ANAMIKA AGRAWAL

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EMPLOYMENT

Shanahan Foundation Fellow August 2022-Present
Joint appointment with the Allen Institute and the University of Washington

EDUCATION

University of California, San Diego, La Jolla, CA
PhD, Physics with Quantitative Biology Specialization 2016-2022
Advisor: Prof Elena F Koslover

Indian Institute of Technology, Bombay (IIT - B), Mumbai, India
Bachelor of Technology, Engineering Physics with honors
Minor in Humanities and Social Sciences 2016

PUBLICATIONS (ORCID ID: 0000-0002-1213-2321)

First author/ Co-first author

- **Agrawal, A.**, Pekkurnaz, G. and Koslover, E.F., 2018. Spatial control of neuronal metabolism through glucose-mediated mitochondrial transport regulation. **Elife**, 7, p.e40986. DOI
- **Agrawal, A.** and Koslover, E.F., 2021. Optimizing mitochondrial maintenance in extended neuronal projections. **PLOS Computational Biology**, 17(6), p.e1009073. DOI
- **Agrawal, A.**, Scott, Z. C. and Koslover, E. F., 2021. Morphology and Transport in Eukaryotic Cells. **Annual review of biophysics** 51 (2022). DOI
- Donovan, E. J.*, **Agrawal, A.***, Liberman, N., Kalai, J., Adler, A. J., Wang, Q., Chua, N. J., Koslover, E. F. and Barnhart, E. L., 2023. Dendritic Architecture Determines Mitochondrial Distribution Patterns *in vivo*. **Cell Reports** DOI (* denotes equal contribution)
- **Agrawal, A.**, Rachleff, V. M., Travaglini, K. J., Mukherjee, S., Crane, P. K., Hawrylycz, H., Keene, C. D., Lein, E., Mena, G. E. and Gabitto, M. I., B-BIND: Biophysical Bayesian Inference for Neurodegenerative Dynamics, bioRxiv 2024. DOI

Others

- Mazur, M., Pokorný, P., Brown, P., Weryk, R.J., Vida, D., Schult, C., Stober, G. and **Agrawal, A.**, 2020. Precision measurements of radar transverse scattering speeds from meteor phase characteristics. **Radio Science**, 55(10), pp.1-32. DOI
- Konno, T., Parutto, P., Crapart, C.C., Davì, V., Bailey, D.M., Awadelkareem, M.A., Hockings, C., Brown, A.I., Xiang, K.M., **Agrawal, A**. and Chambers, J.E., 2024. Endoplasmic reticulum morphology regulation by RTN4 modulates neuronal regeneration by curbing luminal transport. **Cell Reports**. DOI
- Gabitto, M.I., ... **Agrawal, A.**, ..et al. Integrated multimodal cell atlas of Alzheimer's disease. Nat Neurosci (2024) DOI

AWARDS AND FELLOWSHIPS

- **Shanahan Foundation Fellowship at the Interface of Data and Neuroscience** 2022-2025
- **COSYNE 2024** Travel grant
- **Honorary Membership, Association of Women in Science - San Diego(AWIS-SD)** 2019
- UCSD Chair's Challenge Award 2019
- **UCSD Chancellor's Research Excellence Scholarship** 2018
- **UCSD Physics Excellence Award** 2016
- **UCSD Quantitative Biology Fellowship** 2016-2017
- **Ontario-Maharashtra-Goa Summer Exchange Scholarship** 2015

- **Indian Academy of Sciences Summer Research Fellowship** 2014
- **National Initiative on Undergraduate Sciences** 2013
- **Kishore Vaigyanik Protsahan Yojana** Young Scientist Scholarship awarded by the Government of India to promote research in fundamental sciences 2012
- **Top 30 finalist** in India chosen to participate in the training camp for the International Olympiad for Astronomy and Astrophysics
- **Top 200** at the Indian National Physics Olympiad and the Indian National Chemistry Olympiad 2012

INVITED TALKS AND POSTERS

"Bounds on the computational complexity of neurons due to dendritic morphology",
Poster at **Cosyne, 2025**

"Computational Complexity: A new framework to study neuronal cell types",
Invited Talk at **NeuroAI in Seattle, 2024**

"Design Principles of Neuronal Structure for Dendritic Computation",
Poster at **Data-Driven Discovery: AI and Modeling in Biology workshop, 2024**

"Mapping the progression of Alzheimer's Disease combining detailed neuropathology and statistical models",
Poster at **Allen Frontiers Symposium 2024**, **Lake Conference on the Neurobiology of Mental Health, 2024**, **Society for Neuroscience 2023**.

"Neuronal Function: Interplay of Biophysical Dynamics and Morphology",
Invited talk at the **Janelia Theoretical Biophysics Workshop, 2023**

"Neuronal Morphology and Function",
Invited talk at the **NeuroAI Seattle Meeting, 2022**

"Metabolic Organization in Neurons - The Transport Perspective",
Invited seminar at **Center for Computational Biology, Flatiron Institute, 2021**
Invited talk at **Bay Area Institute, Altos Labs, 2022**
Invited talk at **Physics of Life Symposium at ITS, 2022**
Invited talk at **3M RISE Symposium, 2021**

"Design Principles of Peroxisomes", Talk at IBM-wide symposium for the **IBM Cellular Engineering Lab** and **Center for Cellular Construction (CCC) Summer Retreat**, 2020

"Mitochondrial Metabolism in Neuron", invited talk at **Chan-Zuckerberg Biohub, 2020**

OTHER TALKS AND POSTERS

Poster at **MCB-NSF CAREER Award Conference, 2021**

Talk at **UCSD qBio symposium, 2021**

Posters at the **American Society for Cell Biology Meeting**, 2020, 2018

Poster at the **Annual Quantitative Biology Conference, 2019**

Talk at **American Physics Society March Meeting, 2022, 2018**

TEACHING AND MENTORING EXPERIENCE

Shanahan RA mentor
Mentor to a Shanahan Foundation Postbaccalaureate Research Assistant at the University of Washington 2023-2024

Teaching Assistant Summer workshop on the Dynamic Brain 2023

Teaching Assistant UCSD Physics: Physics of the Cell Spring 2019

Teaching Assistant UCSD Physics: Biological Physics Fall 2018, Fall 2019
Graded term projects, quizzes and problem sets for upper-division and graduate course

Teaching Assistant UCSD Physics: Introductory Mechanics Summer 2017

Teaching Assistant UCSD Physics: Introductory Electricity and Magnetism Summer 2017, Winter 2017

Teaching Assistant UCSD Physics: Upper Division Electricity and Magnetism Fall 2017
Designed and conducted problem-solving sessions, served as a tutor, graded quizzes and problem sets, helped design quizzes and problem sets

Women in Physics (WIP) Mentor, UCSD Physics 2016-2017
Graduate student mentor to undergraduate students in Physics, helping them in navigating through their undergraduate degree and helping them explore career options in Physics

Institute Student Mentor, IIT Bombay 2016
Senior undergraduate mentor as part of Institute Student Mentorship Program (ISMP), to help freshers in adjusting to campus life

Physics Department Mentorship Coordinator and Mentor, IIT Bombay 2016
Coordinated and mentored for the academic peer mentoring program

OUTREACH

Science communication
Semifinalist at the **Reach Out Slam** contest organized by NSF, representing research at the Center for Cellular Construction (CCC) 2021

Volunteer at UCSD Birch Aquarium at Scripps June 2019 - December 2020

UCSD Tech Trek Volunteer Summer 2017, 2018
Conducted Physics Demos in the summer camp aimed at promoting STEM among middle school girls

UCSD Physics GRE Bootcamp Summer 2017
Conducted problem-solving sessions in Statistical Physics as a part of a coaching initiative by UCSD Physics for Southern California PGRE test-takers

UCSD Young Physicists Program Volunteer 2017
Conducted Physics Demos promoting Physics among high school students

REFERENCES

Elena F Koslover
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Michael A Buice
Associate Investigator, Center for Data-Driven Discovery in Biology
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Frederick Rieke
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University of Washington
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David Kleinfeld
Distinguished Professor, Department of Physics
University of California San Diego
email: dk@physics.ucsd.edu

Erin L Barnhart
Assistant Professor, Biological Sciences
Columbia University
email: eb3305@columbia.edu

Gonzalo E Mena
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Carnegie Mellon University
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