

NEHA SPENTA WADIA

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EDUCATION

University of California, Berkeley, Berkeley, CA, USA August 2015 - present

Biophysics Graduate Group

Redwood Center for Theoretical Neuroscience

- *PhD* in Biophysics, advised by Professor Michael DeWeese. Expected May 2021
I work on problems in statistical physics and machine learning with the aim of developing new theoretical frameworks within which to understand network-level computations in brains.

University of Waterloo and Perimeter Institute for Theoretical Physics, Waterloo, ON, Canada

Perimeter Scholars International

- *Master of Science* in Physics. June 2014
- Masters Research Essay: "Adventures in Two Dimensional Heisenberg Spin Systems in the Context of Solid State NMR", advised by Professor David G. Cory (available at http://perimeterinstitute.ca/psi_essays/2014/Neha_Wadia.pdf).
- Awards: Honorary Emmy Noether Scholarship.
- Class valedictorian.

Amherst College, Amherst, MA, USA

- *Bachelor of Arts* in Physics, *Magna Cum Laude*. May 2013
- Cumulative GPA: 3.80/4.0, Physics GPA: 3.68/4.0.
- Senior Honors Thesis: "Measurements of Branching Ratios for the B(0)-X(v) Transition in Thallium Fluoride to Determine its Potential for Laser Cooling", advised by Professor Larry Hunter (available at <https://www.amherst.edu/system/files/Wadia.pdf>).
- Awards: Forris Jewett Moore Graduate Fellowship. August 2013 – May 2014
- Student member of the Amherst College chapter of *Sigma Xi*, Scientific Honors Society.

RESEARCH EXPERIENCE

University of California, Berkeley, Berkeley, CA, USA

- *Rotation Student* September 2015 – November 2015
I spent ten weeks as a rotation student in the laboratory of Professor Michael Eisen, who studies the function of enhancers in the genome and the interactions between pathogenic microbes and their animal hosts within the relevant ecological contexts. As part of the latter direction of research, I helped map the species diversity of yeasts vectored by the fruitfly *Drosophila melanogaster* in two Northern California vineyards. Through this project I learned basic techniques in molecular biology. I also completed the assembly of an Olfactory Magnetic Tether (OMT) – a virtual flight simulator for flies – which will be used to measure responses of individual flies to various odorants.
- *Rotation Student* November 2015 – February 2016
I spent ten weeks working in the laboratory of Professor Michael Yartsev, a systems neuroscientist who studies the neural bases of language and spatial navigation in the Egyptian fruit bat *Rousettus aegyptiacus*. I carried out a behavioral study to characterize the social conditions under which *Rousettus* produces the highest density of calls.

National Center for Biological Sciences, Bangalore, India

August 2014 – July 2015

Junior Research Fellow

I was a member of the group of Dr. Mukund Thattai at the Simons Center for the Study of Living Machines. We worked on problems in eukaryote cell biology and evolution. Specifically, I worked on developing a model of internuclear dynamics in ciliates in order to understand the evolution of their various modes of inheritance. I also adapted the model to study cancer metastasis in order to understand the combined consequences of genetic bottlenecks and environmental heterogeneity on tumor progression.

TEACHING EXPERIENCE

University of California, Berkeley, Berkeley, CA, USA

August 2016 – present

Graduate Student Instructor

- MCB 160: Molecular and Cellular Neuroscience. Fall 2016
- MCB 141: Developmental Biology. Spring 2017

Amherst College Physics Department, Amherst, MA, USA September 2010 – May 2012

- *Laboratory Teaching Assistant* for Introductory Electromagnetism.
- Graded homework and led problem-solving sessions for two classes: Mathematical Methods of Physics, and Thermodynamics and Statistical Mechanics.
- Engaged in an Independent Study over summer of the Theory of Special Relativity and (qualitatively) the Theory of General Relativity as applied to uncharged black holes.

Amherst College Quantitative Center, Amherst, MA, USA January 2011 – May 2011
Physics Tutor

- Tutored students taking introductory mechanics classes.

PUBLICATIONS

E. B. Norrgard, E. R. Edwards, D. J. McCarron, M. H. Steinecker, D. DeMille, S. S. Alam, S. K. Peck, **N. S. Wadia**, and L. R. Hunter. *Hyperfine Structure of the $TlF B^3\Pi_1$ State and Predictions of Optical Cycling*. Arxiv Preprint.

TALKS, PRESENTATIONS, CONFERENCES, & SCHOOLS

Conferences & Schools

Neurotechnologies for the Analysis of Neural Dynamics (NAND) Summer School, Princeton University, Princeton, NJ, USA June – July 2016

Neuro Inspired Computational Elements (NICE), UC Berkeley, Berkeley, CA, USA March 2016

Women in Data Science Conference (WIDS), Stanford University, Stanford, CA, USA November 2015

CodeNeuro SF, San Francisco, CA, USA November 2015
CodeNeuro is a nationwide effort to identify problems at the intersection of data science and neuroscience and to bring together members of both communities in order to foster collaborations.

Talks & Presentations

National Center for Biological Sciences, Bangalore, India
Simons Center weekly seminar October 2014

- Presented and discussed recent experimental verification of Laundauer's principle.

Perimeter Institute for Theoretical Physics, Waterloo, ON, Canada

- Valedictory address. June 2014
- Masters thesis presentation and (public) defense. June 2014

Amherst College Physics Department, Amherst, MA, USA

- Undergraduate thesis mid-year research report. December 2012
- Undergraduate thesis talk. May 2013

Observer Research Foundation, Mumbai, India January 2012
Invited speaker and panelist at a consultative roundtable discussion debating the possibility of introducing the liberal arts model of education to India.

MISCELLANEOUS SKILLS

- Programming skills: Mathematica, Python, TensorFlow.
- Trained and certified to work safely with lasers of Classes I – IV.
- Basic molecular biology laboratory techniques.
- Basic eletrophysiology techniques.
- Bat husbandry.