# JiaJia Dong

Professor of Physics, Associate Dean of Faculty Bucknell University Lewisburg, PA, USA 17837 Google Scholar: http://goo.gl/vfYNg2 updated in October 2022 1.570.577.3821 jiajia.dong@bucknell.edu www.facstaff.bucknell.edu/jjd025

# Education

Ph.D.	Department of Physics, Virginia Tech, Blacksburg, Virginia, USA.	2008
M.S.	Department of Physics, Virginia Tech, Blacksburg, Virginia, USA. 2	
B.S.	Department of Physics, Shanghai Jiao Tong University, Shanghai, P.R.China	2003
	Graduated with honor in Shanghai, P.R. China	
B.A.	Department of English, Shanghai Jiao Tong University, Shanghai, P.R.China	2003

# **Professional Appointments**

Professor
Department of Physics & Astronomy, Bucknell University
Associate Dean of Faculty
College of Arts & Sciences, Bucknell University
Visiting Research Scientist, T. Hwa's group
Department of Physics, University of California, San Diego
Visiting Research Scientist, M. Mobilia's group
Department of Applied Mathematics, University of Leeds, UK
Associate Professor
Department of Physics & Astronomy, Bucknell University
Assistant Professor
Department of Physics & Astronomy, Bucknell University
Visiting Research Scientist, S.Klumpp's group
The Max Planck Institute of Colloids and Interfaces, Golm, Germany
Theoretical Biology Group, University of Göttigen
Academic Director, coach, U.S. Physics Team
Leader for the U.S. Delegation to International Physics Olympiad from 2017 to 2021.
American Association of Physics Teachers
Assistant Professor
Department of Physics, Hamline University, St. Paul, MN
Visiting Research Scientist, S.Klumpp's group
The Max Planck Institute of Colloids and Interfaces, Golm, Germany

# Funding

2021 - 2023	National Science Foundation ADVANCE - Catalyst: AGREE: Self-Assessment of Gen-
	der, Racial, and Ethnic Equity in STEM Faculty at Bucknell (HRD - 2109488, \$271,594,
	PI)
2020 - 2023	National Science Foundation Division of Molecular and Cellular Biosciences: Collab-
	orative Research - Spatiotemporal Dynamics of Interacting Bacterial Communities in
	Compact Colonies (MCB-2029480, \$223,920, PI).
2019	German Academic Exchange Service (DAAD) Faculty Learn German in Germany (de-
	clined).
2018 - 2022	National Science Foundation Division of Materials Research: RUI – Study of parasite-
	host model and its biological applications: simulations and theory (DMR - 1702321,
	\$150,000, PI).
2018.03	The George I. Alden Trust: Acquisition of a Total Internal Reflection Fluorescence
	Microscope (\$100,000, PI)
2018 - 2023	National Science Foundation S-STEM: Physical Sciences Scholars (PSS) Program
	(DUE - 1742124, \$996,128, PI).
2017	College of Arts & Sciences Integrated Perspectives Course Development grant, Buck-
	nell University (\$2500, in collaboration with Prof. P. Brooksbank).
2016 - 2019	National Science Foundation MRI: Addition of High Performance Computers for the
	Molecular Education and Research Consortium in Undergraduate Computational
	ChemistRY (NSF-1626238, \$ 225,000, senior personnel).
2011 - 2016	National Science Foundation RUI: Monte Carlo Simulations in Exploring Non-
	Equilibrium Systems (DMR - 1248387, \$120,000, PI).
2015	International Research Travel grant, Bucknell University (\$4000).
2015	College of Arts and Sciences Core Curriculum Course Development grant, Bucknell
	University (\$5000).
2009	Dean's Award, Hamline University (\$2500).

### **Fellowships & Awards**

2013 Anacapa Society Award

The Anacapa Society recognizes a KITP Scholar who stands out as an exemplar of what is possible at a primarily undergraduate institution. It is hoped that the Anacapa Scholar will do something to help promote theoretical physics in PUIs.

- 2012 2014 Scholar of Kavli Institute of Theoretical Physics The Kavli Institute for Theoretical Physics has established a program of visiting researchers in theoretical physics. The purpose of this program is to support the research efforts of faculty at U.S. colleges and universities that are not major research institutions. Every year 6 applicants across the nation are selected.
- 2005 2008 Fellow of EIGER sponsored by IGERT, National Science Foundation IGERT focuses on interdisciplinary environmental interface science, as studied by physical scientists and engineers, and human interfaces within interdisciplinary scientific and engineering teams, as studied by behavioral scientists.

2008	College of Science of Virginia Tech Outstanding Doctoral Student Award runner-up
2007	Member of Graduate Scholars Society of Virginia Tech
2007	Featured Graduate Student of December, 2007, Virginia Tech
2006	C.H. Wan Award, Department of Physics, Virginia Tech
	Awarded to graduate and/or undergraduate students who are recognized for excellence in scholarship and active engagement in research in stochastic processes
2005	Jamie Dunn Award, Department of Physics, Virginia Tech
	Awarded to a second-year graduate student who has actively fostered a spirit of good will in the depart- ment and has demonstrated a deep enthusiasm for physics.
2002	Bao Steel Award, Department of Physics, Shanghai Jiao Tong University
	Awarded to two undergraduates with the highest GPA in the Department.
2001	Undergraduate Award from Chinese Academy of Sciences
	Awarded to undergraduates with the highest GPA in physics at a few national flagship universities .

### **Professional Service and Engagement**

2021 - present	Steering Committee member at Bucknell for Middle States Commission on Higher
	Education, co-chair of Standard V: Educational Effectiveness Assessment
2017 - 2018	Initiator and coordinator of the Biophysics B.S. program.
2016 - 2019	Elected member of Board of Review on Academic Responsibility.
2016 - 2019	Elected member of the College of Arts & Sciences Core Curriculum Committee at
	Bucknell University.
2014 - 2015	Elected member of the Committee on Academic Freedom & Tenure at Bucknell
	University.
2012.05	Chair of the organization committee for the Spring Meeting of the Anacapa Society
	in St. Paul, MN.
Reviewer:	NSF-RUI grants, Physical Review Letters, Physica A: Statistical Mechanics & Its
	Applications, Modern Physics Letters B, American Journal of Physics, Journal of
	Physics A: Mathematical & Theoretical, Physical Review E, Biophysical Journal,
	European Biophysics Journal and IEEE/ACM Transactions on Computational Bi-
	ology and Bioinformatics.
Member:	Sigma Xi, American Physical Society, Anacapa Society, American Association of
	Physics Teachers, Biophysical Society, Society for Industrial and Applied Mathe-
	matics, Society of Physics Students and $\Sigma\Pi\Sigma$ honor society for physicists.
Panelist:	multiple grant-seeking workshops at Bucknell, Women in STEM discussion at
	Bucknell, Physics at Liberal Arts Colleges Workshop (virtual) at Reed College,
	Gordon Research Symposium Career Panel.

### **Peer-reviewed Publications** (\* denotes undergraduate co-authors)

According to Google Scholar when this cv is prepared, my work has been cited over 500 times, with an h-index of 9.

1. K. Amarnath, A.V. Narla<sup>†</sup>, S. Pontrelli<sup>†</sup>, J.J. Dong<sup>†</sup>, T. Caglar, B.R. Taylor, J. Schwartzman, U. Sauer, O.X. Cordero, and T. Hwa. Dynamic metabolic exchanges between complementary

bacterial types provide collaborative stress resistance. *bioRxiv*, 2022 *Accepted by Nature Microbiology* († denotes equal contribution.)

- 2. J. Lin<sup>\*</sup>, H. Sun, and J.J. Dong Emergence of sector and spiral patterns from a two-species mutualistic cross-feeding model. *PLOS ONE*, 17:e0276268, 2022
- 3. J.J. Dong, J.D. Russo\*, and K. Sampson\*. Population dynamics model and analysis for bacteria transformation and conjugation. *J. Phys. Commun.*, 4:095021, 2020
- 4. J.J. Dong and S. Klumpp. Simulation of colony pattern formation under differential adhesion and cell proliferation. *Soft Matter*, 14:1908, 2018
- J.J. Dong, B. Skinner, N. Breecher<sup>\*</sup>, B. Schmittmann, and R.K.P. Zia. Spatial structures in a simple model of population dynamics for parasite-host interactions. *Europhys. Lett.*, 111:48001, 2015
- 6. M. Sahoo, J.J. Dong, and S. Klumpp. Dynamic blockage in an exclusion process. *J. Phys. A: Math. Theo.*, 48:015007, 2014
- A. Körnig, J.J. Dong, M. Bennet, M. Widdrat, J. Andert, F.D. Müller, D. Schüler, S. Klumpp, and D. Faivre. Probing the mechanical properties of magnetosome chains in living magnetotactic bacteria. *Nano Lett.*, 14:4653, 2014
- 8. L.J. Cook, J.J. Dong, and A. LaFleur<sup>\*</sup>. Interplay between finite resources and a local defect in an asymmetric simple exclusion process. *Phys. Rev. E*, 88:042127, 2013
- 9. J.J. Dong, S. Klumpp, and R.K.P. Zia. Mass transport perspective on an accelerated exclusion process: analysis of augmented current and unit-velocity phases. *Phys. Rev. E*, 87:022146, 2013
- 10. S. Klumpp, J.J. Dong, and T. Hwa. On ribosome load, codon bias and protein abundance. *PLOS ONE*, 7:e48542, 11 2012
- 11. J.J. Dong, S. Klumpp, and R.K.P. Zia. Entrainment and unit velocity: Surprises in an accelerated exclusion process. *Phys. Rev. Lett.*, 109:130602, 2012
- 12. R.K.P. Zia, J.J. Dong, and B. Schmittmann. Modeling translation in protein synthesis with TASEP: A tutorial and recent developments. *J. Stat. Phys.*, 144:405–428, 2011
- J.J. Dong, S.P. Mury, K.E. Drahos, M. Moscovitch, R.K.P. Zia, and C.V. Finkielstein. Shorter exposures to harder x-rays trigger early apoptotic events in *Xenopus laevis* embryos. *PLOS ONE*, 5(1):e8970, 01 2010
- 14. L.J. Cook and J.J. Dong. Power spectra of taseps with a localized slow site. *Journal of Statistical Mechanics: Theory and Experiment*, 2010(10):P10002, 2010
- 15. J.J. Dong, R.K.P. Zia, and B. Schmittmann. Understanding the edge effect in TASEP with mean-field theoretic approaches. *J. Phys. A: Math & Theo.*, 42(1):015002, 2009
- 16. J.J. Dong, B Schmittmann, and RKP Zia. Towards a model for protein production rates. *Journal* of *Statistical Physics*, 128(1-2):21, 2007
- 17. J.J. Dong, B. Schmittmann, and RKP Zia. Inhomogeneous exclusion processes with extended objects: The effect of defect locations. *Physical Review E*, 76(5):051113, 2007

# **Conferences and meetings**

#### Invited talks:

- 1. *Pattern formation of bacterial colonies under differential adhesion and cell proliferation*, Department of Mathematics, California State University, Long Beach, Sept. 27, 2019
- 2. *Building Your Scientific Career*, panelist for Soft Condensed Matter Physics, Gordon Research Seminar, Colby-Sawyer College, New London, NH, August 11, 2019
- 3. *Non-equilibrium statistical mechanics and modeling bacterial colony morphogenesis*, Department of Physics & Biophysics, University of San Diego, May 9, 2019
- 4. *Pattern formation of bacterial colonies under differential adhesion and cell proliferation,* School of Mathematics, University of Leeds, UK, October 16, 2018
- 5. *Bacterial colony formation under differential adhesion and cell proliferation,* The Rockefeller University, New York, NY, April 13, 2018
- 6. *Modeling parasite-host type systems using population dynamics,* School of Mathematical Science, Fudan University, Shanghai, P.R. China, June 25, 2017
- 7. Accelerated Exclusion Process: towards modeling translation and transcription processes, Department of Physics and Astronomy, Cal Poly Pomona, Jan. 10, 2017
- 8. *Applications of non-equilibrium statistical mechanics in bio-polymerization,* 4th University of Electronic Science and Technology of China(UESTC) International Forum for Young Scholars, Chengdu, P.R. China, Nov. 25, 2016
- 9. *Effects of differential adhesion and growth on cell sorting*, The Max Planck Institute of Colloids and Interfaces Theory Department Workshop, Warnemünde, Germany, Apr. 27, 2016
- 10. *Explore the interface between physics and biology*, School of Physical Science and Technology, ShanghaiTech University, P.R. China, Mar. 24, 2016
- Spatial patterning in a model of population dynamics: escaping an infestation of parasites by "outrunning" them, 17th Annual Greater Boston Area Statistical Mechanics Meeting, Brandeis University, MA, Oct. 24, 2015
- 12. *Personal perspectives on biophysics: scales and scaling*, Bucknell Physics and Astronomy Coffee Talk, Bucknell University, PA, Oct. 22, 2015
- 13. Spatial patterning in a model of population dynamics: escaping an infestation of parasites by *"outrunning" them*, Workshop for Theorists at Undergraduate Institutions at the Kavli Institute of Theoretical Physics, Santa Barbara, CA, June 29, 2015
- 14. *Modeling protein synthesis using the asymmetric exclusion process*, University of New Mexico, Albuquerque, NM, May 29, 2015
- 15. *Escaping an infestation of parasites by "outrunning" them: insights from a simple stochastic model,* Bucknell University, Lewisburg, PA, Feb. 23, 2015

- 16. *Insights from stochastic models into complex phenomena in non-equilibrium systems*, Dickinson College, Carlisle, PA, Apr. 3, 2014
- 17. *Explore complex phenomena in non-equilibrium systems*, Research experience for undergraduates (REU) seminar, Bucknell University, Lewisburg, PA, June 19, 2013
- Novel features in an accelerated exclusion process towards modeling transcription, Symposium on models of biopolymerization processes, Society for Industrial and Applied Mathematics, Snowbird, UT, May 21, 2013
- 19. *Explore the interface of physics and biology: from a traffic model to protein synthesis and beyond,* Physics seminar at North Dakota State University, Fargo, ND, Mar. 29, 2012
- 20. *Dynamics of inhomogeneous totally asymmetric simple exclusion process and applications to estimate rate of protein production,* The Max Planck Institute of Colloids and Interfaces, Potsdam, Germany, Oct. 17, 2011
- 21. *Recent development in modeling protein synthesis through driven diffusive systems,* Institute of Natural Science, Shanghai Jiao Tong University, Shanghai, P.R. China, Jan. 4, 2011
- 22. *Modeling protein synthesis using Totally Asymmetric Simple Exclusion Process (TASEP)*, Seminar at Department of Physics, Shanghai Jiao Tong University, Shanghai, P.R. China, Dec. 24, 2010
- 23. *Expanding Horizon: Working on the interface of physics and biology,* Physics Seminar at University of Wisconsin, La Crosse, La Crosse, WI, Dec. 8, 2010
- 24. *Exploring the interface between physics and biology*, Physics Seminar at Macalester College, St. Paul, MN, Feb. 19, 2010
- 25. *Exploring the interface between physics and biology*, Physics Seminar at Beloit College, Beloit, WI, Mar. 23, 2009
- 26. *Experiences as a graduate student, research-wise,* McNair Scholars Program at Virginia Tech, Blacksburg, VA, May 28, 2008

#### **Contributed talks:**

- 1. *Training for competition and building community*, The American Physical Society annual March meeting, Boston, MA, Mar. 2019
- 2. *Escaping an infestation of parasites by outrunning them: insights from a simple stochastic model,* the 8th International Congress on Industrial and Applied Mathematics, Beijing, P.R. China, Aug. 12, 2015
- 3. *Competition between invertase-producers and sucrose-importers in budding yeast*, Santa Barbara Advanced School of Quantitative Biology, Kavil Institute of Theoretical Physics, Aug. 2014
- 4. A contact-dependent inhibition system: CDI+/CDI- and its behaviors in various minimum growth media, Santa Barbara Advanced School of Quantitative Biology, Kavil Institute of Theoretical Physics, July 2014

- 5. *Escaping an infestation of parasites by outrunning them: Insights from a simple stochastic model,* The American Physical Society annual March meeting, Denver, CO, Mar. 2014
- 6. *Novel phases in an accelerated exclusion process,* The American Physical Society annual March meeting, Baltimore, MD, Mar. 2013
- 7. *Novel phases in accelerated exclusion process,* The 108th Statistical Mechanics Conference at Rutgers University, New Brunswick, NJ, Dec. 2012
- 8. *Explore the interface of physics and biology: from a traffic model to protein synthesis and beyond,* Physics seminar at Bucknell University, Lewisburg, PA, Feb. 2012
- 9. *Exploring physics in magnetotactic bacteria*, Physics seminar at Hamline University, St. Paul, MN, Sept 23, 2011
- Power spectra in totally asymmetric simple exclusion process (TASEP) with a localized defect, Workshop on "Large Fluctuations in non-equilibrium systems" at The Max Planck Institute of Complex Systems, Dresden, Germany, June 2011
- Introducing non-equilibrium statistical mechanics to undergraduate students through a one-dimension driven diffusive lattice gas model, The West Coast Anacapa Society Meeting, Pomona, CA, Dec. 2010
- 12. A reliable and simple method for estimating currents in Totally Asymmetric Simple Exclusion Process (TASEP) with inhomogeneous hopping rates, International Symposium on Complex Driven Systems From Statistical Physics to the Life Sciences, Blacksburg, VA, Oct. 2010
- 13. *Power spectra in totally asymmetric simple exclusion process (TASEP) with local inhomogeneity,* The American Physical Society annual March meeting, Portland, OR, Mar. 2010
- 14. *Totally asymmetric simple exclusion process in protein synthesis*, Summer school on condensed matter physics, Boulder, CO, July 2009
- 15. *Refined mean-field approaches to "Edge effects" in open TASEPs*, The American Physical Society annual March meeting, Pittsburgh, PA, Mar. 2009
- 16. *Refined mean-field approach to TASEP with inhomogeneity*, The 100th Statistical Mechanics Conference at Rutgers University, New Brunswick, NJ, Dec. 2008
- 17. *"Edge effects" of TASEP and insights from mean-field approaches,* Workshop on non-equilibrium statistical mechanics: a bridge from physics to biology at Virginia Tech, Blacksburg, VA, Dec. 2008
- 18. *Messenger RNA sequence and the translation process: a particle transport perspective,* The American Physical Society annual March meeting, New Orleans, LA Mar. 2008
- 19. Exploring the interface between physics and biology, Kenyon College, Gambier, OH, Feb. 2008
- 20. *TASEP with extended objects and local inhomogeneities*, The American Physical Society annual March meeting, Denver, CO, Mar. 2007

- 21. *Local inhomogeneities in TASEP with extended objects*, The 96th Statistical Mechanics Conference at Rutgers University, New Brunswick, NJ, Dec. 2006
- 22. *From Asymmetric Exclusion Processes to Protein Synthesis*, The American Physical Society annual March meeting, Baltimore Convention Center, Baltimore, MD, Mar. 2006
- 23. *TASEP with "bottlenecks" motivated by protein synthesis*, The 94th Statistical Mechanics Conference at Rutgers University, New Brunswick, NJ, Dec. 2005

#### **Poster presentations:**

- 1. Developing self-identity as a scientist and building community: Recruiting and retaining low-income students in the physical sciences at Bucknell University, J. VanLone, K. Castle, J.J. Dong and M.B. Gray, S- STEM Symposium by AAAS, Washington, DC, Oct. 2022
- 2. *Modeling colony pattern formation under differential adhesion and cell proliferation*, J.J. Dong and S. Klumpp, 62<sup>nd</sup> Annual Meeting of the Biophysical Society, San Francisco, CA, Feb. 2018
- 3. *Study of the interactions of magnetosomes inside magnetotactic bacteria* (*MTB*) *through modeling and experimentation*, J.J. Dong, A. Körnig, S. Klumpp, and D. Faivre, American Physical Society March Meeting, Boston, MA, Mar. 2012
- 4. *Towards a model for protein synthesis*, J.J. Dong, B. Schmittmann, and R.K.P. Zia, Summer School Conference Quantitative Approaches to Gene Regulatory Systems, University of California at San Diego, San Diego, CA, July. 2006
- 5. *Raman Spectroscopy in early detection of cancer*, J.J. Dong, N. Evans, J. Robertson, K. Meissener, and W. Spillman, Optics in the Southeast, University of North Carolina, Charlotte, NC, Nov. 2004

#### Presentations by <u>co-authors</u>: (\* denotes undergraduate student)

- 1. Acid stress and cross-feeding provide a dynamic mechanism of microbial coexistence, <u>K. Amarnath</u>, A. Narla, S. Pontrelli, J.J. Dong, T. Caglar, B. Taylor, J. Schwartzman, U. Sauer, O. Cordero, T. Hwa, APS March meeting, Chicago, IL March 15, 2022
- 2. Setting a Trajectory for Success: A Multi-Faceted Program to Recruit and Retain Underrepresented Students in the Physical Sciences, M.B. Gray, J.J. Dong, K.J. Castle, and K.E. Nottis, Hawaii International Conference of Education, Honululu, HI, January 4, 2020
- 3. *Modeling Transformation and Conjugation in Bacteria Populations*, J.D. Russo\*, J.J. Dong, APS March meeting, New Orleans, LA, March 14, 2017
- 4. *Simulation and Theory of Antibiotic Resistant Bacteria Populations*, J.D. Russo\*, J.J. Dong, APS Mid-Atlantic Session meeting, University of Delaware, Newark, DE, Oct. 2016
- 5. *From asymmetric exclusion processes to protein synthesis*, <u>B. Schmittmann</u>, J.J. Dong, R.K.P. Zia, Society for Industrial and Applied Mathematics Annual Meeting, San Diego, CA, July 2013
- 6. *From asymmetric exclusion processes to protein synthesis*, <u>B. Schmittmann</u>, J.J. Dong, R.K.P. Zia, American Mathematical Society Special Session, Ames, IA, Apr. 2013

- Entrainment and unit velocity: Surprises in an accelerated exclusion process, <u>R.K.P. Zia</u>, J.J. Dong, S. Klumpp, Statistical Mechanics in Low Dimensions, Paris-Sud University, Orsay, France, Dec. 2012
- 8. *Exploring a parasite-host model with Monte Carlo simulations*, <u>N. Breecher\*</u>, J.J. Dong, The American Physical Society annual March meeting, Dallas, TX, Mar. 2011
- 9. *Exploring a parasite-host model with Monte Carlo simulations*, <u>N. Breecher\*</u>, J.J. Dong, National Conference on Undergraduate Research, Ithaca College, Ithaca, NY, Mar. 2011
- 10. *TASEP and a host-parasite model*, <u>N. Breecher</u>\*, J.J. Dong, 2010 Virginia Tech-Washington & Lee Research Symposium, Lexington, VA June 2010
- 11. Estimating currents in totally asymmetric simple exclusion process with extended particles and *inhomogeneous hopping rates*, <u>R.K.P. Zia</u>, J.J. Dong, B. Schmittmann, The American Physical Society annual March meeting, Pittsburgh, PA, Mar. 2009
- 12. *Applying TASEP to Modify Production Rates of Real Proteins*, <u>B. Schmittmann</u>, J.J. Dong, R.K.P. Zia, The 98th Statistical Mechanics Conference, Rutgers University, New Brunswick, NJ, Dec. 2007
- 13. *From sequence to function: a model for codon bias,* S. Klumpp, T. Hwa, J.J. Dong, The American Physical Society annual March meeting, Denver Convention Center, Denver, CO, Mar. 2007
- 14. *From asymmetric exclusion processes to protein synthesis*, <u>B. Schmittmann</u>, J.J. Dong, R.K.P. Zia, Workshop on "New Directions for Growth in Complex Systems", Büyükada, Istanbul, Turkey, Sept. 2006
- 15. *From asymmetric exclusion processes to protein synthesis*, <u>B. Schmittmann</u>, J.J. Dong, R.K.P. Zia, Ludwigs-Maximilians-Universität München, München, Germany, 2006
- From asymmetric exclusion processes to protein synthesis, <u>B. Schmittmann</u>, J.J. Dong, R.K.P. Zia, Workshop on "Applications of Methods of Stochastic Systems and Statistical Physics in Biology", University of Notre Dame, Notre Dame, IN, Oct. 2005
- Development of a spectroscopic mass screening device for detection of serum variations associated with the presence of neoplasms, <u>N. Evans</u>, R. Calley, J.J. Dong, Summer Oncology Fellowship Day Presentations, The Center for Comparative Oncology, VA-MD Regional College of Veterinary Medicine, Blacksburg, VA, Aug. 2004

## **Teaching Experiences**

#### STEM majors

Biophysics Waves and Quantum Mechanics (with Python computation 4th-hour) Thermodynamics and Statistical Mechanics Classical and Modern Physics Survey of Computational Sciences Algebra-based introductory physics Calculus-based introductory physics

	Junior/senior Physics Seminar
non-STEM majors	Physics of Sound and Music; Introduction to Astronomy
Foundation Seminar	Physics Across Scales: From quantum, biophysics to cosmology (2015-2017)
Integrated Perspectives	Symmetry, with Prof. P. Brooksbank( <i>Math</i> ) in springs of 2017, 2018, and 2020
Residential College	Sophomore Experience Seminar (spring 2018)

### **Student Mentoring**

2020	Rafe Batchelor ('21 CompSciEngt/Physics, Bucknell); Jacky Lin ('22 CompSciEngr)
2020 summer	Kris Sampson ('24 Physics, Bucknell)
2017	Horio Tianjie Hu ('21 Physics, Bucknell); Anurag J. Vaidya ('21 Biomed Engr, Bucknell)
2015 - 2017	JD Russo ('17 Physics, Bucknell)
2014 - 2015	Son Pham ('18 CompSci, Bucknell)
2013 - 2015	Andrew Baish ('14 Biomed Engr, Bucknell); Evan Gingrich('14 Phys/CompSci, Bucknell)
2009 - 2012	Nyles Breecher ('12 Phys/Math, Hamline)
2011	Emma Reeves ('14 Phys, Hamline)
2010	Mark Odegard ('13 Phys, Hamline)
2009	Sarah Janke ('12 Phys, Hamline)

### **Computer Skills**

Proficiency in programming in C/C++, Python.

Experience with various operating systems including Linux, OS X and Windows.

Experience with Mathematica, Matlab and Microsoft Office suite.

Some knowledge in parallel programming protocols including OpenMP and MPI.

### Language Skills

Fluent in written and speaking English and Chinese. Working knowledge in Spanish and German.