

Avaneesh V. Narla

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EDUCATION

PhD Candidate in Physics with Quantitative Biology Specialization from University of California, San Diego Conducting research on theoretical population ecology, advised by Prof. Terry Hwa <i>Awards Include:</i> Physics Excellence Award, QBio Fellowship, Chair's Challenge Grant, Distinguished Teaching Award (awarded to ≤ 3 Grad. Students annually @UCSD), Dean of Undergraduate Education Summer Graduate Teaching Scholar, Recognition of Expertise in Equitable and Evidence-Based Teaching	AUG 2017 - <i>current</i>
A.B. <i>cum laude</i> in Physics from Princeton University, Princeton, NJ <i>Certificates:</i> Biophysics, Applications of Computing and Applied Mathematics <i>Awards include:</i> Allen G. Shenstone Award for Excellence in Physics, Treiman Summer Research Award, Sigma Xi Honor Society Election, Davis United World College Scholar	AUG 2013 JUN 2017
Study Abroad in Faculty of Translation and Interpreting, University of Geneva Six-week experiential summer study abroad program on sociolinguistics	JUN 2014 - JUL 2014
Participant in Princeton University's Bridge Year Program , Urubamba, Peru Worked on rural construction projects for a service-based cultural immersion experience	AUG 2012 - JUN 2013
International Baccalaureate Diploma from UWC Mahindra College , Pune, India	MAY 2012

PUBLICATIONS

1. **Avaneesh V. Narla**, Terence Hwa, and Arvind Murugan
Stable coexistence in Repetitive Environments (*In preparation*)
2. **Avaneesh V. Narla**, Kinshuk Sahu, and Terence Hwa
Chemotaxis and Growth on a Single Substrate (*In preparation*)
3. Jonas Cremer*, **Avaneesh V. Narla***, and Terence Hwa
Taxis as the Driving Factor of Fast Range Expansion (*In preparation*)
4. Kapil Amarnath, **Avaneesh V Narla**, Sammy Pontrelli, Jiajia Dong, Tolga Caglar, Brian R Taylor, Julia Schwartzman, Uwe Sauer, Otto X Cordero, Terence Hwa
Stress-induced cross-feeding of internal metabolites provides a dynamic mechanism of microbial cooperation (*In review*)
5. **Avaneesh V. Narla**, Jonas Cremer, and Terence Hwa
A Traveling-Wave Solution for Bacterial Chemotaxis with Growth PNAS (2021)
6. **Avaneesh V. Narla**, David Borenstein, and Ned S. Wingreen
A biophysical limit for quorum sensing in biofilms PNAS (2021)
7. Victoria E. Deneke , Alberto Puliafito, Daniel Krueger, **Avaneesh V. Narla**, Alessandro De Simone, Luca Primo, Massimo Vergassola, Stefano De Renzis, and Stefano Di Talia
Self-organized nuclear positioning synchronizes the cell cycle in *Drosophila* embryos Cell (2019)

PEER-REVIEWED PEDAGOGY PUBLICATIONS

1. **Avaneesh V. Narla***, Elizabeth Bullard*, Madison Edwards*, Katherine Petrie
Teaching Practices Affecting Students' Sense of Belonging in STEM Classrooms during the Pandemic (*In preparation*)
2. **Avaneesh V. Narla**
Teaching to Fail: Creating Vulnerable Learning Communities to Facilitate Students Growth (*In press*)

WORK EXPERIENCE

Instructor of Record in Physics Department at UCSD, Sole instructor for two undergraduate-level physics courses for over 250 students. Developed course based on constructivist pedagogy, recommended by 95% of students	JUN 2021 - SEP 2021
Graduate Student Researcher in Quantitative Biology, in UCSD Physics Dept. with Prof. Terence Hwa Investigating properties of microbial communities using theoretical and computational tools to understand community assembly, population spread and coexistence.	MAR 2020 - <i>current</i>
Graduate Student Researcher in Theoretical Biophysics, in UCSD Physics Dept. with Prof. Massimo Vergassola Investigating the role of actomyosin-mediated cytoplasmic flows in early nuclear positioning and cell-cycle synchronization in <i>Drosophila</i> embryos.	MAR 2018 - NOV 2019
Independent Work in Theoretical Biophysics, including summer research, in Princeton Physics Dept. with Prof. Ned Wingreen (Lewis Sigler Institute) Investigating the role of quorum sensing in evolutionary dynamics of bacterial biofilms using computational tools and theoretical models as part of Senior Thesis.	JAN 2016 - JUN 2017
Research in Experimental Biophysics (Princeton University) Research Assistant in Physics Department for Prof. Thomas Gregor Studied gene expression during early development of fruit fly embryo using computational tools and physical models, in collaboration with Prof. Mike Levine's lab	JUNE 2015 - JAN 2016
Research Experience for Undergraduates (Princeton University), in Princeton Math. Dept. with Prof. Christine Taylor (Institute for Advanced Study) Studied theoretical results in Random Matrix Theory, and investigated applications in Physics and Biology including Quantum Many-Body systems and Compressed Sensing	MAY 2015 - AUG 2015
The European Organization for Nuclear Research (CERN), Geneva Research Assistant for Prof. Daniel Marlow & Dr. David Stickland (Princeton Univ.) Member of Compact Muon Solenoid Beam and Radiation Monitoring Group	JULY 2014 - SEP 2014

NOTABLE SCIENTIFIC TALKS

Aspen Workshop on Dynamics of Social Interactions	MAR 2022
American Physical Society March Meeting (Five talks over six years)	2017-2022
Wednesday Workshop at UC San Diego	JAN 2022
Invited Speaker at Azim Premji University (Bengaluru, India)	NOV 2021
Informal Talk at LaCONES (Hyderabad, India)	NOV 2021
Discussion Leader and Speaker at Gordon Research Conference (Ventura, CA)	OCT 2021
Invited Speaker at Emonet Group Meeting (Yale University)	MAR 2021
Annual Conference on Quantitative Biology, NSF-Simons Center for Quant. Biology	NOV 2020
Invited Student Speaker at qBio Symposium, UCSD	APR 2019
Princeton University Physics Department Senior Thesis Talks	MAR 2017

SKILLS AND PROFICIENCY

Extensive Knowledge:	Java, MATLAB, L ^A T _E X, Python, and Microsoft Office Suite
Intermediate Knowledge:	C, Julia and C++
Spoken and written fluency:	ENGLISH (NATIVE LEVEL), HINDI (NATIVE LEVEL), SPANISH (PROFICIENT) TELUGU (NATIVE LEVEL), BENGALI (PROFICIENT), FRENCH (BASIC)

TEACHING EXPERIENCE

Instructor of Record for PHYS 1A (taught twice) at UCSD Summer Graduate Teaching Scholar	JUN 2021 - SEP 2021
Course Instructor (Volunteer position) at East Mesa Re-Entry Facility with Bio Education and Art for Science Innovation	SEP 2020 - <i>current</i>
Higher Learning Navigation Tutor (Volunteer position) at the International Rescue Committee in San Diego	SEP 2020 - <i>current</i>
Graduate Teaching Consultant at the Engaged Teaching Hub in University of California San Diego Teaching + Learning Commons	APR 2020 - <i>current</i>
<i>Instructional Training: Introduction to College Teaching</i> in University of California San Diego Teaching + Learning Commons	SEP 2019 - DEC 2019
Graduate Teaching Assistant for PHYS 201: Mathematical Physics in UCSD Physics Dept. with Profs. R. Sekhar Chivukula and Michael Fogler	SEP 2018 - DEC 2019
<i>Instructional Training: Introduction to Physics Teaching</i> in UCSD Physics Dept.	SEP 2017 - DEC 2017
Teaching Fellow for EGR 150: Foundations of Engineering, Freshman Scholars Institute, Princeton University Generated course materials, and helped design course content.	MAY 2015- AUG 2016
Teaching Assistant for EGR 192: Introduction to Engineering Math Teaching Assistant for MAT 204: Advanced Linear Algebra Mathematics Department, Princeton University	AUG 2015 - MAY 2016
Tutor for Integrated Science Curriculum Lewis-Sigler Institute for Integrative Genomics, Princeton University	OCT 2014 - JUN 2016

SERVICE, MENTORING AND OUTREACH

Gordon Research Seminar on Stochastic Biology, 2023	Co-Chair
APS March Meeting, 2022	Session Chair
eLife - Physics of Living Systems	Reviewer
TheoBioPhys	Podcast Host
Skype a Scientist	Volunteer
Young Scientist Club, San Diego	Volunteer
ComSciCon San Diego 2020	Organizer
Useful Science	Writer and Podcast Host
Kugelblitz	Podcast Host
Warren Honors College	Mentor for prospective PhD students
P2P Mentor Program, Physics Dept. UCSD	Peer mentor to 4 undergraduate students
Young Physicist Program, UCSD	Volunteer
Wilson College	Residential College Advisor for > 30 students
Prison Teaching Initiative, Princeton University	Tutor
Pete Greene Prison Tutoring Program	Tutor

REFERENCES

Available upon request