

## Curriculum Vitae

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University of Pennsylvania  
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### EDUCATION

- A. B. University of California, Berkeley; physics (highest honors) 1984  
Thesis: "Paramagnetic form factors for transition metals"  
Advisor: Professor Leo M. Falicov
- Ph. D. Cornell University; physics 1989  
Thesis: "Criticality in bulk and semi-infinite systems:  
Advisor: Professor Michael E. Fisher

### POSITIONS HELD

- January 2009 -present Edmund J. and Louise W. Kahn Term Professor in the Natural Sciences  
University of Pennsylvania
- July 2004 -present Professor, Department of Physics and Astronomy  
University of Pennsylvania
- July 2002 -July 2004 Professor, Department of Chemistry & Biochemistry  
University of California, Los Angeles
- July 1999 -June 2002 Associate Professor, Department of Chemistry & Biochemistry  
University of California, Los Angeles
- July 1993 -June 1999 Assistant Professor, Department of Chemistry & Biochemistry  
University of California, Los Angeles
- Sept. 1991 -April 1994 Postdoctoral Associate, Department of Chemical & Nuclear Engineering  
University of California, Santa Barbara  
Advisor: Professor Glenn H. Fredrickson
- Sept. 1989 -Sept. 1991 Postdoctoral Fellow, Exxon Research & Engineering Company  
Advisor: Dr. Samuel A. Safran

### HONORS AND AWARDS

- 2004 Fellow, American Physical Society
- 2002 UCLA Herbert Newby McCoy Award
- 2000 UCLA Glenn Seaborg Award
- 1996 National Science Foundation Career Award
- 1989 National Science Foundation NATO fellowship (declined)
- 1984 -1987 National Science Foundation Graduate Fellowship
- 1984 Sage Fellowship; Cornell University
- 1984 James M. McDonald Physics Scholarship; UC Berkeley
- 1983 Phi Beta Kappa, UC Berkeley
- 1980-1983 Regents Scholar; UC Berkeley

## **PROFESSIONAL ACTIVITIES**

- 2008-2011 Member, Solid State Sciences Committee (National Research Council)
- 2008-2013 General Member, Aspen Center for Physics
- 2006-2009 Member, American Physical Society Committee on the Status of Women in Physics
- 2006-2007 Member, National Research Council decadal study committee for condensed matter physics and materials physics (CMMP 2010)
- 2004-2005 Phi Beta Kappa Visiting Lecturer
- 2003-2006 Member, Advisory Board and Steering Committee, Kavli Institute of Theoretical Physics
- 2003-2005 Member, Editorial Board, Journal of Statistical Physics
- 2003 Co-organizer (with Timothy Lodge): ACS Symposium on Physical Chemistry of Complex Fluids (New York, NY, Sep. 7-11, 2003).
- 2003-2006 Member-at-Large, Division of Condensed Matter Physics, American Physical Society
- 2000-2003 Member-at-Large, Topical Group on Statistical and Nonlinear Physics, American Physical Society
- 1998-2003 Member of Editorial Board, Physical Review E
- 1996-1997 Co-organizer (with Sir Samuel Edwards, Sidney Nagel and Mark Robbins): ITP Workshop on Jamming and Rheology (Santa Barbara, CA, Aug. 11-Dec. 19, 1997).

## PUBLICATION LIST

1. S. H. Liu and A. J. Liu, Phys. Rev. B **32**, 4753-4755 (1985).  
"Spectral Dimension of elastic Sierpinski gaskets with general elastic forces."
2. J. F. Cooke, S. H. Liu and A. J. Liu, J. Appl. Phys., **57**, 3027-3029 (1985).  
"Paramagnetic form factors from itinerant electron theory."
3. S. H. Liu, A. J. Liu and J. F. Cooke, J. Mag. and Mag. Mat., **54**, 953-954 (1986).  
"Paramagnetic form factors of hcp transition metals."
4. S. H. Liu and A. J. Liu, Phys. Rev. B, **34**, 343-346 (1986).  
"Anomalous diffusion on and elastic vibrations of two square hierarchical lattices."
5. S. H. Liu, A. J. Liu and J. F. Cooke, Phys. Rev. B, **36**, 9521-9527 (1987).  
"Theoretical paramagnetic form factors for hcp transition metals."
6. J. F. Cooke, S. H. Liu and A. J. Liu, Phys. Rev. B, **37**, 289-295 (1988).  
"Paramagnetic form factors for cubic itinerant electron systems."
7. S. H. Liu, J. F. Cooke and A. J. Liu, Physica B **149**, 134-138 (1988).  
"A fast and accurate method for the calculation of orbital susceptibility and form factor of paramagnetic transition metals."
8. A. J. Liu and M. E. Fisher, Physica A **156**, 35-76 (1989).  
"The three-dimensional Ising model revisited numerically."
9. A. J. Liu and M. E. Fisher, Phys. Rev. A **40**, 7202-7221 (1989).  
"Universal critical adsorption profile from optical experiments."
10. A. J. Liu and M. E. Fisher, J. Stat. Phys. **58**, 431-442 (1990).  
"On the corrections to scaling in three-dimensional Ising models."
11. A. J. Liu, D. J. Durian, E. Herbolzheimer and S. A. Safran, Phys. Rev. Lett. **65**, 1897-1900 (1990).  
"Wetting transitions in cylindrical pores."
12. A. J. Liu and G. S. Grest, Phys. Rev. A **44**, R7894-7897 (1991).  
"Wetting in confined geometries--a Monte Carlo study."
13. A. J. Liu and G. H. Fredrickson, Macromolecules **25**, 5551-5553 (1992).  
"Influence of nematic fluctuations on phase separation in polymer blends."
14. L. Monette, A. J. Liu and G. S. Grest, Phys. Rev. A **46**, 7664-7679 (1992).  
"Kinetics of domain growth in small pores."
15. S. A. Langer, A. J. Liu and J. Toner, Phys. Rev. Lett. **70**, 2443-2446 (1993); **70**, 3180 (1993) [erratum].  
"Hydrodynamics of two dimensional smectics on fluid surfaces."
16. A. J. Liu and G. H. Fredrickson, Macromolecules **26**, 2817-2824 (1993).

- "Free energy functionals for liquid crystalline polymer solutions and blends."
17. S. T. Milner and A. J. Liu, *Phys. Rev. E* **48**, 449-454 (1993).  
"Concentration dependence of long-time tails in colloidal suspensions."
  18. G. H. Fredrickson, A. J. Liu and F. S. Bates, *Macromolecules* **27**, 2503-2511 (1994).  
"Entropic corrections to the Flory-Huggins theory of polymer blends: architectural and conformational effects."
  19. C. Singh, M. Goulian, A. J. Liu and G. H. Fredrickson, *Macromolecules* **27**, 2974-2798 (1994).  
"Phase behavior of semiflexible diblock copolymers."
  20. S. K. Lee, A. O. Oertli, M. Gannon, A. J. Liu, D. S. Pearson, H.-W. Schmidt and G. H. Fredrickson, *Macromolecules* **27**, 3955-3962 (1994).  
"Phase behavior of liquid crystalline polymer/model compound mixtures: theory and experiment."
  21. T.-A. Tran, A. J. Liu and P. Pincus, *J. de Phys. II*, **8**, 1417-1426 (1994).  
"Interaction between two polymer brushes in a binary solvent mixture."
  22. Glenn H. Fredrickson and A. J. Liu, *J. Polym. Sci. B: Polym. Phys. Ed.*, **33**, 1203-1212 (1995).  
"Design of miscible polyolefin copolymer blends."
  23. A. J. Liu, S. Ramaswamy, T. G. Mason, H. Gang and D. A. Weitz, *Phys. Rev. Lett.*, **76**, 3017-3020 (1996).  
"Anomalous viscous loss in emulsions and foams."
  24. A. J. Liu and G. H. Fredrickson, *Macromolecules*, **29**, 8000-8009 (1996).  
"Phase separation kinetics of rod/coil mixtures."
  25. J. P. Donley and A. J. Liu, *Phys. Rev. E* **55**, 539-543 (1997).  
"Phase behavior of near-critical fluids confined in periodic gels."
  26. J. P. Donley, J. Rudnick and A. J. Liu, *Macromolecules* **30**, 1188-1193 (1997).  
"Chain structure in polyelectrolyte solutions at nonzero concentrations."
  27. S. A. Langer and A. J. Liu, *J. Phys. Chem. B* **101**, 8667-8671 (1997).  
"Effect of random packing on stress relaxation in foam."
  28. B.-Y. Ha and A. J. Liu, *Phys. Rev. Lett.* **79**, 1289-1292 (1997).  
"Counterion-mediated attraction between two like-charged rods."
  29. A. J. Liu, *Liq. Cryst. Today* **7** (4), 1-3 (1997).  
"Morphology development in liquid-crystal/polymer mixtures."
  30. B.-Y. Ha and A. J. Liu, *Phys. Rev. Lett.* **81**, 1011-1014 (1998).  
"Effect of non-pairwise additive interactions on bundles of rodlike polyelectrolytes."
  31. B. -Y. Ha and A. J. Liu, *Physica A* **259**, 235-244 (1998).

"Interfaces in Solutions of Randomly Charged Rods."

32. B. -Y. Ha and A. J. Liu, Phys. Rev. E **58**, 6281-6286 (1998).

"Charge oscillations and many-body effects in bundles of like-charged rods."

33. J. P. Donley, J. J. Rajasekaran and A. J. Liu, J. Chem. Phys. **109**, 10499-10512 (1998).

"Density pair correlation functions for molecular liquids: approximations for polymers."

34. R. M. Nyquist, B.-Y. Ha and A. J. Liu, Macromolecules **32**, 3481-3487 (1999).

"Counterion condensation in solutions of rigid polyelectrolytes."

35. B. -Y. Ha and A. J. Liu, Europhys. Lett. **46**, 624-630 (1999).

"Kinetics of bundle formation in DNA condensation."

36. B. -Y. Ha and A. J. Liu, Phys. Rev. E **60**, 803-813 (1999).

"Counterion-mediated, non-pairwise-additive attractions in bundles of like-charged rods."

37. A. M. Lapeña, S. C. Glotzer, S. A. Langer and A. J. Liu, Phys. Rev. E **60**, R29-32 (1999).

"Effect of Ordering on Spinodal Decomposition of Liquid-Crystal/Polymer Mixtures."

38. B. Drovetsky, A. J. Liu and C. H. Mak, J. Chem. Phys. **111**, 4334-4342 (1999).

"Nematic-isotropic interfaces in semiflexible blends."

39. B. -Y. Ha and A. J. Liu, Phys. Rev. Lett. **83**, 2681 (1999).

"The nature of attraction between like-charged rods—Reply."

40. S. Tewari, D. Schiemann, D. J. Durian, C. M. Knobler, S. A. Langer and A. J. Liu, Phys. Rev. E **60**, 4385-4396 (1999).

"Statistics of shear-induced rearrangements in a two-dimensional model foam."

41. S. A. Langer and A. J. Liu, Europhys. Lett. **49**, 68-74 (2000).

"Sheared foam as a supercooled liquid?"

42. B. -Y. Ha and A. J. Liu, Phys. Rev. E **63**, 02289: 5 pages (2001).

"Effect of nonzero chain diameter on "DNA" condensation."

43. C. S. O'Hern, S. A. Langer, A. J. Liu and S. R. Nagel, Phys. Rev. Lett. **86**, 111-114 (2001).

"Force distributions near the jamming and glass transitions."

44. I. Borukhov, R. F. Bruinsma, W. M. Gelbart and A. J. Liu, Phys. Rev. Lett. **86**, 2182-2185 (2001).

"Elastically driven linker aggregation between two semiflexible polyelectrolytes."

45. C. Barentin and A. J. Liu, Europhys. Lett. **55**, 432-438 (2001).

"Shear-thickening in dilute solutions of wormlike micelles."

46. C. S. O'Hern, S. A. Langer, A. J. Liu and S. R. Nagel, Phys. Rev. Lett. **88**, 075507: 4 pages (2002).

"Random packings of frictionless particles."

47. I. Borukhov, K. C. Lee, R. F. Bruinsma, W. M. Gelbart, A. J. Liu, M. J. Stevens, *J. Chem. Phys.* **117**, 462-280 (2002).  
“Association of two semiflexible polyelectrolytes by inter-chain linkers: theory and simulations.”
48. I. K. Ono, C. S. O’Hern, S. A. Langer, A. J. Liu and S. R. Nagel, *Phys. Rev. Lett.* **89**, 095703: 4 pages (2002).  
“Effective temperatures of a driven system near jamming.”
49. I. K. Ono, S. Tewari, S. A. Langer and A. J. Liu, *Phys. Rev. E.* **67**, 061503: 16 pages (2003).  
“Velocity fluctuations in a steadily-sheared model foam.”
50. C. S. O’Hern, L. E. Silbert, A. J. Liu, S. R. Nagel, *Phys. Rev. E* **68**, 011306 (2003).  
“Jamming at zero temperature and zero applied stress: the epitome of disorder.”
51. R. P. Ojha, P.-A. Lemieux, P. K. Dixon, A. J. Liu and D. J. Durian, *Nature* **427**, 521 (2004).  
“Statistical mechanics of a gas-fluidized particle.”
52. K. C. Lee, I. Borukhov, W. M. Gelbart, A. J. Liu, M. J. Stevens, *Phys. Rev. Lett.* **93**, 128101 (2004).  
“Effect of mono- and multivalent salts on angle-dependent attractions between charged rods.”
53. C. S. O’Hern, A. J. Liu and S. R. Nagel, *Phys. Rev. Lett.* **93**, 165702 (2004).  
“Effective temperatures in driven systems: Static vs. time-dependent relations.”
54. C. S. O’Hern, L. E. Silbert, A. J. Liu, S. R. Nagel, *Phys. Rev. E* **70**, 043302 (2004).  
Reply to Comment on PRE 68, 011306 (2003).
55. I. Borukhov, R. F. Bruinsma, W. M. Gelbart and A. J. Liu, *Proc. Nat. Acad. Sci.* **102**, 3673-3678 (2005).  
“Structural polymorphism of the cytoskeleton: a model of linker-assisted filament aggregation.”
56. L. E. Silbert, A. J. Liu and S. R. Nagel, *Phys. Rev. Lett.* **95**, 098301 (2005).  
“Vibrations and diverging length scales near the unjamming transition.”
57. J. M. Schwarz, A. J. Liu, L. Chayes, *Europhys. Lett.* **73**, 560-566 (2006).  
“Jamming as the sudden emergence of an infinite k-core cluster.”
58. L. E. Silbert, A. J. Liu and S. R. Nagel, *Phys. Rev. E.* **73**, 041304 (2006).  
“Structural signatures of the unjamming transition at zero temperature.”
59. G. Z. Sowa, D. C. Cannell, A. J. Liu and E. Reisler, *J. Phys. Chem. B* **110**, 22279-22284 (2006).  
“Polyamine-induced bundling of F-actin.”
60. N. Xu, M. Wyart, A. J. Liu and S. R. Nagel, *Phys. Rev. Lett.* **98**, 175502 (2007).  
“Excess vibrational modes and the boson peak in model glasses.”
61. A. Gopinathan, K. C. Lee, J. M. Schwarz and A. J. Liu, *Phys. Rev. Lett.* **99**, 058103 (2007).  
“Branching, capping, and severing in dynamic actin structures.”
62. R. D. Kamien and A. J. Liu, *Phys. Rev. Lett.* **99**, 155501 (2007).

"Why is Random Close Packing Reproducible?"

63. T. Haxton and A. J. Liu, Phys. Rev. Lett. **99**, 195701 (2007).

"Activated dynamics and effective temperature in a steady state sheared glass."

64. K. C. Lee and A. J. Liu, Biophys. J. **95**, 4529 (2008).

"New proposed mechanism for actin-polymerization-driven motility."

### **EDITORIALS**

1. A. J. Liu and S. R. Nagel, Nature **396**, N6706, 21-22 (1998).

"Jamming is not just cool anymore." (editorial)

### **REVIEW ARTICLES**

1. B. J. Frisken, A. J. Liu and D. S. Cannell, Materials Research Society Bulletin, **19**, 19-24 (1994).

"Critical fluids in porous media."

2. B. -Y. Ha and A. J. Liu, in "Physical Chemistry of Polyelectrolytes," ed. T. Radeva (Marcel Dekker, New York, 2001). pp. 163-180.

"Physical questions posed by DNA condensation."

3. D. J. Durian and A. J. Liu, in "Jamming and Rheology", ed. A. J. Liu and S. R. Nagel (Taylor & Francis, New York, 2001), pp. 39-49.

"Jamming in colloidal dispersions: hard-sphere suspensions, emulsions and foams."

### **EDITED BOOKS**

1. Jamming and Rheology, ed. A. J. Liu and S. R. Nagel (Taylor and Francis, New York, 2001).

### **ARTICLES IN POPULAR PRESS ABOUT LIU'S RESEARCH**

1. Daily Telegraph, "Found in the U-bend: a New Form of Matter" (November 19, 1998).

2. Chemical and Engineering News, "A meeting of minds," (August 2, 1999).

3. New York Times, "Hidden in the Hopper: a Secret of Physics" (January 9, 2001).

## **SEMINARS AND COLLOQUIA**

1. Oak Ridge National Laboratory, Solid State Division, seminar (Oak Ridge, TN, 1988);  
"What can critical adsorption experiments tell us?"
2. AT&T Bell Laboratories, seminar (Murray Hill, NJ, 1990);  
"Wetting in pores."
3. IBM Zurich Research Laboratory, seminar (Zurich, Switzerland, 1990);  
"Wetting in a pore."
4. University of Maine, Physics colloquium (Bangor, ME, 1990);  
"Wetting transitions in porous media."
5. University of Pittsburgh, Physics colloquium (Pittsburgh, PA, 1990);  
"Wetting transitions in porous media."
6. University of Oxford, Theoretical Physics seminar (Oxford, England, 1991);  
"Wetting in confined geometries."
7. University of Bristol, Physics seminar (Bristol, England, 1991);  
"Wetting in confined geometries."
8. UCI, condensed matter physics seminar (Irvine, CA, 1991);  
"Two-phase systems in porous media."
9. Weizmann Institute, Polymer department seminar (Rehovot, Israel, 1991);  
"Wetting in porous media."
10. UCLA, solid state seminar (Los Angeles, CA, 1991);  
"Near-critical binary liquids in porous media--RFIM or confinement?"
11. UCSB, condensed matter physics seminar (Santa Barbara, CA 1991);  
"Near-critical binary liquids in porous media--RFIM or confinement?"
12. UCSD, condensed matter physics seminar (San Diego, CA, 1992);  
"Liquid crystalline polymers."
13. Caltech, condensed matter physics seminar (Pasadena, CA, 1992);  
"Liquid crystalline polymers."
14. Simon Fraser Univ., Physics colloquium (Burnaby, BC Canada, 1993);  
"Liquid crystalline polymers."
15. AT & T Bell Laboratories, seminar (Murray Hill, NJ, December 1993);  
"Phase behavior of polymer blends: beyond Flory-Huggins theory."
16. NIST, Polymer Division seminar (Gaithersburg, MD, December 1993);  
"Phase behavior of polymer blends: beyond Flory-Huggins theory."
17. Biosym Technologies Inc., seminar (San Diego, CA, May 1994);



"Miscibility in Polyolefin Blends."

18. UC Irvine, Physical Chemistry seminar, (Irvine, CA, October 1994);  
"Liquid crystalline polymers."

19. UC Riverside, Chemical Physics seminar (Riverside, CA, November 1994);  
"Liquid crystalline polymers."

20. UC Davis, Physical Chemistry seminar (Davis, CA, February 1995);  
"Phase behavior of polymer mixtures."

21. Oregon State University, Physical Chemistry seminar (Corvallis, OR, February 1995);  
"Conformational effects on phase behavior in polymer mixtures."

22. UC Santa Barbara, UCLA-UCLA Complex Fluids Workshop (Santa Barbara, CA, May 1995);  
"Rheology of emulsions and foams."

23. Kent State University, Physics department colloquium (Kent State, OH, Sept. 1995);  
"Liquid crystalline polymer mixtures."

24. University of Maryland, Chemical Physics and Physical Chemistry seminar (College Park, MD, Sept. 1995);  
"Polyelectrolyte solutions."

25. University of California, condensed matter physics seminar (Santa Barbara, CA, October 1995);  
"Electrolyte and polyelectrolyte solutions."

26. Caltech, chemical physics seminar (Pasadena, CA, January 1996);  
"Fluids in porous media."

27. Institut Charles Sadron, Seminar (Strasbourg, France, June 1996);  
"Electrolyte and polyelectrolyte solutions."

28. Laboratoire de Physico-Chimie Theorique, ESPCI, Seminar (Paris, France, July 1996);  
"Chain structure in polyelectrolyte solutions."

29. NIST, Polymer science seminar (Gaithersburg, MD, July 1996);  
"Chain structure in polyelectrolyte solutions."

30. University of Mainz (Mainz, Germany, September 1996);  
"Chain structure in polyelectrolyte solutions."

31. Caltech, Condensed matter physics seminar (Pasadena, CA, October 1996);  
"The physics of polyelectrolyte solutions."

32. University of Pennsylvania, condensed matter physics seminar (Philadelphia, PA, May 1997);  
"Conformation and counterion condensation in solutions of charged chains."

33. University of Massachusetts, polymer science department seminar (Amherst, MA, May 1997);  
"Conformation and counterion condensation in solutions of charged chains."
34. Laboratoire de Physico-Chimie Theorique, ESPCI, seminar (Paris, France, June 1997);  
"Dissipation and dynamics in foam."
35. Systèmes Macromoléculaires Hétérogènes, seminar (Paris, France, June 1997);  
"Conformation and counterion condensation in solutions of charged chains."
36. UCSB, Physics colloquium (Santa Barbara, CA, October 1997);  
"Why do like-charged rods attract?"
37. UN Reno, Physics colloquium (Reno, NV, November 1997);  
"Dissipation and dynamics in foam."
38. USC, Physical chemistry seminar (Los Angeles, CA, November 1997);  
"Why do like-charged rods attract?"
39. ITP Blackboard lunch seminar (Santa Barbara, CA, December 1997);  
"Foam as a supercooled liquid?"
40. Cal State Dominguez Hills, physics colloquium (Los Angeles, CA, April 1998);  
"Physical problems suggested by DNA condensation."
41. Univ. of Oregon, physics colloquium (Eugene, OR, April 1998);  
"Why do like-charged rods attract?"
42. Univ. of Wisconsin, physical chemistry seminar (Madison, WI, April 1998);  
"Why do like-charged rods attract?"
43. Univ. of Minnesota, polymer seminar (Minneapolis, MN, April 1998);  
"Attractive interactions in polyelectrolyte solutions."
44. Univ. of Chicago, James Franck Institute colloquium (Chicago, IL, June 1998);  
"Why do like-charged rods attract?"
45. Univ. of Illinois, condensed matter physics seminar (Urbana, IL, June 1998);  
"Fluctuations in flowing foam."
46. Univ. of Pennsylvania, physics colloquium (Philadelphia, PA, October 1998);  
"Why do like-charged rods attract?"
47. UC Berkeley, physics colloquium (Berkeley, CA, November 1998);  
"Why do like-charged rods attract?"
48. NEC, condensed matter seminar (Princeton, NJ, December 1998);  
"Fluctuations in flowing foam."
49. U. Washington, physical chemistry seminar (Seattle, WA, April 2000);  
"Why do like-charged rods attract?"

50. University of Fribourg, physics seminar (Fribourg, Switzerland, July 2000);  
"Jamming."
51. University of California, Irvine, physical chemistry seminar (Irvine, CA, February 2001);  
"Self-assembly of charged biopolymers in solution."
52. Laboratoire de Dynamiques des Fluides Complexes (Strasbourg, France, June 2001);  
"Self-assembly of charged biopolymers in solution."
53. Laboratoire de Physico-Chimie Theorique, ESPCI (Paris, France, July 2001);  
"Jamming."
54. Physico-Chimie Curie, Institut Curie (Paris, France, July 2001);  
"Self-assembly of F-Actin in solution."
55. Laboratoire de Physique, Ecole Normale Superieure (Lyon, France, July 2001);  
"Jamming."
56. University of California, San Diego, physical chemistry seminar (La Jolla, CA, September 2001);  
"Self-assembly of biopolymers in solution."
57. University of California, Irvine, condensed matter physics seminar (Irvine, CA, October 2001);  
"Jamming."
58. University of Akron, Polymer Science Lecturer (Akron, OH, October 2001);  
"Self-assembly of charged biopolymers in solution."
59. University of Indiana, Bloomington, Physics Colloquium (Bloomington, IN, January 2001);  
"Jamming."
60. University of Pennsylvania, Condensed Matter Physics Seminar (Philadelphia, PA, October 2002);  
"Jamming."
61. University of British Columbia, Physics Colloquium (Vancouver, BC, Canada, November 2002);  
"Jamming."
62. Simon Fraser University, Physics Colloquium (Vancouver, BC, Canada, November 2002);  
"Actin self-assembly and the cellular cytoskeleton."
63. University of Washington, Condensed Matter Physics seminar (Seattle, WA, December 2002);  
"Jamming."
64. University of Pennsylvania, Physics Seminar (Philadelphia, PA, February 2003);  
"Actin self-assembly and the cellular cytoskeleton."

65. California State University, Northridge, Condensed Matter Physics Seminar (October, 2003).  
“Jamming.”
66. Brandeis University, Condensed Matter Physics Seminar (Waltham, MA; November 2003);  
“Effective temperatures of sheared glassy systems.”
67. Harvard University, Physical Chemistry Seminar (Cambridge, MA, November 2003); “Actin self-assembly and the cellular cytoskeleton.”
68. Iowa State University, Physics Colloquium (Ames, IA, April 2004);  
“Actin self-assembly and the cellular cytoskeleton.”
69. Southern Methodist University, Phi Beta Kappa Lectures (Dallas, TX, Sept. 2004).  
Classroom discussion: “Women in Academic Science.”  
Classroom lecture: “Effective temperatures in driven systems.”
70. Truman State University, Phi Beta Kappa Lectures (Kirksville, MO, Sept. 2004).  
Brown bag lunch talk: “Women in Academic Science.”  
Physics colloquium: “Jamming.”  
Classroom lecture: “Effective temperatures in driven systems.”
71. University of South Dakota, Phi Beta Kappa Lectures (Vermilion, SD, Oct. 2004).  
Biology seminar: “How cells crawl and Listeria spreads.”  
Women in science discussion: “Women in academic science.”  
Classroom lecture: “Effective temperatures in driven systems.”
71. University of Pennsylvania, Physical Chemistry seminar (Philadelphia, PA, Oct. 2004).  
“Actin self-assembly and the cellular cytoskeleton.”
73. Georgia Tech, Physical Chemistry Seminar (Atlanta, GA, November 2004);  
“Actin self-assembly and the cellular cytoskeleton.”
74. Temple University, Physics Colloquium (Philadelphia, PA, November 2004).  
“Jamming.”
75. West Virginia University, Phi Beta Kappa Lectures (Morgantown, WV, Dec. 2004).  
Physics Colloquium: “Actin Self-Assembly and Cell Crawling.”  
Classroom lecture: “Effective temperatures in driven systems.”
76. Institute for Advanced Study, Statistical Mechanics Seminar (Princeton, NJ, Dec. 2004).  
“Jamming and k-core percolation.”
77. MIT, Physics Colloquium (Cambridge, MA, February 2005).  
“Jamming.”
78. University of San Diego, Phi Beta Kappa Lectures (San Diego, CA, March 2005).  
Classroom Lecture: “Structural polymorphism in the cellular cytoskeleton.”  
Brown bag lunch talk: “Women in Academic Science.”
79. Bucknell College, Phi Beta Kappa Lectures (PA, April 2005).

Classroom Lecture: “Liquid Crystals and Polymorphism in the Actin Cytoskeleton.”  
Physics Colloquium: “Jamming.”

80. St. Joseph’s University, Physics Colloquium (Philadelphia, PA, October 2005).  
“Jamming.”

81. Courant Institute, New York University, Applied Mathematics Seminar (New York, NY, November 2005).  
“Jamming.”

82. University of Pennsylvania, Applied Mathematics Colloquium (Philadelphia, PA, January 2006).  
“Jamming.”

83. Swarthmore College, Physics Colloquium (Swarthmore, PA, January 2006).  
“Jamming.”

84. Brown University, Physics Colloquium (Providence, RI, February 2006).  
“Jamming.”

85. Yale University, Physics Colloquium (New Haven, CT, February 2006).  
“Jamming.”

86. McGill University, Physics Colloquium (Montreal, Quebec, Canada, April 2006).  
“Jamming.”

87. Carnegie-Mellon University, Physics Colloquium (Pittsburgh, PA, April 2006).  
“Jamming.”

88. University of Pennsylvania, Materials Science and Engineering Seminar (Philadelphia, PA, September 2006).  
“Actin self-assembly and cell-crawling.”

89. Courant Institute, Applied Mathematics Seminar (New York, NY, October 2006).  
“Actin self-assembly and cell crawling.”

90. University of Massachusetts, Physics Colloquium (Amherst, MA, November 2006).  
“Jamming.”

91. Five-College Physics Colloquium (Amherst, MA, November 2006).  
“The physics of cell crawling and Listeria motility.”

92. New Jersey Institute of Technology, Physics Colloquium (Newark, NJ, January 2007).  
“Jamming.”

93. Case Western Reserve University, Physics Colloquium (Cleveland, OH, April 2007).  
“Jamming.”

94. Cornell University, Condensed Matter Physics Seminar (Ithaca, NY, April 2007).  
“Jamming.”

95. Johns Hopkins University, Physics Colloquium (Baltimore, MD, April 2007).  
“Jamming.”
96. FOM-Institute for Atomic and Molecular Physics (AMOLF), Colloquium (Amsterdam, The Netherlands, September 2008).  
“The physics of cell crawling and Listeria motility.”
97. University of Amsterdam, Physics colloquium (Amsterdam, The Netherlands, September 2008).  
“Effective temperatures in driven systems.”
98. Lorentz Institute, Colloquium Ehrenfestii (Leiden, The Netherlands, September 2008).  
“Jamming.”
99. Technical University of Eindhoven, Soft matter seminar (Eindhoven, The Netherlands, September 2008).  
“The physics of cell crawling and Listeria motility.”
100. Caltech, Physics Colloquium (Pasadena, CA, October 2008).  
“Jamming.”
101. Duke University, Physical Chemistry Seminar (Durham, NC, October 2008).  
“Jamming.”
102. University of Delaware, Condensed matter seminar (Newark, DE, November 2008).  
“The physics of cell crawling and Listeria motility.”
103. University of Chicago, Computations in Science seminar (Chicago, IL, January 2008).  
“The physics of cell crawling and Listeria motility.”
104. University of Pennsylvania, Pennsylvania Muscle Institute seminar (Philadelphia, PA, October 2008).  
“New proposed mechanism for actin-polymerization-based motility.”
105. University of Toronto, Physics Colloquium (Toronto, ON, Canada, November 2008).  
“Jamming.”
106. McMaster University, Physics Colloquium (London, ON, Canada, November 2008).  
“Jamming.”
107. Lehigh University, Physics Colloquium (Lehigh, PA, December 2008).  
“The physics of cell crawling and Listeria motility.”
108. Cornell University, Physics Colloquium (Ithaca, NY, January 2009).  
“Jamming.”
109. UCLA, Kivelson Lecture (Los Angeles, CA, March 2009).  
“Jamming and the glass transition.”

## INVITED TALKS AT CONFERENCES AND WORKSHOPS

1. APS March Meeting (Cincinnati, OH, 1991);  
"Wetting in confined geometries."
2. Workshop on Complex Fluids, Aspen Center for Physics (Aspen, CO, 1992);  
"Liquid crystalline polymer blends."
3. Symposium on Porous Materials; Materials Research Society Meeting (Boston, MA, 1992);  
"Interfaces in liquid crystalline polymer blends."
4. West Coast Theoretical Chemistry Conference (Los Angeles, CA, June 1993);  
"Phase behavior of semiflexible diblock copolymers."
5. Symposium on Surfactant Solutions; ACS Fall Meeting (Chicago, IL, August 1993);  
"Hydrodynamics of surfactant monolayers."
6. Symposium on Theoretical Physical Chemistry; ACS Regional Meeting (Pasadena, CA, October 1993);  
"Phase diagrams of liquid crystalline polymer/model compound blends."
7. Symposium on interfaces and surfaces in the rheology of polymers; ACS Meeting (Anaheim, CA, April 1995);  
"Rheology of foams and emulsions."
8. Workshop: Modeling and Simulation of Structure Formation in Liquid Crystals, Polymers, and their Mixtures (NIST, Gaithersburg, MD, June 1995).  
"Morphology development in liquid crystal/polymer mixtures."
9. Chemistry and Physics of Liquids Gordon Conference (Plymouth, NH, August 1995);  
"Binary liquid mixtures in dilute porous media."
10. Complex Fluids Gordon Conference (New London, NH, August 1995);  
"Electrolyte and polyelectrolyte solutions."
11. Fine Particle Society Meeting (Chicago, IL, August 1995);  
"Anomalous viscous loss in dense emulsions and foams."
12. UCSD Symposium in honor of Maria Goeppert Mayer (La Jolla, CA, March 1996);  
"Electrolyte and polyelectrolyte solutions."
13. NIST, Workshop on Phase Ordering Kinetics (Gaithersburg, MD, July 1996);  
"Phase separation kinetics in complex fluids."
14. US-Germany Polymer Workshop (Leipzig, Germany, September 1996);  
"Chain structure in polyelectrolyte solutions."
15. Materials Research Society Meeting (San Francisco, CA, April 1997);  
"Morphology development in liquid-crystal/polymer mixtures."
16. SIAM Meeting (Philadelphia, PA, May 1997);

"Morphology development in liquid-crystal/polymer mixtures."

17. 3rd International Discussion Meeting on Relaxations in Complex Systems (Vigo, Spain, July 1997);

"Glassy behavior in foams."

18. ITP Conference on Jamming and Rheology (Santa Barbara, CA, October 1997);

"Recent developments in foams and emulsions."

19. Materials Research Society Meeting (Boston, MA, December 1997);

"Temperature of a flowing foam."

20. Aspen Conference on Condensed Matter Physics (Aspen, CO, January 1998);

"Jamming in foams."

21. Colloidal and Macromolecular Solutions Gordon Conference (Ventura, CA, February 1998);

"Conformation and counterion condensation in solutions of charged chains."

22. Spring College on Statistical Mechanics of Soft Condensed Matter, International Centre for Theoretical Physics (Trieste, Italy, May 1998);

3 lectures on "Polyelectrolyte solutions," and 1 lecture on "Foam."

23. International Conference of Composite Engineers (Las Vegas, NV, July 1998);

"Morphology development in liquid-crystal/polymer composites."

24. Polymer Physics Gordon Conference (Newport, RI, July 1998);

"Attractive interactions in polyelectrolyte solutions."

25. NSF Workshop on Opportunities in Materials Theory (Arlington, VA, October 1998);

"Polyelectrolyte solutions."

26. ITP Conference on "Electrostatic effects in complex fluids and biophysics (Santa Barbara, CA, October 1998);

"Bundle-formation in polyelectrolyte solutions."

27. ACS Meeting; Physical Chemistry Division Symposium on "Frontiers of Statistical Mechanics: in honor of Ben Widom" (Anaheim, CA, March 1999).

"When like-charged chains attract: Physical questions posed by DNA condensation."

28. APS Meeting; Symposium on "Chemical Dynamics in the Liquid State: Experiment and Theory" (Atlanta, GA, March 1999). (CANCELLED DUE TO ILLNESS)

"Fluctuations in Flowing Foam."

29. American Conference on Theoretical Chemistry (Boulder, CO, July 1999).

"When like-charged chains attract: Physical questions posed by DNA condensation."

30. Complex Materials Conference in honor of Philip A. Pincus (Santa Barbara, CA, August 1999).

"Jamming with foam."



31. APS Meeting; Symposium on "Granular Materials: Jamming and Shaking" (Minneapolis, MN, March 2000).  
"The jamming phase diagram: glasses, foams and granular materials."
32. MRS Meeting (San Francisco, CA, April 2000).  
"Domain morphology in liquid-crystal/polymer blends."
32. Gordon Research Conference on Physics Research and Education (Plymouth, NH, June 2000).  
"Effective temperatures in sheared foam."
33. Polyelectrolytes 2000 (Les Diablerets, Switzerland, July 2000).  
"Physical problems underlying DNA condensation."
34. ACS Meeting (Washington, D. C., August 2000).  
"Jamming in foams and glasses."
35. AIChE meeting (Los Angeles, CA, November, 2000).  
"Shear thickening in solutions of wormlike micelles."
36. AIChE meeting (Los Angeles, CA, November, 2000).  
"Effective temperatures of sheared foam."
37. Dynamics Days (Raleigh, NC, January 2001).  
"Jamming in foams and glasses."
38. Polymers (West) Gordon Conference (Ventura, CA, January 2001).  
"Self-assembly of charged biopolymers in solution."
39. 21<sup>st</sup> Annual Conference of the Center for Nonlinear Studies at Los Alamos National Laboratory on "Physics of Soft Condensed Matter" (Santa Fe, NM, May 2001).  
"Self-assembly of charged biopolymers in solution."
40. Condensed Matter Physics Gordon Conference (Connecticut College, CN, June 2001).  
"Effective temperatures of a model sheared foam."
41. 4<sup>th</sup> Discussion Meeting on Relaxations in Complex Systems (Crete, Greece, June 2001).  
(TALK GIVEN BY DR. COREY S. O'HERN.)  
"Jamming and the glass transition."
42. IUPAC World Chemistry Congress (Brisbane, Australia, July 2001).  
"Physical questions underlying biopolymer bundling."  
(CANCELLED DUE TO ILLNESS)
43. Physics and Chemistry of Liquids Gordon Conference (Plymouth, NH, August 2001).  
"Jamming."
44. Adriatico Research Conference on Interaction and Assembly of Biomolecules (Trieste, Italy, August 2001).  
"Physical questions underlying biopolymer bundling."

45. Electron Interactions and Electronic Dynamics in DNA (Los Angeles, CA, September, 2001).  
“Physical questions underlying DNA condensation.”  
(TALK GIVEN BY DR. ITAMAR BORUKHOV DUE TO ILLNESS)
46. 7th Pacific Polymer Conference (Oaxaca, Mexico, December 2001).  
“Self-assembly of charged biopolymers in solution.”  
(CANCELLED DUE TO ILLNESS.)
47. APS March Meeting, Focus Session on Jamming (Indianapolis, IN, March, 2002).  
“Jamming in glasses and granular materials.”
48. ACS Meeting, Symposium in honor of Charles Knobler (Orlando, FL, April, 2002).  
“Effective temperatures in driven systems.”
49. Statistical Mechanics Conference, Rutgers University (Piscataway, NJ, May 2002).  
“Jamming.”
50. Boulder School for Condensed Matter and Materials Physics (Boulder, CO, July 2002).  
Four lectures on polyelectrolytes.
51. Foams and Minimal Surfaces Workshop, Newton Institute (Cambridge, UK, August 2002).  
“Jamming and Foam.”
52. Foams and Minimal Surfaces Workshop, Newton Institute (Cambridge, UK, August 2002).  
“Effective temperatures in sheared foam.”
53. Physical Chemistry of Polymers, International Rhodia Conference (Bristol, UK, September 2002).  
“Jamming.”
54. Workshop on self-Assembly in biology, chemistry and hard materials (Argonne, IL, July 2003).  
“Actin self-assembly and the cellular cytoskeleton.”
55. ACS Meeting, Symposium in honor of J. Zasadzinski (Anaheim, CA, April 2003).  
“Actin self-assembly and the cellular cytoskeleton.”
56. NSF Workshop on Theoretical Biophysics (Tempe, AZ, May 2004).  
“The amazing world of actin self-assembly.”
57. Sitges Conference on Jamming (Sitges, Spain, June 2004).  
“Jamming.”
58. ACS Meeting, Symposium on Complex Fluids (Philadelphia, PA, August 2004).  
“Actin self-assembly and the cellular cytoskeleton.”
59. Rutgers Statistical Mechanics Meeting (New Brunswick, NJ, December 2004).  
“Jamming and k-core percolation.”
60. Workshop on Biomolecular and Biomimetic Self-Assembly (Merida, Mexico, January 2005).  
“Actin self-assembly, the cellular cytoskeleton and *Listeria* motility.”

61. Mid-Atlantic Meeting on Thermodynamics (College Park, MD, April 2005).  
“Actin self-assembly, the cellular cytoskeleton and Listeria motility.”
62. Frontiers of Soft Condensed Matter Workshop (Clinton, NJ, May 2005).  
“Jamming and the Glass Transition.”
63. American Conference on Theoretical Chemistry (Los Angeles, CA, July 2005).  
“Actin self-assembly and cell motility.”
64. American Physical Society, Division of Fluid Dynamics (Chicago, IL, November 2005).  
“Effective temperatures of sheared glassy systems.”
65. Kavli Institute for Theoretical Physics Workshop (Santa Barbara, CA, April 2006).  
“Actin self-assembly and Listeria motility.”
66. Boulder Summer School for Condensed Matter and Materials Physics (Boulder, CO, July 2006).  
Two lectures on “Self-assembled actin networks.”
67. American Institute of Mathematics, Workshop on Phase Transitions (Palo Alto, CA, August 2006).  
“Mixed phase transitions and jamming.”
68. Rutgers Statistical Mechanics Meeting (Rutgers, NJ, December 2006).  
Panel Discussion Participant on “Statistical Mechanics of static granular packings.”
69. Workshop on Physics of Biological Systems (Puebla, Mexico, January 2007).  
“Actin self-assembly and Listeria motility.”  
(CANCELLED; TALK GIVEN BY AJAY GOPINATHAN)
70. Centre de Physique des Houches, Workshop on “Flow in glassy systems” (Les Houches, France, February 2007).  
“Effective temperatures in sheared glassy systems.”
71. Institute for Pure and Applied Mathematics, Workshop on “Random Shapes, Representation Theory, and Conformal Field Theory” (Los Angeles, CA, March 2007).  
“Jamming and k-core percolation.”  
(CANCELLED DUE TO ILLNESS; TALK GIVEN BY LINCOLN CHAYES)
72. Princeton Center for Theoretical Physics, Packing Problems Workshop (Princeton, NJ, April 2007).  
“The jamming transition of soft sphere packings.”
73. StatPhys23 Conference (Genova, Italy, July 2007).  
“The mixed nature of the jamming phase transition.”  
(CANCELLED; TALK GIVEN BY VINCENZO VITELLI)
74. Aspen Center for Physics, Colloquium (Aspen, CO, August 2007).  
“Jamming.”

75. ACS Fall07 Meeting, Symposium on “Emergence of Function in Molecular Assemblies” (Boston, MA, August 2007).  
“Actin self-assembly, cell crawling and Listeria motility.”
76. Aspen Center for Physics, 2008 Winter Conference on Condensed Matter (Aspen, CO, February 2008).  
“Jamming.”
77. APS March meeting (New Orleans, LA, March 2008).  
“Jamming: Relating Shear and Effective Temperature.  
(TALK GIVEN BY GRADUATE STUDENT, T. HAXTON, DUE TO FAMILY EMERGENCY)
78. Gordon Conference on “Granular and Granular Fluid Flow” (Colby, MN, June 2008).  
“Structural signature of jamming at nonzero temperature.”
79. ACS Fall08 Meeting, Symposium on “Recent Advances in Biophysical Chemistry of Transport by Biomolecular Motors and Machines” (Philadelphia, PA, August 2008).  
“New proposed mechanism for actin-polymerization-driven motility.”
80. Multiscale Modeling of Materials (MMM2008), Symposium on “Multiscale modeling of soft matter and biological systems” (Tallahassee, FL, October 2008).
81. Rutgers 100<sup>th</sup> Statistical Mechanics Conference (New Brunswick, NJ, December 2008).  
“Jamming: where are we and where are we going?”

## **PUBLIC LECTURES, DISCUSSIONS AND DIALOGUES**

1. Southern Methodist University, Phi Beta Kappa Lecture (Dallas, TX, Sept. 2004).  
“Jamming.”
2. Truman State University, Phi Beta Kappa Lecture (Kirksville, MO, Sept. 2004).  
“How Cells Crawl and Listeria Spreads.”
3. University of South Dakota, Phi Beta Kappa Lecture (Vermilion, SD, Oct. 2004).  
“Jamming.”
4. West Virginia University, Phi Beta Kappa Lectures (Morgantown, WV, Dec. 2004).  
“Jamming.”
5. University of San Diego, Phi Beta Kappa Lectures (San Diego, CA, March 2005).  
“The Physics of How Cells Crawl and Listeria Spreads.”
6. Bucknell College, Phi Beta Kappa Lectures (PA, April 2005).  
“The Physics of How Cells Crawl and Listeria Spreads.”
7. National Academy of Sciences Annual Meeting, Public Symposium on “The World Year of Physics: Einstein in the 21st Century” (Washington, D. C., May 2005).  
"Many-particle systems driven far out of equilibrium: how Einstein's ideas are guiding us at this frontier."
8. Swarthmore College (Swarthmore, PA, September 2005).  
“Women in Academic Science: Balancing Career and Family.”
9. Panel Discussion on “Encouraging Girls to Enter Science,” sponsored by AAUW (Philadelphia, PA April 2006).
10. Aspen Center for Physics, Public Dialogue (Aspen, CO, August 2007).  
“Jamming.”