

Suzanne Amador Kane

Professional Experience	1999- present	Associate Professor, Physics Department, Haverford College	
	1991- 1998	Assistant Professor, Physics Department, Haverford College	
	1988-1990	Postdoctoral research associate, Department of Chemistry, University of Pennsylvania; Research Supervisor: J. K. Blasié	
Education	1989	Ph.D., Applied Physics, Harvard University. Dissertation: "Light scattering and x-ray scattering studies of thin, freely-suspended liquid crystal films", advisor Prof. Peter S. Pershan.	
	1984	M.S., Applied Physics, Harvard University.	
	1982	B.S., Physics, Massachusetts Institute of Technology.	
Invited Talks	2010	APS/AAPT Joint Meeting	Talk
	2010	Centre College	Talk
	2009	AAPT Advanced Lab Conference	Talk
	2008	Ithaca College	Physics Colloquium
	2008	American Physical Society	Talk for CSWP
	2006	SACNAS Conference (Tampa FL)	Talk on bionanoscience
	2006	University of Richmond	Physics Colloquium
	2006	University of the Sciences	Science Colloquium
	2006	Allegheny College	Science Colloquium
	2006	Kalamazoo College	Jennifer Mills Lectures
	2005	St. Joseph's University	Physics Colloquium
	2003	Lafayette College	Physics Colloquium
	2003	Council on Undergraduate Research	Invited panel discussion
	2002	Brown University	Physics Colloquium
	2002	Bucknell University	Physics Colloquium
	2002	Council on Undergraduate Research	Panel discussion
	2001	Villanova University	Physics Colloquium
	2001	Colgate University	Physics Colloquium
	2001	Williams College	Symposium panel discussion
	1998	Temple University	Physics Colloquium
	1997	Swarthmore College	Physics Colloquium
	1995	Association of Midwest Biology Teachers Association Annual Meeting	Opening address
	1992	Lafayette University	Physics Colloquium
1991	Bryn Mawr College	Physics Colloquium	
1989	University of Pennsylvania	Condensed Matter Seminar	

Contributed Scientific Talks and Workshops

2010	APS Marching Meeting (talk)
2009	American Physical Society March Meeting (talk)
2003	Biophysical Society Annual Meeting (poster)
2002	American Physical Society March Meeting (poster)
2002	Haverford Faculty Research Talk (Panel Discussion)
2002	Haverford Natural Science Colloquium
2000	Interface between Physics and Biology, University of Pennsylvania (poster with student)
1998	American Physical Society March Meeting (poster with student)
1998	Biophysical Society Annual Meeting (poster with student)
1997	Tricollege Life Sciences Symposium (poster)

- 1996 Haverford and Bryn Mawr Feminist and Gender Studies seminar
- 1996 Biophysical Society Annual Meeting (poster)
- 1991 American Physical Society March Meeting (talk and poster)
- 1990 Materials Research Society Fall Meeting (talk)
- 1987 Gordon Conference on Liquid Crystals (poster)
- 1987 American Physical Society March Meeting (talk)

Contributed pedagogy or service related talks

- 2009 AAPT Summer Meeting (poster)
- 2007 Swarthmore/Mellon Physics Conference on Life Sciences (talk)
- 2006 AAPT Meeting (poster with student)
- 2005 AAPT Meeting (talk)
- 2003 Physics of Medical Technology workshop for high school teachers & students
(HHMI sponsored Cascade Mentoring workshop, Haverford College)
- 2003 Council on Undergraduate Research, invited panel discussion*, “Interdisciplinary Research Collaborations” (poster)
- 2002 Tricollege Science Teaching symposium, Bryn Mawr College (talk)
- 2001 Tricollege Science Teaching symposium, Bryn Mawr College (talk, with Lyle Roelofs)
- 2000 AAC&U Rethinking Science Literacy Conference (poster with Kaye Edwards)
- 1994 National Science Foundation Chautauqua Short Course on Molecular Biophysics, Temple University, Philadelphia, PA (led workshop, S. Amador Kane, J. Tanaka)
- 1994 Commonwealth Partnership and Howard Hughes workshop for high school science teachers, Haverford College (led workshop)
- 1994 Physics of Medical Technology workshop for minority science scholars, University of Pennsylvania, Philadelphia, PA (led workshops)
- 1992 University of Pennsylvania series on women in science (informal talk for graduate students on working at liberal arts colleges)
- 1991 American Institute of Physics/American Association of Physics Teachers, Conference on Recruiting and Retaining Women in Physics

Grants	10/03-10/08	National Science Foundation Math Science Partnerships of Greater Philadelphia (MSPGP) Participant in educational activities in a multi-institution grant program (\$1.5M)
	09/04-01/05	Andrew J. Mellon Foundation New Directions Fellowship
	7/00-6/05	Packard Corporation, “Protein-based biomaterials for nanotechnology”, Co-PI (\$966,020)
	7/00-6/02	NSF “RUI: Advanced microscopy and manipulation cluster for biological and biophysical studies”, Co-PI (\$169,271)
	1/99-12/00	Zimmer Corporation, “Interdisciplinary studies of structure and reactivity of proteins”, Co-PI (\$100,000)
	1/94-6/98	NSF Course and Curriculum Development Grant (\$36,860)
	1/95-12/95	Zimmer Corporation, Imaging in Modern Science, Co-PI (\$200,000)
	6/91-6/93	Research Corporation Cottrell Science Grant, PI (\$20,000)
	6/91-6/93	Petroleum Research Fund Starter-G grant, PI (\$18,000)
	6/91-6/93	NSF Research Planning Grant, PI (\$18,000)

I have been involved in writing three of our grants from the Howard Hughes Medical Institute (all funded) and substantially involved in all of those grants and the related activities.

I have also received approximately annual awards from Faculty Support Fund, and a 2010 Teaching with Technology Award, as well as Haverford College’s Faculty Research Funds in many years.

Honors & Awards: Haverford College Innovation in Teaching Award (2005), Andrew Mellon New Directions Fellowship (2004); Sigma Xi (1982).

Recent professional service & teaching related activities (since 2000)

2009- present

Coordination of the physics community response to the AAMC-HHMI report “Scientific Foundations for Future Physicians”

2004 to 2008

Member, American Journal of Physics Resource Letters Editorial Board

2007 Mellon Foundation Symposium on Teaching Introductory Physics, Swarthmore College (talk)

2006 Math Science Partnership of Greater Philadelphia Annual Meeting (talk)

2005 NSF Math-Science Partnership Science Pedagogy Workshop (talk)

2004 NSF Math-Science Partnership Bi-College faculty seminar on New Pedagogies in Math and Science Education

2002 HHMI-funded faculty development workshop in Bioinformatics (Haverford College)

2002 Tricollge Science Teaching symposium, Bryn Mawr College, Bryn Mawr, PA (talk, S. Amador Kane)

2002 Tricollge Multicultural Winter Institute, Swarthmore College, Swarthmore, PA. (intensive four-day workshop focused on issues of race, ethnicity, socio-economic class, gender, religion and sexual orientation.)

2001 HHMI-funded faculty development workshop on Computing Across the Sciences

2001 Women In Science: Opportunity in a Changing Landscape, Bryn Mawr College, Bryn Mawr PA

2001 Building Bridges: Introductory Science Education, Bryn Mawr College Bryn Mawr PA

2001 Tricollge Science Teaching symposium, Bryn Mawr College, Bryn Mawr, PA (talk, S. Amador Kane, Lyle Roelofs)

2000 AAC&U Rethinking Science Literacy Conference, Charleston, SC (poster presentation, S. Amador Kane, Kaye Edwards)

Ongoing : Occasional refereeing for American Chemical Society, *American Journal of Physics*, *American Journal of Physics*, *CBE--Life Sciences Education* and other journals, as well as reviewing grants for the National Science Foundation,

Submitted or in preparation

Anna Klales, James Duncan, Elizabeth Janus Nett, and Suzanne Amador Kane, “A biophysical model of prokaryotic diversity in geothermal hot springs” (<http://arxiv.org/ftp/arxiv/papers/0808/0808.1134.pdf>).

Peer-reviewed scientific publications (student coauthors indicated by asterisks)

- Daniel J. Rigotti, Bashkim Kokona, Theresa Horne, Eric K. Acton, Carl D. Lederman, Karl A. Johnson, Robert S. Manning, Suzanne Amador Kane, Walter F. Smith and Robert Fairman, “Quantitative atomic force microscopy image analysis of unusual filaments formed by the *Acanthamoeba castellanii* myosin II rod domain” *Analytical Biochemistry*, 346(2), 2005, pp. 189-200 (cited by 7)
- S. Amador Kane, “Quantitative chirality measures applied to domain formation in Langmuir monolayers”, *Langmuir* **18**, 9853 (2002). (cited by 12)
- S. Amador Kane and S. D. Floyd*, “Interaction of local anesthetics with phospholipids in Langmuir monolayers” *Phys. Rev. E*, **62**, 8400-8408 (2000). (cited by 1)

- S. Amador Kane, M.A.Compton*, N.Wilder*, "Interactions determining phospholipid domain growth in monolayers: experimental results and computer simulations" *Langmuir*, **16(22)**, 8447-8455 (2000). (cited by 22)
- S.M. Amador, J. M. Pachence, R. Fischetti, J. P. McCauley, Jr., A.B. Smith III, J.K. Blasie, "Use of self-assembled monolayers to covalently tether protein monolayers to the surface of solid substrates" *Langmuir*, **9**, 812 (1993). (cited by 55)
- S. Xu, M. A. Murphy, S. M. Amador, J. K. Blasie, "Proof of asymmetry in the Cd-arachidate bilayers of ultrathin Langmuir-Blodgett multilayer films via x-ray interferometry" *J. Phys. I (France)* **1**, 1131 (1991). (cited by 19)
- J.M.Pachence, S.M. Amador, G. Maniara, J. Vanderkooi, P.L. Dutton, J.K. Blasie, "Orientation and lateral mobility of cytochrome *c* on the surface of ultrathin lipid multilayer films", *Biophys. J.* **58**, 379 (1990). (cited by 39)
- S.M. Amador, P.S. Pershan, "Light-scattering and ellipsometry studies of the two-dimensional smectic-C to smectic-A transition in thin liquid crystal films", *Phys.Rev. A* **41**, 4326 (1990). (cited by 58)
- S.M. Amador, P.S. Pershan, H. Stragier, B.D.Swanson, D.J. Tweet, L.B. Sorensen, E.B. Sirota, G.E. Ice and A. Habenschuss "Synchrotron studies of the first-order melting transitions of hexatic monolayers and multilayers in freely suspended liquid crystal films", *Phys. Rev. A* **39**, 2703 (1989). (cited by 27)
- E.B. Sirota, P.S. Pershan, S.M. Amador, L.B. Sorensen "Synchrotron x-ray observation of surface smectic-I hexatic layers on smectic-C liquid crystal films", *Phys. Rev. A* **35**, 2283 (1987). (cited by 75)

Conference abstracts & proceedings (peer-review indicated by *)

- S.M. Amador and S. D. Floyd*, "Interaction of local anesthetics with phospholipids in Langmuir monolayers" *Biophys. J.* **74(2)**, A371 (1998). (Meeting abstract)
- S.M.Amador, M.A.Compton*, L.Roelofs, N.Wilder* "Interactions determining phospholipid domain growth in monolayers: experimental results and computer simulations" *Bull.Amer.Phys.Soc.***43(1)**, 328 (1998).(Meeting abstract)
- S.M. Amador, K. Long*, N. Wilder*, "Epifluorescence microscopy studies of mixed lipid Langmuir monolayers" *Biophys. J.* **70** (2), A90 (1996). (Meeting abstract)
- S.M. Amador, J. M. Pachence, R. Fischetti, J. P. McCauley, Jr., A.S.M. Amador, J.M. Pachence, R. Fischetti, J.P. McCauley, Jr., A.B. Smith III, J.K.Blasie, "X-ray diffraction studies of protein monolayers bound to self-assembled monolayers" *Materials Research Society Symposium Proceedings, Vol . 177: Macromolecular Liquids*, eds. Cyrus R. Safinya, Samuel A. Safran, Philip A. Pincus, Materials Research Society, Pittsburgh, (1990). (peer-reviewed conference proceedings; parts of this work appear in article 10.)
- Robert Manning, Robert Fairman, Theresa Horne*, Daniel Rigotti, Walter Smith, Suzanne Amador Kane "Conformational statistics of filaments formed by myosin-II rod domain aggregates as imaged by AFM", *Biophys. J* A204 (2003). (Meeting abstract).

Publications on pedagogy and other topics (peer-review indicated by *)

- Catherine H. Crouch, Robert Hilborn, Suzanne Amador Kane, Timothy McKay, and Mark Reeves, "Physics for future physicians and life scientists: a moment of opportunity", *APS News (The Back Page editorial)*, **19(3)**, pg. 8, March 2010.
- Suzanne Amador Kane and Kenneth Laws, "[Hunting for Jobs at Liberal Arts Colleges](#)" *Physics Today*, November 2006, pp.38-42.

- S. Amador Kane, "Faculty development programs: a model for learning emerging technologies while developing interdisciplinary partnerships," *The Journal of Science Education and Technology*, **12(4)**, 421-430 (2003).*
- S. Amador Kane, "An undergraduate biophysics program: curricular examples and lessons from a liberal arts context" *Am. J. Phys.* **70**, 581 (2002). * (cited by 5)
- S.M. Amador, "Teaching medical physics to general audiences" *Biophys. J.*, **66**, 2217 (1994)* (cited by 3)

Books

- S. Amador Kane, *Introduction to Physics in Modern Medicine*, 2nd edition, textbook with problems, Taylor and Francis Publishers, Inc. London, UK, 2009; (1st edition published in 2003)

Book reviews

- *Physics of the Human Body* by Irving Herman, *Physics Today*, March 2008, pg. 58.
- *Quantum Mechanics: Classical Results, Modern Systems, and Visualized Examples*, Richard Robinett, *Physics Today*, July, 1997.
- *Quantum Mechanics: Fundamentals and Applications to Technology*, Jasprit Singh, *Physics Today*, July, 1997.
- *Pythagoras' Trousers: God, Physics and the Gender Wars*, by Margaret Wertheim, Times-Warner Books, New York, 1995. *The CWSP Gazette*, Winter 1995/1996.

Art Exhibits curated

Amy Slaton and Suzanne Amador Kane, *Art or Data? An exhibition of student-faculty images from the natural sciences* (Cantor-Fitzgerald Gallery, 2007)

Research Students (includes ~18% of our physics majors+ 6 other students)

1. Edward Bartlett (Physics/Biophysics '92)
2. Kathryn Long (Physics/Biophysics '92)
3. Raul Cuza (Physics '92)
4. Todd Edwards (Physics/Biophysics '93)
5. Mohammed Safdar (Physics '93)
6. Todd Kerner (Physics/Biophysics '94)
7. Nicholar Wilder (Physics/Biophysics '94)
8. Samuel E. Floyd (Biology '98)
9. Madison Compton (Physics '99)
10. Anders Liljeholm (Physics '99)
11. Benjamin North (Physics/Biophysics '99)
12. Howard Glasser (Physics '00)
13. Troy Sheaffer (Physics '00)
14. Joshua Adelman (Biology/Biophysics '01)
15. Aaron Clauset (Physics/Computer Science '01)
16. Peter Ingebretson (Physics '01)
17. Adam Ingram-Goble (Physics '01)
18. Carl Knutson (Physics '02 ; advised off-campus research project at Columbia)
19. Mark Lee (Physics/Biophysics '02)
20. Thida Aye (Bryn Mawr Physics '02)
21. James Duncan (Physics '03)
22. Theresa Horne (Physics '03)
23. Elizabeth Janus Nett (Physics '04)

24. Adolphe Alexander (Physics '05)
25. Eric Acton (Linguistics '05)
26. Carl Lederman (Math '05)
27. William Moss (Physics '05; advised off-campus research project at Harvard)
28. Lindsay Subers (Physics '06)
29. David Burkhardt (Physics '07)
30. Anna Klales (Physics '09)
31. Ella Willard-Schmoe (Physics '09; advised off-campus research project at U. Washington)
32. M. Elias Tousley (Physics '11)
33. Owen Glaze (high school senior)
34. Anna Schall (Physics '12)
35. Emily Cunningham (Physics '12)

College service

2009-2010

- Academic Council, Natural Science Divisional representative

2008-2009

- Academic Council, Natural Science Divisional representative

2007-2008 (on leave spring semester)

- Director, KINSC, KINSC Steering Committee (fall)
- HHMI Steering Committee
- HHMI grant writing committee

2006-2007

- Director, KINSC, KINSC Steering Committee
- Bryn Mawr Physics Ad Hoc Search Committee
- Chair, Departments of Physics and Astronomy Member, HHMI Committee
- Chair, Art Exhibitions and Outreach Committee
- Berman Sculpture Committee (over summer 2006)
- Arts Council
- Biochemistry and Biophysics Concentration Coordinating Committee
- Premed Committee

2005-2006

- Director, KINSC, KINSC Steering Committee
- HHMI Steering Committee
- Chair, Biochemistry and Biophysics
- Physics Search Committee

2004-2005 (on leave fall semester)

- Chair, Physics and Astronomy Departments (Spring semester)
- Coordinator, Biochemistry and Biophysics Concentration (spring semester)

2003-2004

- Chair, Physics and Astronomy Departments
- Coordinator, Biochemistry and Biophysics Concentration
- Member, KINSC Steering Committee
- Associate Provost Search Committee (with Israel Burshatyn and Linda Bell)

- Premedical Committee

2002-03

- Chair, Physics and Astronomy Departments
- Chair, Biochemistry and Biophysics Concentration
- Premedical Committee
- KINSC Steering Committee
- Scientific Computing group

2001-2002:

- Biochemistry and Biophysics Concentration
- BiCo Education Committee
- Pre-Med Committee

2000-2001

- Chair, CSSP
- Teacher Education BiCo Committee

1999-2000

- Chair, Biochemistry & Biophysics Committee

1998-1999 (on leave)

1997-1998

- Chair, Biochemistry & Biophysics Committee
- HHMI Steering Committee

1996-1997 (on leave fall semester)

1995-1996

- HHMI Steering Committee
- Chair, Biochemistry & Biophysics Committee
- HHMI grant writing committee
- HHMI Steering Committee

1994-1995 (on leave)

1993-1994

- Chair, Biochemistry & Biophysics Committee
- HHMI Steering Committee

1992-1993

- Chair, Academic Computing Committee
- HHMI grant writing committee
- Biochemistry & Biophysics Committee
- Physics department assistant search
- HHMI Steering Committee
- Faculty mentor, Lois Banta (Biology)

1991-1993

- English Search Committee
- Stokes Machinist search committee
- HHMI Steering Committee

1990-1991

- HHMI Steering Committee