Alexander J. Levine

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Curriculum Vitae

Education

1989–1996 ..... University of California, Los Angeles. Department of Physics, **Doctorate in Physics** (Ph.D.), thesis entitled *The Statistical Mechanics of Sedimentation*.

1989–1990..... University of California, Los Angeles. Department of Physics, **Master of Science in Physics** (M Sc.).

1985–1989 ..... University of California, Los Angeles. **Bachelor of Science in Physics** and **Bachelor of Science in Mathematics.** (*Summa cum laude* GPA: 3.95/4.00)

Employment

July 2005 – Present..... University of California, Los Angeles, **Assistant Professor.**

Sept. 2002 – July 2005 ..... University of Massachusetts, Amherst, **Assistant Professor.**

2001– Aug. 2002 ..... University of California, Santa Barbara, **Postdoctoral Researcher.** My postdoctoral research focused on the following topics:

- Modeling microtubule dynamics during cell division
- Membrane microrheology

1998–2001..... University of Pennsylvania, **Postdoctoral Fellow.** My postdoctoral research focused on the following topics:

- Dynamics of nematic elastomers
- Chiral phases of polymeric liquid crystals
- Microscopic modeling of microrheology techniques
- Taught Introductory Electricity and Magnetism (Summer Session)

1996–1998..... Corporate Research Science Laboratories, Exxon Research and Engineering Company, **Postdoctoral Fellow.** My postdoctoral research focused on the following topics:

- Theory of wax crystal nucleation
- Non-linear stability analysis of the polymer film blowing process
- Developing theory of stress relaxation in star polymer melts
- Capillary waves at liquid-liquid interfaces
- The failure of cohesive granular material
- The non-equilibrium statistical mechanics of non-Brownian sedimentation

June 1995–Sept. 1995 ..... Lucent Technologies / AT&T Bell Labs, **Research Assistant.**

- Dynamics of driven charge density waves with S. N. Coppersmith.

Sept. 1994–June 1995 ..... University of California, Los Angeles, Professional Development Program, UCLA Department of Physics, **Instructor**

June 1994–Sept. 1994 ..... AT&T Bell Laboratories, **Research Assistant.**

1986–1988..... University of California, Los Angeles, Department of Astronomy, **Research Assistant.**

1984–1986..... University of California, Brain Research Institute, **Lab Assistant.** I studied changes in neuronal activation potentials during sleep.

Awards and Fellowships

1993–1996 .... AT&T Graduate Fellowship
1989 ..... ΦBK Scholarship
1989..... Julian Schwinger Graduate Fellowship
1988 ..... Election to Mathematics Honors Society
1988 ..... Election to ΦBK
1987 ..... Joined Physics Honors Society ΣΠΣ
1985 ..... Extension of Alumni Fellowship for a second year
Freshman Honors Society
Golden Key Honors Society
Alumni Scholarship University of California
Four Year Regents Scholarship University of California

Publication List

Articles Since Appointment to Assistant Professor

Articles in Preparation

1. Alex J. Levine and C. F. Schmidt *Microrheology* Reports on Progress in Physics **INVITED** To be submitted by January 2008.

2. Mark L. Henle and Alex J. Levine *The mobility of point and extended particles on spherical viscous interfaces*, Physical Review E. To be submitted in December 2007.

3. Alex J. Levine and F.C. MacKintosh, *The interpretation of microrheology in active gels: Applications to cytoskeletal networks* Physical Review E. To be submitted in November 2007.

4. Robert Brewster and Alex J. Levine *Effects of Cohesion on the Surface Angle and Velocity Profiles of Sand in a Rotating Drum*, Physical Review E. To be submitted in December 2007.

5. Jeremy D. Schmit and Alex J. Levine *The role of solitonic excitations in intermolecular adhesion in undoped conjugated polymers*, Physical Review E. To be submitted in November 2007.

6. Moumita Das and Alex J. Levine, *The effect of network architecture on the mechanics of disordered biopolymer networks*, Physical Review E. To be submitted in November 2007.

7. Moumita Das, Don Blair, and Alex J. Levine, *The effect of topological defects on sublimation kinetics in two dimensions*, Proceedings of the National Academy of Sciences. To be submitted in December 2007.

Submitted

8. Moumita Das, Alex J. Levine, and F.C. MacKintosh, *Buckling and force propagation along intracellular microtubules*, Submitted to Physical Review Letters (2007).

9. Mark L. Henle, Ryan McGorty, A.D. Dinsmore, and Alex J. Levine *The effect of curvature and topology on membrane hydrodynamics*, Submitted to Physical Review Letters (2007).

10. Robert Brewster, Leonardo Silbert, Gary S. Grest, and Alex J. Levine *Relationship between two-particle contact lifetimes and rheology in gravity driven granular flows*, Submitted to Physical Review E (2007).

11. Jeremy D. Schmit and Alex J. Levine *Statistical model for intermolecular adhesion in pi-conjugated systems*, Submitted to Physical Review Letters (2007).

Accepted for Publication

12. Tatiana Kuribova and Alex J. Levine, *Nanorheology of viscoelastic shells: Applications to viral capsids*, Accepted for publication in Physical Review E (2008).

Published

13. Robert Walder, Alex J. Levine, and Michael Dennin, *Rheology of two-dimensional F-actin networks associated with a lipid interface*, Physical Review E **77**, 011909 (2008).

14. F. C. MacKintosh and Alex J. Levine, *Non-equilibrium mechanics and dynamics of motor-activated gels*, Physical Review Letters **100**, 018104 (2008).

15. Ali Naji, Alex J. Levine, and P.A. Pincus, *Corrections to the Saffman-Delbrück mobility for membrane bound proteins*, Biophysical Journal: Biophysical Letters **93**, L49-L51 (2007).

16. Leonardo Silbert, Gary S. Grest, Robert Brewster, and Alex J. Levine *Rheology and Contact Lifetimes in Dense Granular Flows*, Physical Review Letters **99**, 068002 (2007).

17. Moumita Das, F.C. MacKintosh, and Alex J. Levine *Effective medium theory of semiflexible filamentous networks*, Physical Review Letters **99**, 038101 (2007).

18. M.L. Henle and Alex J. Levine, *Erratum: Capillary wave dynamics on supported viscoelastic films: Single and double layers*, Physical Review E **75**, 059909(E) (2007).

19. B.A. DiDonna and Alex J. Levine *Unfolding cross-linkers as rheology regulators in F-actin networks*, Physical Review E **75**, 041909 (2007).

20. Mark L. Henle and Alex J. Levine *Capillary wave dynamics on supported viscoelastic films: Single and double layers*, Physical Review E **75**, 021604 (2007).

21. J.R. Savage, D. Blair, A.J. Levine, R.A. Guyer, and A.D. Dinsmore *Imaging the Sublimation Dynamics of Colloidal Crystallites* Science **314**(5800), pp. 795-798 (2006).

22. Buddhapriya Chakrabarti and Alex J. Levine *The nonlinear elasticity of an α-helical polypeptide: Monte Carlo studies* Physical Review E **74**, 031903 (2006).

23. B.A. DiDonna and Alex J. Levine *Filamin cross-linked semiflexible networks: Fragility under strain* Physical Review Letters **97**, 068104 (2006).

24. M. Atakhorrami, J.I. Sulkowska, K.M. Addas, G.H. Koenderink, J.X. Tang, A.J. Levine, F.C. MacKintosh, and C.F. Schmidt *Correlated fluctuations of microparticles in viscoelastic solutions: Quantitative measurement of material properties by microrheology in the presence of optical traps*, Physical Review E **73**, 061501 (2006).

25. R. Brewster, J. Landry, G.S. Grest, and A.J. Levine *Breakdown of Bagnold scaling in cohesive granular flows*, Physical Review E **72**, 061301 (2005).

26. David A. Head, Alex J. Levine, and F.C. MacKintosh *Mechanical response of semiflexible networks to localized perturbations*. Physical Review E **72**, 061914 (2005).

27. Jeremy D. Schmit and Alex J. Levine *Intermolecular adhesion in conducting polymers* Physical Review E **71**, 051802 (2005).

28. Buddhapriya Chakrabarti and Alex J. Levine *The nonlinear elasticity of an α-helical polypeptide* Physical Review E **71**, 031905 (2004).

29. Alex J. Levine, David A. Head, and F.C. MacKintosh *The elasticity of semiflexible networks*, Proceedings of the XIV$^{\text{th}}$ Congress on Rheology. ed. The Korean Society of Rheology (2004).

30. Alex J. Levine, David A. Head, and F.C. MacKintosh *The Deformation Field in Semiflexible Networks*, Journal of Physics, Condensed Matter **16**, S2079 (2004).

31. Alex J. Levine, T.B. Liverpool, and F.C. MacKintosh *Dynamics of rigid and flexible extended bodies in viscous films and membranes,* Physical Review Letters **93**, 038102 (2004).

32. Alex J. Levine, T.B. Liverpool, and F.C. MacKintosh *The mobility of extended bodies in viscous films and membranes,* Physical Review E **69**, 021503 (2004).

33. David A. Head, Alex J. Levine, and F.C. MacKintosh *Distinct regimes of elastic response and deformation modes of cross-linked cytoskeletal and semiflexible polymer networks,* Physical Review E **68**, 061907 (2003).

34. David A. Head, F.C. MacKintosh, and Alex J. Levine *Non–universality of elastic exponents in random bond–bending networks.* Physical Review E **68**, 025101 (R) (2003).

35. David A. Head, Alex J. Levine, and F.C. MacKintosh *Deformation of cross-linked semiflexible polymer networks,* Physical Review Letters **91**, 108102 (2003).

36. Victor Breedveld and Alex J. Levine *Shear induced diffusion in dilute suspensions of charged colloids,* Soft Materials **1**, 235-244 (2003).

37. D.T. Chen, E.R. Weeks, J.C. Crocker, M.F. Islam, R. Verma, J. Gruber, A.J. Levine, T.C. Lubensky, and A.G. Yodh *Rheological Microscopy:Local Mechanical Properties from Microrheology,* Physical Review Letters **90**, 108301 (2003).

Articles Previous to Appointment as Assistant Professor

38. Alex J. Levine and F.C. MacKintosh *Dynamics of viscoelastic membranes,* Physical Review E **66**, 061606 (2002).

39. Deniz Ertaş, Thomas C. Halsey, Alex J. Levine, and Thomas G. Mason, *Stability of monomer–dimer piles*, Physical Review E **66**, 051307 (2002).

40. K.M. Addas, J.X. Tang, A.J. Levine, and C.F. Schmidt *Extracting local and bulk viscoelasticity of entangled FD virus solutions by two–bead microrheology,* Biophysical Journal **82** (1) 2432 (2002).

41. Karim M. Addas, Alex J. Levine, Jay X. Tang, and Christoph F. Schmidt *One- and Two-Particle Microrheology in Entangled Solutions of fd Virus*, Physical Characterization of Biological Materials and Systems Symposium. Boston, MA USA 26 Nov. – 30 Nov. 2001. Warrendale, PA, USA Materials Research Society, (2002).

42. Alex J. Levine and T.C. Lubensky *Two–point microrheology and the electrostatic analogy,* Physical Review E **65**, 011501 (2001).

43. R. Bruinsma, F. Rondelez, and A. Levine *Flow-Controlled Island Growth in Langmuir Monolayers,* European Physics Journal E **6**, 191 (2001).

44. Alex J. Levine and T.C. Lubensky *The response function of a sphere in a viscoelastic two–fluid medium*, Physical Review E, **63**, 041510-1 (2001).

45. Alex J. Levine and T.C. Lubensky *One- and two–particle microrheology*, Physical Review Letters **85**, 1774 (2000).

46. Randall D. Kamien and Alex J. Levine *Boundary Effects in Chiral Polymer Hexatics*, Physical Review Letters **84**, 3109 (2000).

47. T. G. Mason, A. J. Levine, D. Ertaş, and T. C. Halsey *The Critical Angle of Wet Sand Piles*, Physical Review E **60**, R5044 (1999)

48. A. Levine, S. Ramaswamy, E. Frey, and R. Bruinsma "Hydrodynamic Screening in Stokesian Fluidized Beds" in *Structure and Dynamics of Materials in the Mesoscopic Domain* (Prox. 4th Royal Society–Unilever Indo-UK Forum in Materials Science and Engineering), Eds. Moti Lal, R.A. Mashelkar, B.D. Kulkarni, V.M. Naik (Imperial College Press and The Royal Society, 1999) pp. 195–206.

49. Amy B. Herhold, Deniz Ertaş, Alex J. Levine, and Hubert E. King Jr. *Impurity mediated nucleation in hexadecane-in-water emulsions.* , Physical Review E **59**, 6946 (1999).

50. Amy B. Herhold, Deniz Ertaş, Alex J. Levine, and Hubert E. King Jr. *Impurity induced slowing of nucleation in emulsified liquids* in Dynamics in Small Confining Systems IV Symposium, Boston, MA USA 30 Nov. – 3 Dec. 1998. Warrendale, PA, USA: Materials Research Society, pp.85–96 (1999).

51. Alex Levine, Sriram Ramaswamy, Erwin Frey, and Robijn Bruinsma, *Screened and Unscreened Phases in Sedimenting Suspensions*, Physical Review Letters **80**, 5944 (1998).

52. Alex J. Levine and Scott T. Milner, *Star Polymers and the Failure of Time-Temperature Superposition*, Macromolecules **31** (24) 8623 – 8637 (1998).

53. Alex J. Levine and Thomas C. Halsey, *How Sandcastles Fall*, Physical Review Letters **80**, 3141 (1998)

54. Martin-D. Lacasse, Gary S. Grest, and Alex J. Levine, *Capillary-wave and chain-length effects at polymer/polymer interfaces*, Physical Review Letters **80**, 309 (1998).

55. S. N. Coppersmith, T. C. Jones, L. P. Kadanoff, A. Levine, J. P. McCarten, S. R. Nagel, S. C. Venkataramani, and Xinlei Wu, *Self-Organized Short-Term Memories*, Physical Review Letters **78**, 3983 (1997).

56. Shechao Feng, Alex Levine, and Lan Yin, *Suppression of the Josephson Effect and Little-Parks Oscillations in the Quantum Hall Effect*, in Coulomb and Interference Effects in Small Electronic Structures ed. D. C Glattli, M. Sanquer, and J. Tran Thanh Van, Éditions Frontières (1994).

57. Shechao Feng, Alex Levine, and Lan Yin, *Suppression of the Josephson Effect by Quantum Fluctuations in the Fractional Quantum Hall State*, Physical Review B. **50**, 11045 (1994).

Teaching

- UCLA: Chemistry 223B: Graduate Statistical Mechanics Winter 2008
- UCLA: Chemistry 223A: Graduate Statistical Mechanics Fall 2007
- UCLA: Chemistry 228: Physical Chemistry Seminar Series Spring 2007
- UCLA: Chemistry 110A: Thermodynamics Winter 2007
- UCLA: Chemistry 110A: Thermodynamics Fall 2006
- UCLA: Chemistry 223B: Graduate Statistical Mechanics Part B, Winter 2006.
- UCLA: Chemistry 223A: Graduate Statistical Mechanics Part A, Fall 2005.
- UMASS: Graduate Biological Physics, Spring 2004.
- UMASS: Freshman Physics Colloquium: "Proteins: Your own Nanomachines," Fall 2004.
- UMASS: Honors Freshman Mechanics, Spring 2003.
- UMASS: Freshman Mechanics, Spring 2003.
- UMASS: Freshman Physics Colloquium: "Viruses and Self-Assembly," Fall 2003.
- UMASS: Soft Condensed Matter Physics: Independent Study, Spring 2003.
- UMASS: Graduate Classical Mechanics Fall 2002, Fall 2003, Fall 2004.
- UPENN: Introductory Electricity and Magnetism 06/15/2000 – 08/31/2000 Summer Session.

Committee Service

University of Massachusetts, Amherst Department of Physics

1. Website Redesign Committee: 2002-2003
2. Gluckstern Professorship in Biological Physics Search Committee: 2003-2005
3. Departmental Merit Review Committee: 2004-2005

UCLA Department of Chemistry & Biochemistry

1. Legislative Assembly: 2005 – **2008**

Research Students

Postdoctoral Researchers

1. Dr. Brian A. DiDonna (2006-2007):
   Ph.D. 2001 University of Chicago, Supervisor: Thomas Witten.
   (2001-2004) Postdoctoral Fellow at the University of Pennsylvania, Supervisor: Tom Lubensky.
   (2004-2006) Postdoctoral Fellow at Institute for Mathematics and its Applications, University of Minnesota, Supervisor: None.
2. Dr. Mark L. Henle (2005-**Present**):
   Ph.D. 2005 UCSB, Supervisor: Philip A. Pincus.
3. Dr. Moumita Das (2005-**Present**):
   Ph.D. 2004 Indian Institute of Science, Bangalore 2004. Supervisor: Sriram Ramaswamy
   (2004-2005) Postdoctoral Fellow at Harvard University, Supervisor: L. Mahadevan.
4. Dr. Buddhapriya Chakrabarti (2003-2005):
   Ph.D. Indian Institute of Science, Bangalore 2002. Supervisor: Chandan Dasgupta.
   (2005-2007) Postdoctoral Fellow at Harvard University, Supervisor: David Nelson
   (2007-Present) Postdoctoral Researcher at UCLA, Supervisor: Tom Chou

Graduate Students

1. (2002-2005) Jeremy Schmit — Graduate Student, UCSB Physics
   Current: Postdoctoral researcher at UCSF. Supervisor Ken Dill.
2. (2002-2007) Robert Brewster — Graduate Student, UCLA Chemistry
   Current: Postdoctoral researcher at the Weizmann Institute. Supervisor Sam Safran.
3. (2005-Present) Donald Blair — Graduate Student, UMASS Physics
4. (2006-Present) Tatiana Kuriabova — Graduate Student, UCLA Physics
5. (2007-Present) Rachael Harper — Graduate Student, UCLA Chemistry
6. (2007-Present) Bijlana Rolih — Graduate Student, UCLA Chemistry

High School Students

1. (2007) Biswaroop Mukherjee — Summer Intern, Harvard Westlake High School

Grants and Contracts

- **Pending** "Collaborative Research Materials World Network: Mechanical Properties of Thin-Film Active Materials," NSF Materials World Networks [co-I M. Dennin (UCI)] Total for Levine: *approx* $365,000.
- **Pending** "Graduate Student Research Fellowship Program " NSF 07-576 (Rachael Harper student) Award: $40,000/yr x 3yrs = $120,000.

- **Pending** "Micro- and Nano-mechanics of Active Biopolymer Networks" NSF-ENG [PI Levine and co-PI Klug (UCLA, Mechanical Engineering)]. Total for Levine: $75,000/yr x 3yrs = $225,000.
- **Pending** "Collaborative Research: Statistical Mechanics of Viral Entry" $115,000/yr x 3 yrs = $345,000. NSF-CHE [PI Levine and co-I R. Zandi (UCR) Total for Levine: $345,000.
- **Active** "Workshop: The Frontiers of Microrheology" Institute for Complex Adaptive Matter (ICAM) (with co-I T.G. Mason) 04/01/2007 – 02/09/2008 $30,000.
- **Active** "Workshop: The Frontiers of Microrheology" International Institute for Complex Adaptive Matter (I2CAM) (with co-I T.G. Mason) 04/01/2007 – 02/09/2008 $15,000.
- **Active** "Workshop: The Frontiers of Microrheology" California Nanosystems Institute (CNSI) (with co-I T.G. Mason) 04/01/2007 – 02/09/2008 *approx* $25,000.
- **2006-2007** "Deformation of an elastic membrane by a semiflexible network: Biomimetic approaches and aerospace applications" 05/01/2006 – 04/30/07. Lockheed Martin PI: Levine, Total: $75,000
- **2004-2007** "Mechanical Properties of Thin-Film Active Materials," NSF-INT/DMR-0354113 [co-I with Professor M. Dennin (UCI)] 09/01/2004 – 08/31/2007. Total: $540,000; for Levine $300,000.
- **2004-2006** "Gelation of Colloidal Particles on Droplet Surfaces: Dimension, Curvature, and Droplet Elasticity," NASA-NRA-02-OBPR-03-C [co-I with Professor A.D. Dinsmore (UMASS)] 01/01/2005 – 12/31/2008. Original Award Totals: $625,000; for Levine $300,000. Later cut to *approx* $150,000 for Levine.

Invited Talks

1. *The mechanics of active polymer networks*, Annual Meeting of the American Physical Society, New Orleans LA., March 2008.
2. *The mechanics of active polymer networks*, Colloquium at the Department of Physics, University of North Carolina at Chapel Hill. NC., February 2008.
3. *Sailing the surfactant seas: Hydrodynamics in flat and curved membranes*, Workshop on Dynamics in Biological and Soft Matter Systems at Argonne National Laboratory, Argonne IL., February 2008.
4. *The mechanics of active polymer networks*, Ludwig Maximilians-Universität München, Germany, September 2007.
5. *Sailing the surfactant seas: Hydrodynamics in flat and curved membranes*, Seminar at the Department of Physics, Arizona State University, Phoenix, AZ, May 2007.
6. *Sailing the surfactant seas: Hydrodynamics in flat and curved membranes*, Department of Mechanical Engineering, University of California, San Diego, CA, May 2007.
7. *The mechanics of biopolymer networks*, Structural and Solid Mechanics Seminar, Department of Mechanical Engineering, University of California, Los Angeles, CA, April 2007.
8. *Sailing the surfactant seas: Hydrodynamics in flat and curved membranes*, Center for Interdisciplinary Research in Fluid Mechanics, University of California, Santa Barbara, CA, April 2007.
9. *Sailing the surfactant seas: Hydrodynamics of rigid and flexible bodies in membrane and Langmuir monolayers*, Joint Materials/Solid Mechanics Seminar, Brown University, Providence, RI February 2007.
10. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, Department of Chemistry, University of Nevada, Reno, NV February 2007.
11. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, Department of Physics Colloquium, UC Riverside, CA,October 2006.
12. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, Liquid Crystal Institute Colloquium, Kent State University, Kent, OH October 2006.

13. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, Department of Chemical Engineering Colloquium, University of Florida, Gainesville September 2006.

14. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, Department of Physics Colloquium, University of Colorado, Boulder August 2006.

15. *Sailing the surfactant sea: Hydrodynamics in membranes and fluid/fluid interfaces*, Condensed Matter Seminar Department of Physics, University of Colorado, Boulder August 2006.

16. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, Ecole Supérieure de Physique et de Chimie Industrielles, Paris France April 2006.

17. *Sailing the surfactant sea: Hydrodynamics in membranes and fluid/fluid interfaces* , IPAM Workshop I: Membrane Protein Science and Engineering, UCLA, Los Angeles, CA, USA. March 2006.

18. *The worm turns: The statistical mechanics of alpha-helical polypeptides*, Seminar Biomathematics Department, University of California, Los Angeles March 2006.

19. *Microrheology in polymer solutions: Depletion and the shell model* , American Chemical Society, Washington D.C. August 2005.

20. *Sailing the surfactant sea: Hydrodynamics in membranes and fluid/fluid interfaces* , Frontiers in Biomembranes, Benasque, Spain August 2005.

21. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, Gordon Conference on Gels, Networks, and Elastomers, New London, NH July 2005.

22. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, Seminar, UCLA Chemistry, January 2005.

23. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, Colloquium, Arizona State University, Department of Physics February 2005.

24. *The statistical mechanics of alpha-helical polypeptides*, Beckman Institute, University of Illinois at Urbana-Champaign, October 2004.

25. *The elasticity of semiflexible networks: Implications for the cytoskeleton*, University of Washington, Department of Physics October 2004.

26. *The statistical mechanics of alpha-helical polypeptides*, National Central University, Taiwan August 2004.

27. *Static and flowing wet sand: Dragging Mr. Bagnold through the mud*, Academica Sinica, Taiwan July 2004.

28. *Sailing the surfactant sea: Hydrodynamics in membranes and fluid/fluid interfaces* , Academica Sinica, Taiwan July 2004.

29. *Microrheology* , Academica Sinica, Taiwan July 2004.

30. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks*, National Central University, Taiwan July 2004.

31. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks*, Clarke University Department of Physics April 2004.

32. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* March 2004 Meeting of the American Physical Society, Montreal Canada. March 2004.

33. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* February 2004 UCLA Department of Chemistry, Los Angeles, CA.

34. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* February 2004 Theory Division, Los Alamos National Laboratories, Los Alamos, NM.

35. *The worm turns: The helix–coil transition on the worm-like chain* January 2004 The Isaac Newton Institute for Mathematical Sciences, Cambridge University, Cambridge England.

36. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* Department of Chemistry Seminar, Florida State University. November 21, 2003.

37. *Sailing the Surfactant Sea: Membrane Hydrodynamics and Interfacial Microrheology* Department of Physics Colloquium, Brandeis University. November 18, 2003.

38. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* Physics Department Seminar, Brown University. November 5, 2003.

39. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* New England Statistical Physics Meeting, Brandeis University. October 25, 2003.

40. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* Physics Department Seminar, Harvard University. October 21, 2003.

41. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* New England Complex Fluids Workshop, Brandeis University. September 17, 2003.

42. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* ASTATPHYS-MEX-2003, Puerto Vallarta, Mexico. August 27, 2003.

43. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* Lans en Vercors, Biophysics Jam Sessions. August 7, 2003.

44. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* Sandia National Laboratories Seminar. July 17, 2003.

45. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* Materials Research Laboratory, UCSB. July 2, 2003.

46. *Affine vs. Nonaffine Deformations in Semiflexible Polymer Networks* Associative Networks Meeting at Polymer Science, University of Massachusetts, Amherst sponsored by NSF-MRSEC. May 14, 2003.

47. *Fluctuation Effects in Biology* Electrical Engineering Department Seminar, University of Massachusetts, Amherst April 18, 2003.

48. *Affine vs. Nonaffine Deformation in Semiflexible Networks* MIT Applied Math Seminar, April 15, 2003.

49. *The worm turns: The helix-coil worm-like chain as a model α-helix* Cal Tech Division of Applied Physics January 31, 2003.

50. *The worm turns: The helix-coil worm-like chain as a model α-helix* Complex Systems Seminar, Vrije Universiteit Amsterdam November 5, 2002.

51. *Microrheology in two and three dimensions*, Colloquium at the Jožef Stefan Institute, Ljubljana, Slovenia. December 2001.

52. *Microrheology in two and three dimensions*, Colloquium at Technion, Israel Institute of Technology, Haifa, Israel. November 2001.

53. *Microrheology in two and three dimensions*, Seminar at The Weizmann Institute of Science, Rehovot, Israel. November 2001.

54. *Microrheology in two and three dimensions*, UCLA Physics Department Condensed Matter Journal Club, Los Angeles, CA, USA. October 2001.

55. *What is Being Measured in Microrheology Experiments?*, Colloquium at Indiana University Physics Department, Bloomington, IN, USA. September 2001.

56. *What is Being Measured in Microrheology Experiments?*, Condensed Matter Seminar at University of California at Irvine, Irvine, CA, USA. June 2001.

57. *What is Being Measured in Microrheology Experiments?*, Theoretical Condensed Matter Seminar, Cambridge University, Cambridge, UK. April 2001.

58. *What is Being Measured in Microrheology Experiments?*, Dutch Royal Society, Amsterdam, NL. April 2001.

59. *What is Being Measured in Microrheology Experiments?*, Symposium on Soft Matter as a Nonlinear Science sponsored by CCCNS, CNLS, and UCI, Laguna Beach, CA. February 2001.

60. *What is Being Measured in Microrheology Experiments?*, LRSM Symposium on "The Interface on Between Biology & Materials Science", The University of Pennsylvania, PA, USA. November 2000,

61. *What is Being Measured in Microrheology Experiments?*, Virgina Tech University, Blacksburg, VA. October 2000.

62. *What is Being Measured in Microrheology Experiments?*, Polymer Science Forum Seminar, ExxonMobil Research & Engineering Co. July 2000,

63. *What is Being Measured in Microrheology Experiments?*, Seminar at Yale University, Department of Mechanical Engineering, New Haven, CT. June 2000.

64. *What is Being Measured in Microrheology Experiments?*, Complex Fluids Seminar at Princeton University, Princeton, NJ.May 2000.

65. *What is Being Measured in Microrheology Experiments?*, Condensed Matter Seminar at Brown University, Providence, RI. April 2000.

66. *Screened and Unscreened Phases in Sedimenting Suspensions*, Physics Department Colloquium at Georgetown University, Washington DC. March 2000.

67. *Sedimentation: Physics Far from Equilibrium*, Physics Department Colloquium at the University of Western Ontario, London, Ontario, Canada. February 2000.

68. *Sedimentation: Physics Far from Equilibrium*, Physics Department Colloquium at the University of Missouri, Rolla, MO. February 2000.

69. *Screened and Unscreened Phases in Sedimenting Suspensions*, Meeting of the American Physical Society, Atlanta GA. March 1999.

70. *Screened and Unscreened Phases in Sedimenting Suspensions*, Institut für Theoretische Physik, Physik-Department der Technischen Universität München, D-85747 Garching, Germany. May 1997.

71. *Screened and Unscreened Phases in Sedimenting Suspensions*, Gordon Conference in Il Cicco Italy. May 1997.

72. *Theory of Fluctuation-Enhancement in Sedimenting Colloids*, Meeting of the American Physical Society, St. Louis, MO. March 1996.

Contributed Talks

Nematic Elastomers and the Red Blood Cell, Meeting of the American Physical Society, Seattle, WA. March 2001.

What is Being Measured in Microrheology Experiments?, Meeting of the American Physical Society, Minneapolis, MN. March 2000.

Boundary Effects in Chiral Polymer Hexatics, Meeting of the American Physical Society, Minneapolis, MN. March 2000.

How Sand Castles Fall: The Stability of Cohesive Sandpiles, Meeting of the American Physical Society, Los Angeles, CA. March 1998.

Star Polymers and the Failure of Time–Temperature Superposition, Meeting of the American Physical Society, Los Angeles, CA. March 1998.

Screened and Unscreened Phases in Sedimenting Suspensions, Meeting of the American Physical Society, Los Angeles, CA. March 1998.

Bubble Flow Instabilities, Meeting of the American Physical Society, Kansas City, MO. March 1997.

Non-Equilibrium Fluctuations in Sedimenting Suspensions: A Dynamical Renormalization Group Theory, Meeting of the American Physical Society, Kansas City, MO. March 1997.

Sedimentation and the KPZ Equation, Meeting of the American Physical Society, San Jose, CA. March 1995.

Sedimentation and the KPZ Equation with Colored Noise, Informal Theory Seminar at AT&T Bell Laboratories, September 1995.

Meetings Organized

- Workshop Organizer for "Frontiers of Microrheology" to be held at UCLA February 6 to February 9, 2008.
- Session Organizer for "Gordon Conference on Theoretical Biology and Biomathematics" June 2006.
- Program Organizer for the 19^{th} New England Complex Fluids Workshop held at the University of Massachusetts, Amherst on 28, June 2004. co-Organiziers: Maria Santore (Polymer Science)and Anthony Dinsmore.
- Technical Program Organizer for "Local probes of rheology and structure" at the 73^{rd} Annual Meeting of the Society of Rheology. Co-Organizer: Thomas Mason.

Other Professional Activities

Activities and Memberships in Professional Societies

- (April 2007 – **Present**) UCLA Representative on the Science Steering Committee (SSC) of the Institute for Complex Adaptive Matter (ICAM)
- (May 2004) Invited Participant for the Workshop on the Role of Theory in Biological Physics sponsored by the National Science Foundation (NSF).
- Member of the American Physical Society
- Member of the American Chemical Society
- Member of the Materials Research Society
- Member of the Society of Rheology

Session Chair at Conferences or Symposia

- Session Chair, The XVth International Congress on Rheology August 2008, Monterray, California (USA).
- Session Chair American Physical Society March Meeting 2007, Denver, CO. DFD: Monolayers, Membranes & Microemulsions
- Session Chair for "Gordon Conference on Theoretical Biology and Biomathematics" June 2006.
- Session Chair, The XIVth International Congress on Rheology August 2004, Seoul, Korea.
- Session Chair American Physical Society March Meeting 2000, Minneapolis, MN. DCMP: Colloids IV: Suspensions, Foams, and Sedimentation

Reviewer for Peer-reviewed Journals:

- Biophysical Journal
- European Journal of Physics
- Europhysics Letters

- Journal of Chemical Physics
- Journal of Fluid Mechanics
- Journal of Optics A: Pure and Applied Optics
- Journal of Physics A: Mathematical and Theoretical
- Journal of Theoretical Biology
- Physical Review E
- Review of editors for Physical Review E
- Physical Review Letters
- Macromolecules
- Nature Physics
- Rheologica Acta

Reviewer for Funding Agencies:

- Euryi International Awards 2006
- National Science Foundation
- Petroleum Research Foundation
- US Israel Binational Science Foundation

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