chemical Society, Colloids and Interface Science, Raleigh, NC, 06/04/2023
57. R. R. Raj, C. W. Shields IV and A. Gupta, *Diffusiophoretic colloidal highways: Optimizing the colloidal banding induced by two-dimensional solute gradients*, 97th American Chemical Society, Colloids and Interface Science, Raleigh, NC, 06/04/2023
58. A. Ganguly, A. Gupta, *To turn or not to turn: Slender body analysis for a self-propelling axially asymmetric bent rod*, 75th APS- Division of Fluid Dynamics, Indianapolis, IN, 11/20/2022
59. R. Raj, C. Wyatt Shields IV, A. Gupta, *Rational Design of Two-Dimensional Colloidal Banding*, 75th APS- Division of Fluid Dynamics, Indianapolis, IN, 11/20/2022
60. N. Jarvey, F. Henrique, A. Gupta, *Dynamics of Multicomponent Electrolyte Transport Including the Effects of Electrical Double Layers and Redox Reactions*, 75th APS- Division of Fluid Dynamics, Indianapolis, IN, 11/20/2022
61. F. Henrique, P. J. Zuk, A. Gupta, *Electrical-Double-Layer Charging in a Complex Network of Pores*, 75th APS- Division of Fluid Dynamics, Indianapolis, IN, 11/20/2022
62. A. Christensen, A. Gupta, G. Chen, W. Peters, M. Knoblauch, H. Stone, K. Jensen, *Optimal geometry for surface-enhanced diffusion*, 75th APS- Division of Fluid Dynamics, Indianapolis, IN, 11/20/2022
63. R. Raj, C. Wyatt Shields IV, A. Gupta, *Two-Dimensional Diffusiophoretic Banding of Colloidal Particles*, 2022 Annual AIChE Meeting, Phoenix, AZ, 11/15/2022

64. A. Ganguly, A. Gupta, *Control of Phoretic Self-Propulsion through Particle Geometry: Slender-Body Analysis for an Asymmetric Bent Rod*, 2022 Annual AIChE Meeting, Phoenix, AZ, 11/15/2022
65. F. Henrique, N. Jarvey, A. Gupta, *Transport in Electrochemical Capacitors: Effects of Porous Geometry, Electrolyte Asymmetry, and Redox Reactions*, 2022 Annual AIChE Meeting, Phoenix, AZ, 11/15/2022
66. A. Ganguly, R. Raj, A. Gupta
Impact of Surface Heterogeneity on Diffusiophoresis of Colloids in a Mixture of Electrolytes and Non-electrolytes, 96th American Chemical Society, Colloids and Interface Science, Golden, CO, 07/10/2022
67. R. Raj, C. W. Shields IV, A. Gupta *Programmable Two-dimensional Diffusiophoretic Banding of Colloidal Particles*, 96th American Chemical Society, Colloids and Interface Science, Golden, CO, 07/10/2022
68. A. Ganguly, A. Gupta, *Control of Phoretic Self-Propulsion through Particle Geometry: Slender-body Analysis of an Asymmetric Bent Rod*, 96th American Chemical Society, Colloids and Interface Science, Golden, CO, 07/10/2022
69. F. Henrique, P. J. Zuk, A. Gupta, *Transport of Binary Electrolytes in a Cylindrical Pore: Effects of Overlapping Double Layers and Asymmetry in Ion Valences and Diffusivities*, 96th American Chemical Society, Colloids and Interface Science, Golden, CO, 07/10/2022
70. N. Jarvey, F. Henrique, A. Gupta, *Charging of an Electrochemical Cell: Theoretical Framework to Simulate Coupled Dynamics of Double Layers and Redox Reactions for Arbitrary Number of Ions*, 96th American Chemical Society, Colloids and Interface Science, Golden, CO, 07/10/2022
71. J. G. Lee, R. R. Raj, C. Thome, A. Gupta, C. W. Shields IV, *Bubble-based Acoustic Propellers for Sustained Corticosteroid Delivery in the Bladder*, 96th American Chemical Society, Colloids and Interface Science, Golden, CO, 07/10/2022
72. C. Thome, J. Bendorf, J. G. Lee, A. Gupta, C. W. Shields IV, *Don't Go Breaking My Charge: Induced Charge Electrophoresis of Surface-Modified Janus Particles*, American Chemical Society, Colloids and Interface Science, Golden, CO, 07/10/2022
73. N. Jarvey, F. Henrique, A. Gupta, *Charging of an Electrochemical Cell: Theoretical Framework to Simulate Coupled Dynamics of Double Layers and Redox Reactions for Arbitrary Number of Ions*, 19th U.S. National Congress on Theoretical and Applied Mechanics, Austin, TX, 06/19/2022
74. F. Henrique, P. J. Zuk, A. Gupta, *Charging Dynamics of Electrochemical Capacitors*, 19th U.S. National Congress on Theoretical and Applied Mechanics, Austin, TX, 06/19/2022
75. N. Jarvey, F. Henrique, A. Gupta, *Impact of Faradaic Reactions on the Charging Dynamics of the Electrical Double Layers*, 74th APS - Division of Fluid Dynamics, Phoenix, AZ, 11/21/2021
76. F. Henrique, P. J. Zuk, A. Gupta, *Influence of Relative Debye Length on Electric-Double-Layer Charging Inside a Nanopore*, 74th APS - Division of Fluid Dynamics, Phoenix, AZ, 11/21/2021
77. F. Henrique, A. Gupta, *Charging and Discharging Dynamics of Electrical Double Layers inside Nanopores: From Thin to Overlapping Double Layers*, 2021 Annual AIChE Meeting, Boston, MA, 11/07/2021

Presentations prior to University of Colorado Boulder

78. A. Gupta, A.R. Konicek, M.A. King, A. Iqtidar, M. Yeganeh, H.A. Stone, *The Effect of Gravity on the Shape of a Droplet on a Fiber: Nearly Axisymmetric Profiles with Experimental Validation* , 2021 Annual AIChE Meeting, Boston, MA
79. A. Gupta, P. J. Zuk, S. Shim, H. A. Stone, Thick Double Layers: From Energy Storage to Diffusiophoresis, 73rd APS - Division of Fluid Dynamics, Chicago, IL
80. A. Gupta, A. G. Rajan, E. Carter, H. A. Stone, Electrical Double Layers: Predicting Overcharging and Layering of Ions using Continuum Model, 72nd APS - Division of Fluid Dynamics, Seattle, WA
81. A. Gupta, B. Rallabandi, J. L. Wilson, S. Shim, H. A. Stone, Diffusiophoretic Velocity for Mixture of Electrolytes with Asymmetric Ion Valences, 2019 Annual AIChE Meeting, Orlando, FL
82. A. Gupta, H. A. Stone, Electric Double Layers: Effect of Asymmetry in Electrolyte Valence on Finite Ion Size Effects, Dielectric Decrement and Ion-Ion Correlations, 2018 Annual AIChE Meeting, Pittsburgh, PA
83. A. Gupta, A. Z. M. Badruddoza, P. S. Doyle, A General Route for Nanoemulsion Synthesis Using Low Energy Methods at Constant Temperature, 2017 Annual AIChE Meeting, Minneapolis, MN
84. A. Gupta, T. A. Hatton, P. S. Doyle, Nanoemulsion Formation: Controlling and Predicting Droplet Size, 2017 Annual AIChE Meeting, Minneapolis, MN
85. A. Gupta, H. Lee, T. A. Hatton, P. S. Doyle, Controlled Liquid Entrapment through Photo-Patterned Obstacles and Patterned Surfaces, 2017 Annual AIChE Meeting, Minneapolis, MN
86. A. Gupta, T. A. Hatton, P. S. Doyle, Nanoemulsion Formation: Controlling and Predicting Droplet Size, 2016 Annual AIChE Meeting, San Francisco, CA
87. A. Gupta, H. Lee, T. A. Hatton, P. S. Doyle, Controlled Oil Entrapment through Photo-Patterned Obstacles, 2016 Annual AIChE Meeting, San Francisco, CA
88. A. Gupta, T. A. Hatton, P. S. Doyle, Nanoemulsion Formation: Controlling and Predicting Droplet Size, 90th ACS Colloids Meeting, Cambridge, MA
89. A. Gupta, T. A. Hatton, P. S. Doyle, Nanoemulsion Formation: Controlling and Predicting Droplet Size, 90th ACS Colloids Meeting, Cambridge, MA
90. A. Gupta, H. B. Eral, T. A. Hatton, P. S. Doyle, Controlling and Predicting droplet Size of Nanoemulsions, 10th Annual European Rheology Conference, Nantes, France
91. A. Gupta, H. B. Eral, T. A. Hatton, P. S. Doyle, Understanding the Physics of Nanoemulsion Formation, The Society of Rheology 86th Annual Meeting, Philadelphia, PA

MENTORING EXPERIENCE

Graduate Student Advisees (7 advised, 3 graduated)

1. Hariharan Ravi Kavitha (co-advised), University of Colorado Boulder, 2024 - present
2. Bryce Rives, University of Colorado Boulder, 2023 - present

3. Peter Romero (co-advised), University of Colorado Boulder, 2023 - present
4. Ritu Raj (co-advised), University of Colorado Boulder, 2021 - present
5. Arkava Ganguly, University of Colorado Boulder, 2021 - 2025
   Postdoctoral Research Associate at New York University (PI: Prof. Juan de Pablo)
6. Nathan Jarvey, University of Colorado Boulder, 2020 - 2024 (defended PhD in August 2024)
   Postdoctoral Research Associate at National Renewable Energy Laboratory
7. Filipe Henrique, University of Colorado Boulder, 2020 - 2024 (defended PhD in August 2024)
   Postdoctoral Research Associate at Princeton University (PI: Prof. Howard Stone)

Postdoctoral Mentee (1 advised)

1. Siamak Mirfendereski, University of Colorado Boulder, 2024-2026 (finished in March 2026)
   Particle Modeling Developer at COMSOL, Boston

Undergraduate Student Advisees (16 advised at CU Boulder)

1. Sahiti Balaji, University of Colorado Boulder, 2025-present
2. Caitlin Rogers, University of Colorado Boulder, 2025-present
3. Jackson Dunlap, University of Colorado Boulder, 2025-present
4. Ethan Coleman, University of Colorado Boulder, 2024-present
5. Lucas Bayer, University of Colorado Boulder, 2023-2025
6. Cora Becker, University of Colorado Boulder, 2023-2025
7. Grace Origer, University of Colorado Boulder, 2023-2025
8. Paloma Suarez, University of Colorado Boulder, 2024-2025
9. Zoe Cruse, University of Colorado Boulder, 2022-2024
10. Sajan Williams, University of Colorado Boulder, 2022-2024
11. Ben Alessio, University of Colorado Boulder, 2023
12. Eliot Rusley, University of Colorado Boulder, 2022 - 2023
13. Rosby Robinson, University of Colorado Boulder, 2023
14. William Steinfort, University of Colorado Boulder, 2022
15. Alex Jimenez, University of Colorado Boulder, 2021
16. Jackson Shropshire, University of Colorado Boulder, 2020
17. Ben Alessio, Princeton University, 2020-2021
18. Azmaine Iqtidar, Princeton University, 2020
19. Comsin Andrei, Princeton University, 2019
20. Cameron McKensize, Princeton University, 2018-19
21. Connor Matthews, Princeton University, 2018-19
22. Lisa E. Archibald, MIT, 2016-17
23. Mohammad Alsobay, MIT, 2015
24. Galym Saparbaiuly, MIT, 2015
25. Elezhan Zhakiya, MIT, 2015
26. Robbie Shaw, MIT, 2014-15

AWARDS/HONORS TO ADVISEE

Graduate Advisees

1. August 2025: Peter Romero, 2nd place, Poster competition, Front Range Electrochemistry
2. April 2025: Harishankar Ravi Kavitha, Mukhopadhyay Graduate Fellowship
3. April 2025: Ritu Raj, Graduate Students' Service to the Department – Volunteering & Professional Development Award
4. April 2025: Arkava Ganguly, American Institute of Chemists Graduate Student Award
5. August 2024: Ritu Raj, Presenter at the CU Boulder Innovation in Materials Symposium
6. April 2024: Filipe Henrique, Max Peters Outstanding Graduate Student Award
7. April 2024: Ritu Raj, Outstanding Department Teaching Award
8. April 2024: Julia Callejon, Outstanding Department Teaching Award
9. December 2023: Arkava Ganguly, Teets Family Endowed Doctoral Fellowship
10. September 2023: Nathan Jarvey, GAANN Fellowship
11. June 2023: Filipe Henrique, Outstanding Department Teaching Award
12. June 2023: Nathan Jarvey, Link Energy Fellowship Honorable Mention
13. June 2023: Nathan Jarvey, GAANN Fellowship
14. April 2023: Ritu Raj, NSF Graduate Research Fellowship
15. January 2023: Ritu Raj, GAANN Fellowship
16. August 2022: Nathan Jarvey, ARCS Scholar
17. July 2022: Filipe Henrique, Langmuir Student Finalist, ACS Colloids
18. April 2022: Arkava Ganguly, Mukopadhyay Graduate Fellowship
19. January 2022: Nathan Jarvey, GAANN Fellowship
20. September 2021: Filipe Henrique, Ryland Graduate Fellowship

Undergraduate Advisees

1. December 2025: Ethan Coleman, Outstanding Undergraduate of the College, CEAS
2. December 2025: Ethan Coleman, Undergraduate Research award, CEAS
3. December 2025: Ethan Coleman, Academic Engagement Award, CEAS
4. September 2025: Ethan Coleman, Gulf Coast Undergraduate Research Symposium, Rice University
5. September 2025: Ethan Coleman, Future Leaders in Chemical Engineering, NC State
6. April 2025: Cora Becker, Undergraduate Research Award, CEAS
   November 2024: Paloma Suarez, Poster Award in Material Science, AIChE
7. August 2024: Grace Origer, Student Poster Award in Colloid & Surface Chemistry, ACS Fall
8. August 2024: Paloma Suarez, Second Prize in Materials Category, YSSRP Poster
9. April 2024: Zoe Cruse, NSF Graduate Research Fellowship
10. November 2023: Zoe Cruse, Poster Award in Material Science, AIChE
11. October 2023: Zoe Cruse, Gulf Coast Undergraduate Research Symposium
12. April 2023: Ben Alessio, NSF Graduate Research Fellowship
13. April 2023: Zoe Cruse, Undergraduate Research Award, CEAS

Postdoctoral Mentee

1. September 2025: Siamak Mirfendereski, Outstanding Postdoc of the Year (Honorable Mention), CU Boulder

TEACHING EXPERIENCE

1. **Instructor, Transport Phenomena (CHEN5210), 4 credits**
   University of Colorado Boulder, Fall 2025
   Course level: graduate, enrollment: 16
   Evaluated as "a phenomenal lecturer," with students noting that the course was "beautifully structured and inculcates interest," and that they walked out of lectures with "a new sense of wonder about how this world works."
2. **Instructor, Transport Phenomena (CHEN5210), 4 credits**
   University of Colorado Boulder, Spring 2025
   Course level: graduate, enrollment: 27
   Evaluated as "the best graduate professor I have had," praised for being "incredibly organized," "very good at explaining math-heavy questions in a conceptual way," and for creating one of the "most organized and instructive" courses students have taken.
3. **Instructor, Fluid Mechanics (CHEN3200), 3 credits**
   University of Colorado Boulder, Spring 2024
   Course level: undegraduate, enrollment: 77
   Evaluated as "Probably one of my favorite courses I've taken at CU", "Genuinely one of the best STEM teachers I've ever had", "The most effective aspect of the course was how well Professor Gupta is able to answer questions during lecture. It is not only able to break up the pace of the lecture, but also able to hear other people's thinking/logic on a topic", "Professor Gupta is probably one of the best professors I've had at CU Boulder. I think the biggest reason for this is his ability to create such a good learning environment for his students."
4. **Instructor, Transport Phenomena (CHEN5210), 4 credits**
   University of Colorado Boulder, Spring 2024
   Course level: graduate, enrollment: 28
   Evaluated as "This class was my favorite course. I think that the materials and information were organized very well", "I feel like out of all of the classes I've ever taken, this is the one that encouraged me the most to actually understand the material rather than just repetitively applying information I wasn't truly in tune with. The material was very interesting, and you presented it in a logical and engaging way", "This was an excellent course. It was highly engaging content that was well-organized and well-taught".
5. **Instructor, Fluid Mechanics (CHEN3200), 3 credits**
   University of Colorado Boulder, Spring 2023
   Course level: undegraduate, class strength: 67
   Evaluated as "teaching style to be phenomenal", "lectures are very informational, concise, and delivered really well on behalf of Prof Gupta", " Professor truly knows what he's doing and how to teach, utilizing the perfect mix of lecturing and example problems."

6. **Instructor, Transport Phenomena (CHEN5210), 3 credits**
   University of Colorado Boulder, Fall 2022
   Course level: graduate, enrollment: 29
   Evaluated as "One of the best teachers I have had", "This course was taught at what I believe is an impeccable level", "Ankur's teaching style is just fantastic." "I wish every CHEN graduate course could be taught by Ankur." "Honestly the best taught course I've taken in a few years. I can't think of a single thing in the course that I wish was better."
7. **Instructor, Transport Phenomena (CHEN5210), 3 credits**
   University of Colorado Boulder, Fall 2021
   Course level: graduate, enrollment: 18
   Evaluated as "Professor Gupta's teaching style was very engaging", "Dr Gupta gives highly effective lectures which engage students", "Ankur is the best professor I have ever had"
8. **Instructor, Transport Phenomena (CHEN5210), 3 credits**
   University of Colorado Boulder, Spring 2021
   Course level: graduate, enrollment: 34
   Evaluated as "Ankur Gupta is a phenomenal instructor", "Ankur was the best professor I have ever had", "Professor Gupta is the best example I have seen of teaching effectively in both virtual and hybrid modes."
9. **Guest Lecturer, Advanced Heat and Mass Transfer (CBE505)**
   Princeton University, Spring 2020
   Course level: graduate, enrollment: 25
   Responsibility: developed and delivered 3 lectures on electrokinetics (*delivered remotely due to COVID-19*)
10. **Instructor, Electrokinetics for Energy and the Environment (MAE 559)**
    Princeton University, Fall 2018
    Course level: graduate, enrollment: 20 (including audit, listeners)
    Responsibility: developed and delivered 75% of lectures
11. **Graduate Instructor, Fluid Mechanics (10.301)**
    MIT, Spring 2017 Course level: undegraduate, enrollment: 58
    Responsibility: 40% lectures, 50% recitations
12. **Teaching Assistant, Transport Processes (10.302)**
    MIT, Fall 2014
    Course level: undegraduate, enrollment: 71
13. **Teaching Assistant, Junior Design Course (CHL471)**
    IIT Delhi, Spring 2012
    Course level: undegraduate, enrollment: 120
14. **Instructor of Mathematics and Physics, Vidyamandir Classes**
    Delhi, 2009-11
    Course level: high school, enrollment: 400 (40×10)

PROFESSIONAL SERVICE

1. **Referee for journals (>180+ journal articles reviewed excluding revisions, about 25-30 articles/year)**
   Journal list includes: Nature Communications, Nature Physics, Angewandte Chemie, Physical Review Letters, Journal of Fluid Mechanics, Advanced Functional Materials, ACS Applied Materials & Interfaces, Langmuir, Soft Matter, Physical Review Fluids, Physical Review E, Physical Review Applied, Journal of Colloid & Interface Science etc.
2. **Grant Proposal Reviewer**
   Foundation of Scientific Research - Flanders, Belgium (x2 *ad-hoc*)
   ACS Petroleum Research Fund (x4 *ad-hoc*)
   National Frontiers in Research Fund, Canada (x2 *ad-hoc*)
   National Science Foundation (x5 panels, x2 *ad-hoc*)
   Israel Science Foundation (x2 *ad-hoc*)
   Department of Energy (x1 *ad-hoc*)
3. **Organizer or chair of sessions at scientific meetings**
   co-Organizer, ACS Colloids, 2027
   Judge, Poster session, AI for Materials and Sustainability, 2025
   Chair, Young Researchers and Scientists Sessions, AI for Materials and Sustainability, 2025
   Chair, Nonlinear and Turbulent Flows and Transport Processes, AIChE 2025
   Chair, Interfacial and Non-Newtonian Flows, AIChE 2024
   Chair, Interfacial and Non-Newtonian Flows, 2024
   Organizer, Interfacial Phenomena & Dynamics in Electrochemical Systems, 4-session minisymposia, ACS Fall, 2024
   Chair, Electrokinetics and Microfluidics, ACS Colloids, 2024
   Chair, Electrokinetic Transport III, APS DFD, 2023
   Chair, Micro/Nano scale Flows: Electrokinetics, APS DFD, 2023
   Chair, Interfacial and Nonlienar Flows: Multiphase and Fields, AIChE Annual Meeting, 2023
   Judge, Student Poster Session, APS DFD, 2022
   Chair, Microfluidic and Microscale Flows, AIChE Annual Meeting, 2022
   Organizer, Electrokinetics for Nano- and Microfluidics, 2-day minisymposia, USNCTAM, 2022
   Chair, General Aspects for Colloids and Interface, ACS Colloids, 2022
   Chair, Interfacial and Nonlinear Flows: Multiphase and Fields, AIChE Annual Meeting, 2021
4. **Leadership positions at societies**
   Councilors, AES Electrophoretic Society, 2026 - present
   Scientific Advisory Board, International Electrokinetics Society, 2025 - present
   Fluids Programming Committee, AIChE, 2024-2034

SERVICE AT UNIVERSITY OF COLORADO BOULDER

1. **Departmental committees and service**
   Seminar Organization 2025-2026
   Regrade Committee 2025-2026
   Graduate Committee 2021-present

Teaching Quality Framework Committee, 2021-2023
New Chair Search Committee, 2023
Graduate Student Award Committee, 2021-2023, 2025
Outstanding Doctoral Dissertation Committee, 2023
Preliminary Exam Committee, 2021-present

2. **Thesis committees**
Served on 30 Ph.D. thesis committees at the University of Colorado Boulder
Gesse Roure, 2021 - 2023
Yifeng Mao, 2022 - 2024
Paige Brimley, 2021 - 2024
Laura Herrera, 2021 - 2024
Cooper Thome, 2021 - 2024
Nate Schwindt, 2022 - 2025
Katarina Odak, 2022 - 2025
Talaial Alina, 2022 - 2025
Luis Kitsu, 2022 - 2025
Benjamin Rich, 2023
Owen Asaro Lee, 2023 - 2024
Julie Nguyen, 2023 - 2025
Hussain Almajed, 2023-2025
Trisha Nickerson, 2023 - present
Brandon Oliphant, 2023 - present
Noah Smith, 2023 - present
Ian Wylie, 2024 - present
Collin Kemper, 2024 - present
Kendra Kreienbrink, 2024 - present
Rajarshi Chattopadhyay, 2024 - present
Souradeep Roychowdhury, 2024 - present
Timotej Bernat, 2024 - present
Rafael Ferreira de Menezes, 2025 - present
Madelyn Bennett, 2025 - present
Rebecca Beswick, 2025 - present
Varun Awasthi, 2025 - present
Linnea Helenius, 2025 - present
Eva Peurrung, 2025 - present
Ashutosh Mishra, 2025 - present
Jesus Melendez, 2025 - present

OUTREACH ACTIVITIES

1. **Who will the 2025 Nobel Prize of Chemistry**, Panelist, ACS Webinar (link), 650+ registrations from 59 countries
2. **Workshop on Energy Storage**, Office of Precollege Outreach and Engagement, Summer 2024, 2025

3. **Podcast speaker**, How animals gets their spots, and why they are beautifully imperfect, Quantum Photonic
4. **Podcast speaker**, Knocking On All Doors!, Dil se IIT Delhi Podcast (link)
5. **Podcast speaker**, The Science Behind Your Pets' Beautiful Patterns & other Inspiring Stories (link)
6. **Digital simulations for teaching**
   Flow Between Three Tanks, (link)
   Contact Angle Measurement, (link)
   Viscous Flow in Two Connected Pipes (link)
   Viscous Flow around a Rotating Rod (link)
   How fast does a tank empty? (link)
   Droplet shape on different planets (link)
   Digital rheometer (link)
   Direction of shear force between parallel plates (link)
   Magnitude of force for an impinging jet (link)
   Rankine tornado (link)
   Archimedes principle (link)
   When to open parachute while skydiving (link)
   Flow visualization and continuity equation (link)
   Bernoulli's pipe flow network (link)
7. **Digital simulations for research oureach** Charging into a porous sphere (link)