

Vitae of Jay X. Tang

1. Name, Position and Academic Department(s)

Jay X. Tang, Assistant Professor
Physics Department, Brown University
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2. Home Address (not shown here)

3. Education

B. S., July, 1987, Department of Physics, Peking University, Beijing, P. R. China.
Ph.D., February, 1995, Department of Physics, Brandeis University, Waltham, MA. Thesis topic: *Isotropic and cholesteric liquid crystalline phase transitions of filamentous bacteriophage fd*. Advisor: Seth Fraden.

4. Professional Appointments

Postdoctoral Research Fellow supported by a National Institute of Health (NIH) training grant, Harvard Medical School, July 1994-September 1997
Instructor of Medicine, Harvard Medical School, October 1997-August 1999
Assistant Professor of Physics, Indiana University, August 1999-2002
Guest Faculty at the Institute of Theoretical Physics (ITP), University of California-Santa Barbara. Program Title: Complex Fluids, Feb-March, 2002
Guest Professor, Institute of Physics, Chinese Academy of Sciences, 2005-present
Assistant Professor of Physics, Brown University, July, 2002- present
Assistant Professor of Physics and Engineering, Brown University, July, 2003- present

5. Publication

b. Book chapters

1. Janmey, P. A., Shah, J. V., and Tang, J. X., Complex Network in Cell Biology. In *Dynamic networks in physics and biology*. G. Forgacs, Ed. EDP Sciences, Les Ulis, 1998.
2. Janmey, P. A., Shah, J. V., Tang, J. X., and Stossel, T. P., Actin Filament Networks, In *Actin Structure*. dos Remedios, C.G. and Thomas, D.D., Springer, Heidelberg, 1999.
3. Janmey, P. A., Tang, J. X., Schmidt, C. 1999. Actin Filaments. Biophysics textbook online (<http://biosci.umn.edu/biophys/OLTB/supramol.html>).

c. Refereed Journal Articles

1. Tang, J. and Fraden, S. Magnetic field induced isotropic-nematic phase transition in a colloidal suspension. *Phys. Rev. Lett.*, 1993, 71, 3509-3512.
2. Tang, J. and Fraden, S. Isotropic-cholesteric phase equilibrium in colloidal suspensions of filamentous bacteriophage *fd*. *Liquid Crystals*, 1995, 19, 459-467.
3. Kas, J., Strey, H., Tang, J., Finger, D., Ezzell, R., Sackmann, E., and Janmey, P. F-actin, a model polymer for semiflexible chains in dilute, semidilute and liquid crystalline solutions. *Biophysical Journal*, 1996, 70, 609-625.
4. Tang, J., Wong, S., Tran, P, and Janmey, P., Cation induced bundle formation of rodlike polyelectrolytes, *Ber. Bunsen-Ges. Phys. Chem.*, 1996, 100, 796-806.

5. Tang, J. and Janmey, P. The polyelectrolyte nature of F-actin and the mechanism of actin bundle formation, *J. of Biol. Chem.*, 1996, 271, 8556-8563.
6. Tang, J. and Fraden, S. None-monotonic temperature dependence of the flexibility of bacteriophage *fd*. *Biopolymers*, 1996, 38, 13-22.
7. Tang, J. X., Szymanski, P., Janmey, P., and Tao, T. Electrostatic effects of smooth muscle calponin on actin assembly. *Euro. J. Biochem.*, 1997, 247, 432-440.
8. Tang, J. X., Ito, T., Tao, T., Traub, P., and Janmey, P. Opposite effects of electrostatics and steric exclusion on bundle formation by F-actin and other filamentous polyelectrolytes. *Biochemistry*, 1997, 36, 12600-12607.
9. Kothakota, S., Azuma, T., Reinhard, C., Klippel, A., Tang, J. X., Chu, K., McGarry, T. J., Kirschner, M. W., Koths, K., Kwiatkowski, D., J., and Williams, L. T., Caspase-3-Generated Fragment of Gelsolin: Effector of Morphological Changes in Apoptosis, *Science*, 1997, 278, 294-298.
10. Parker, C. A., Takahashi, K., Tang, J. X., Tao, T., and Morgan, K. G., Cytoskeletal Targeting of Calponin in Differentiated, Contractile Smooth Muscle Cells, *J. Physiology*, 1998, 508.1, 187-198.
11. Guttenberg, Z., Tang, J. X., Isenberg, G., Ezzell, R. M., and Goldmann, W. H., Analysis of the F-actin binding fragments of vinculin using stopped-flow and dynamic light scattering measurements, *Euro. J. Biochem.*, 1998, 254, 413-419.
12. Janmey, P., Kas, J., Shah, J. V., Allen, P. G., and Tang, J. X., Cytoskeletal networks and filament bundles: regulation by proteins and polycations, *Biol. Bull.*, 1998, 194, 334-336.
13. Tang, J. X. and Janmey, P., Two distinct mechanisms of actin bundles formation, *Biol. Bull.*, 1998, 194, 406-408.
14. Wriggers, W., Tang, J. X., Azuma, T., Marks, P., and Janmey, P. A., Cofilin and gelsolin segment 1: molecular dynamics simulation and biochemical analysis predict a similar actin binding mode, *J. Mol. Biol.*, 1998, 282, 921-932.
15. Geng, Y., Azuma, T., Tang, J. X., Hartwig, J., Muszynski, M., Wu, Q., Libby, P., and Kwiatkowski, D., Caspase-3-induced gelsolin fragmentation contributes to actin cytoskeletal collapse, nucleolysis, and apoptosis of vascular smooth muscle cells exposed to proinflammatory cytokines, *Euro. J. Cell Biol.*, 1998, 77 (December issue).
16. Xian, W., Tang, J. X., Janmey, P., Braunlin, W., A ^{25}Mg NMR Study of Interaction between F-actin and Mg^{2+} , *Biochemistry*, 1999, 38, 7219-7226.
17. Lyubartsev, A., Tang, J. X., Janmey, P., and Nordenskiöld, L., Electrostatically induced polyelectrolyte association of rodlike virus particles, *Phys. Rev. Lett.*, 1998, 81, 5465-6468.
18. Tang, J. X., Janmey, P., Stossel, T., and Ito, T., Thiol oxidation of actin produces dimers that enhance the elasticity of the F-actin network, *Biophysical J.*, 1999, 76, 2208-2215.
19. Leinweber, B., Tang, J. X., Stafford, W.F., and Chalovich, J. M., Calponin interaction with a-actinin-actin: Evidence for a structural role for calponin. *Biophysical J.*, 1999, 77, 3208-3217.
20. Wong, G. C.-L., Tang, J. X., Lin, A., Li, Y., Janmey, P., and Safinya, C. R., Hierarchical self-assembly of F-actin and cationic lipid complexes: Stacked three-layer membranes forming giant ribbon-like tubules, *Science*, 2000, 288, 2035-2039.
21. Frank G. Schmidt, Hinner, B., Sackmann, E., and Tang, J. X., Viscoelastic properties of semiflexible filamentous bacteriophage *fd*, *Phys. Rev. E*, 2000, 62, 5509-5517.
22. Tang, J. X., Josef A. Käs, Jagesh V. Shah, and Paul A. Janmey, Counterion-induced actin ring formation. 2001, *Euro. Biophys. J.* 30, 477-484.
23. Tang, J. X., Janmey, P., Lyubartsev, A., and Nordenskiöld, L., Metal Ion Induced Lateral Aggregation of Filamentous Viruses *fd* and M13. *Biophys. J.* 2002, 83, 566-581.
24. Viamontes, J., and Tang, J. X., A continuous isotropic-nematic liquid crystalline transition of F-actin solutions. *Phys Rev E*. 2003, 67, 040701.
25. Wong, G. C.-L., Lin, A., Tang, J. X., Li, Y., Janmey, P., and Safinya, C. R., Lamellar phase of stacked two-dimensional rafts of actin filaments. *Phys. Rev. Lett.*, 2003, 91, 018103.
26. Butler, J. C., Angelini, T., Tang, J. X., and Wong, G. C.-L., Ion multivalence and like-charged polyelectrolyte attraction. *Phys. Rev. Lett.*, 2003, 91, 028301.
27. Hosek, M., and Tang, J. X., Polymer-Induced Bundling of F-actin and the Depletion Force. *Phys. Rev. E.*, 2004, 69, 051907.

28. Li, G., and Tang, J. X., Diffusion of actin filaments within a thin layer between two walls. *Phys. Rev. E.*, 2004, 69, 061921.
29. Addas, K., Schmidt, C. F., and Tang, J. X., Microrheology of solutions of semiflexible biopolymer filaments using laser tweezers interferometry. *Phys. Rev. E.*, 2004, 70, 021503.
30. Yang, L., Liang, H., Angelini, TE., Butler, J., Coridan, R., Tang, J. X., and Wong, G. C.-L., Self-assembled virus-membrane complexes. *Nature Materials*, 2004, 3, 615-619.
31. Wen, Q., and Tang, J. X., Absence of charge inversion for a system of charged rods and their divalent counterions. *J. Chem. Phys.*, 2004, 121, 12666-12670.
32. Li, G., Smith, C. S., Brun, Y. V., and Tang, J. X., Elasticity of the *Caulobacter crescentus* adhesive holdfast. *J. Bacteriology*, 2005, 187, 257-265.
33. Li, G., Wen, Q., and Tang, J. X., Single filament electrophoresis of F-actin and filamentous virus fd. *J. Chem. Phys.*, 2005, 122:104708.
34. Tang, J. X., Kang, H., and Jia, J., Intriguing self-assembly of large granules of F-actin facilitated by gelsolin and alpha-actinin. *Langmuir*, 2005, 21, 2789-2795.
35. Balter, A., and Tang, J. X., The hydrodynamic stability of helical growth at low Reynolds number, *Phys. Rev. E.*, 2005, 71:051912.
36. Angelini, TE., Sanders, LK., Yang, L., Liang, H., Wriggers, W., Tang, J. X., and Wong, G. C.-L., Structure and dynamics of condensed multivalent ions within polyelectrolyte bundles: a combined X-ray diffraction and solid-state NMR study, *J. Phys.: condensed matter*, 2005, 17, S1123-S1135.
37. Tang, J. X., Qi Wen, Bennett, A., Kim, B., Bucki, R., and Janmey, P., Anionic poly(amino acid)s dissolve actin and DNA bundles, enhance DAase activity, and reduce the viscosity of cystic fibrosis sputum, *Am. J. Physiology*, 2005, 289, L599-605.
38. Alipour-Assiabi, E., Li, G., Powers, T. R., and Tang, J. X., Fluctuation analysis of *Caulobacter crescentus* adhesion, *Biophys. J.*, 2006, 90, 2206-2212.
39. Atakhorrani, M., Kwiecińska, J. I., Addas, KM, Koenderink, GH, Tang, J. X., Levine, AJ, MacKintosh, FC., and Schmidt, CF, Correlated fluctuations of microparticles in viscoelastic solutions: quantitative measurement of material properties by microrheology in the presence of optical traps, *Phys Rev. E.*, in press.
40. Tsang, P., Li, G., Brun, Y. V., Freund, L. B., and Tang, J. X., Adhesion of Single Bacterial Cells in the Micronewton Range. *PNAS*. 2006, 103, 5764-5768.
41. Viamontes, J., Narayanan, S., Sandy, A. R., and Tang, J. X., The Orientational Order Parameter of the Nematic Liquid Crystalline Phase of F-actin, *Phys Rev. E.*, accepted.

d. Meeting Proceedings

1. Tang, J. X., Oldenbourg, R., Allen, P., and Janmey, P., Tactoidal granules in concentrated actin gels: a solidlike state of protein filaments, *proceedings of the material research society fall meeting, Symposium K: materials science of the cell*, 1997.
2. Nordenskiöld, L., Lyubartsev, A., Tang, J. X., and Janmey, P., Electrostatically induced bundle formation of rodlike polyelectrolytes, *proceedings of the material research society fall meeting, Symposium K: materials science of the cell*, 1997.
3. Tang, J. X., The polyelectrolyte nature and large scale self-assembly of the protein filaments F-actin. *In proceedings of the 3rd joint meeting Chinese physicists worldwide*, Hong Kong, 2000.
4. Viamontes, J., and Tang, J. X., Nematic liquid crystalline formation of F-actin displays features of a continuous transition. *Proceedings of the material research society fall meeting, Sym FF/GG/HH, 2001*. Published in 2002.
5. Addas, K. M., Levine, A. J., Tang, J. X., Schmidt, C. F., One- and Two-Particle Microrheology in Entangled Solutions of fd Virus. *Proceedings of the material research society fall meeting, 2001. Sym FF/GG/HH, 2001*. Published in 2002.
6. C.F. Schmidt, M. Atakhorrani, K. Addas, G.H. Koenderinck, F.C. MacKintosh, J.X. Tang, MOLECULAR MECHANICS OF CYTOSKELETAL COMPONENTS, *Proceedings of the XXI International Congress of Theoretical and Applied Mechanics, Warsaw, 2004*, Kluwer Academic Publishers.

g. Invited lectures and workshop since fall, 1999

1. Medical Science Seminar, Indiana University, Bloomington, Nov. 1999.
2. Invited speaker of the American Physical Society (APS) annual meeting, March, 2000.
3. NSF workshop on Force Transduction in Biology, July, 2000.
4. Invited lecturer of the 3rd Overseas Chinese Physics Conference, Hong Kong, July, 2000.
5. Keynote Speaker to Advanced College Program (ACP) annual meeting, Indiana University, Oct, 2000.
6. Physics seminar at Washington University, St. Louis, MO, Nov., 2000.
7. Physics Colloquium, Indiana University/Purdue University at Indianapolis (IUPUI), January 25, 2001.
8. Biophysics seminar series on “what physics can do for biology?” March 21, 2001, Brown University.
9. Invited speaker at the 7th New England Quarterly Workshop on Complex Fluids, June 15, 2001, Providence, Rhode Island.
10. Guest seminar on “Protein Biophysics”, August 14, 2001, Institute of Physics, Chinese Academy of Sciences, Beijing, P. R. China.
11. Biophysics seminar, Univ. of Pittsburgh, Oct, 2001.
12. Invited speaker at the Biocomplexity Workshop, University of Notre Dame, Nov., 2001.
13. Invited talk at the Institute of Theoretical Physics, UCSB, Feb, 2002.
14. Invited seminar at UC-Riverside, Feb, 2002.
15. Biophysics seminar at Purdue University, March, 2002.
16. Invited talk at the APS March Meeting, 2002.
17. Biophysics seminar at the Technical University of Munich, May, 2002.
18. Biophysics seminar (with honorarium) at the Molecular Biology Group, CNRS, June, 2002.
19. Biophysics seminar at the Center of Non-linear Studies, Los Alamos National Lab. July, 2002
20. Theoretical Biophysics Seminar Series, Beckman Institute, UIUC, Oct, 2002.
- 21. Chair of APS Invited Session: Polymers in Biological Cells (DCMP/DBP), March, 2003.**
22. Special seminar at the Institute Curie, Paris, May. 2003.
23. Biophysics seminar at the Vrije University, Amsterdam, June, 2003.
24. Biophysics seminar at the Institute of Physics, Chinese Academy of Science, Beijing, August, 2003.
25. Biophysics seminar at University of Science and Technology of China, Hefei, PRC, August, 2003.
26. Biophysics colloquium at Nanking University, Nanjing, PRC, August, 2003.
27. Biophysics seminar at Peking University Medical School, Beijing, August, 2003.
28. Departmental colloquium in the Chemistry Department of IUPUI, IN, Sept, 2003.
29. Special biophysics colloquium at physics department, Cornell University, Sept, 2003
30. Physics colloquium, Syracuse University, Sept, 2003.
31. Invited talk at the Society of Rheology Meeting, Pittsburg, Oct, 2003
32. Physics colloquium, Catholic University of America, Nov, 2003
33. Invited talk at the American Institute of Chemical Engineers (AIChE) annual meeting, Nov, 2003
34. Invited talk at the 17th New England Complex Fluids Workshop, Dec, 2003.
35. Biomedical Engineering Seminar, Brown University, March, 2004.
36. Seminar, jointly held by Institute of Medicine and Engineering and Materials Research Science and Engineering Center (MRSEC), University of Pennsylvania, January, 2004.
- 37. Chairing a session in the Biopolyelectrolytes Workshop, Univ. of Minnesota, May, 2004**
38. Contributing talk at the 4th International Polyelectrolyte Conference, June, 2004.
39. Seminar, Department of Material Science and Engineering, UIUC, Aug, 2004.
40. Seminar, Department of Biomedical Engineering, Washington University, St Louis, Oct, 2004.
41. Colloquium, Rhode Island College, Oct, 2004.
42. Condensed matter seminar, UMass-Amherst, Dec, 2004.
- 43. Chair of APS Session: Biopolymers: Molecules, Solutions and Networks (DPOLY/DBP), March, 2005.**
44. Seminar, Institute of Physics, Chinese Academy of Science, Beijing, August, 2005.
45. Seminar, Division of Physics, Peking University, Beijing, August, 2005.
46. Presentation on bacterial adhesion, Research Center of Archer-Daniel-Midland (ADM) Company, IL, Sept 26, 2005.

47. Invited talk, 4th World Congress of Cellular and Molecular Biology, Poitiers, France, Oct, 2005.
48. Physics colloquium, Brown University, Dec 12, 2005.
49. Biophysics seminar, Lehigh University, Dec 13, 2005.
50. Seminar, Courant Institute, New York University, Feb, 2006.

i. Work in Review

1. Viamontes, J., Patrick Oakes, and Tang, J. X., Formation of nematic liquid crystalline phase of F-actin varies from continuous to biphasic transition. Revised submission under review by PRL.
2. Li, G., and Tang, J. X., Remarkably low torque and high swimming efficiency of *Caulobacter* smarmer cells. Revised submission under review by Biophys. J.
3. Wen Q., Li, G., Tang, J. X., and Huber G., Switching statistics of a flagellar motor: first-passage time and dynamic binding, Under review by J. Statistical Physics.
4. Liu, Y., Guo, Y., Valles, J. M., and Tang, J. X., Microtubule Bundling and Nested Buckling Drive Stripe Formation in Polymerizing Tubulin Solutions, revised submission for PNAS due on April 21.

j. Work in progress

1. Addas, K. M., Keller, M., Sackmann, E., Schmidt, C. F., and Tang, J. X., Active and passive microrheology of semiflexible fd virus solutions. To be submitted to PRE
2. Viamontes, J., Levine, A., Tang, J. X., Abnormal diffusion of F-actin in the region of isotropic-nematic transition. Submission planned for PRL.
3. Viamontes, J., and Tang, J. X., Reptation of F-actin in both the isotropic network and nematic liquid crystalline state. Submission planned for PRL.
4. Li, G., Wen, Q., Huber, G., and Tang, J. X., Statistical properties of a flagellar motor and an analysis based on the first-passage time and dynamic binding. Submission planned for PRL.

6. Research Grants

I. Current grants

1. National Institute of Health R01 grant, entitled “Dissolution of polyelectrolyte bundles in airway fluids”, April 2001-March 2006. PI: P.A. Janmey at U.Penn Medical School, with Tang as Subcontractor (Portion for Tang \$350,000).
2. NASA Ground Based Biology Study, entitled “Microscopic Studies of Gravi-Sensitive Microtubule Assembly in Simulated Variable Gravity Conditions”, \$472K, Jan, 2004-Dec, 2006. PI: Tang, Co-I: Valles.
3. National Science Foundation Award DMR 0405156, entitled "Compensatory Roles of Electrostatics and Depletion Force on the Aggregation of Filamentous Viruses and Protein Filaments", \$273K, Aug, 2004-July 2007. PI: Tang
4. Petroleum Research Fund, American Chemical Society, entitled “Liquid crystalline formation of filamentous actin assembly”, \$80K, Sept, 2005-August, 2007. PI: Tang
5. National Science Foundation Materials Research Science and Engineering Center Grant awarded to Brown University, entitled “Micro- and Nano- Mechanics of Materials”, Sept 2005-Aug 2010. PI: Bill Curtin, with Tang as a key participant. Funding support to Tang includes ½ graduate student for year one, and likely 1 full student during year 2-5.

II. Completed Grants

1. Research Investment Fund (RIF) award from the Research and University Graduate School (RUGS), Indiana University, to purchase an atomic force microscope (AFM) for materials science and biological applications (co-PI with Dave Baxter), \$150K, May, 2000.
2. Indiana 21st Century Fund, entitled “Center for Membrane Protein Biotechnology”, 2002-2004, \$1,320K. PI: Gil Lee, Purdue University. Tang’s portion as a Co-PI is \$170K in two-year total. (Fund returned for leaving the state of Indiana).

3. Graduate Assistance in Areas of National Need (GAANN), Department of Education. \$630K, August 2001-August 2004. This grant funds a departmental program of which Tang serves as a co-director. The grant provides full support for 7 graduate students each year to conduct research under the theme of microscopic physics and biophysics. (Participation ended due to departure from Indiana University).
4. National Science Foundation grant, entitled "Solution Physics of F-actin and Filamentous Bacteriophages", \$270K, July, 2000-June 2003.
5. National Science Foundation Major Research Instrumentation (MRI) grant, entitled " Acquisition of a Scanning Probe Microscope for Studies of Biomolecules and Nanoscale Materials and Devices ", \$133K, Sept, 2003-Aug 2004. PI: Tang. Co-PIs: Ling, Powers, Valles and Xiao.
6. Salomon Award, Brown University, research project entitled "Chemotactic trajectory and hydrodynamics of *Caulobacter crescentus* swarmer cells, June, 2004-May, 2005.

III. Pending Grants

1. National Science Foundation CAREER Award, entitled " CAREER: Biophysical mechanism of motility and chemotaxis of *Caulobacter crescentus*", \$561K, July, 2006-June 2011.
2. National Institute of Health R01, entitled "Mechanism of *Caulobacter* adhesion", \$1445K, January 1, 2007-December 31, 2011. PI: Y. Brun, Indiana University. Subcontractor: Tang (\$652K).
3. National Institute of Health R01, entitled "Switching and stepwise rotation of flagellar motor and motility", \$1294K, July, 2006-June, 2011.
4. National Science Foundation grant, entitled "Mechanical and structural properties of the hierarchically assembled microtubule network", \$359,482, Sept, 2006-August, 2009.

7. Service

(i) To department and university

A. Hosted seminar and colloquium speakers 2000-2003:

- 2000: Dept Colloquia by: Rudolf Oldenbourg, Donald Miller, John Marko, Robin Selinger. Condensed Matter (CM)/Biophysics Seminars by: J. Lal, G. Wong, S. Xu, and A. Carlsson.
- 2001: Dept Colloquia by: Jonathan Howard, Robert Austin, Howard Petty, James Glazier & Victor Bloomfield. CM and Biophysics seminars by B. Geisler, P. Tran & Alex Levine. Medical Science Seminar by Amy McGough.
- 2002: Dept Colloquia by: Alberto Libchaber, Phil Pincus and Michelle Wang. CM/Biophysics seminars by: S. Wiesner, Greg Huber and Christoph Naumann
- 2003: Gerard Wong (UIUC), Dr. Z. Dogic (UPenn), Margaret Gardel (Harvard), Seth Fraden (Brandeis), Wolfgang Ketterle (MIT), Alex Levine (UMass), Fernando Escobedo (Cornell).
- 2004: Jonathan Selinger, Sarah Keller (U. Washington), Simon Mochrie (Yale), Paul Janmey (UPenn), David DeRosier (Brandeis), Antonio Castro-Neto (BU), Sofian Teber (U. Minnesota), Larry Abbott (Brandeis University), John Crocker (Univ. of Penn.), Michael Elbaum (Wiseman Institute).

B. Other departmental and university committee service

- Physics Colloquium Committee, 1999-2002; Graduate Recruitment Committee, 2000-2001; Graduate Admission and Financial Service (GAFS) Committee, 2000-2001; Multi-user Facilities Subcommittee for the Interdisciplinary Science Center, 2000-2002; Biochemistry and Biophysics Curriculum Development Committee, 2001-2002; Biophysics Faculty Search Committee, 2000-2002; **Gill Advisory Board, 2001**; Students, Staff and Faculty Relations Committee, 2002.

Since joining Brown Faculty

- Condensed Matter Experiment Faculty Search Committee, 2003, leading to the hiring of Professor Vesna Mitrovich.
- Physics Colloquium Committee, 2003-present.
- Attending sophomore concentration open house (2004), lunch gathering, gatherings and lab tours for biomedical engineering students (each year).

- Assisting dept chair in revising Physics Bulletin and Physics Newsletter, 2003-2004.
- Physics Qualifying Committee, 2004; 2005
- Physics graduate admissions committee, 2004-2005.
- Undergraduate affairs, 2005-present, dealing with course transfer credit, AP credit, course equivalences, high school seniors and their parents' visits, etc.
- Thesis committee member of Kossyrev, and Ozden (2003); Lu, and Xianyu (2004); prelim exam committee member of Sowmya, Sriskandh (Eng.), and Lei Wang (2004).
- Faculty Advisor for 6 Brown freshmen, 2004-2005; 7 Brown freshmen, 2005-2006.
- Mentor of Neerav Parekh, a Brown freshman of minority background, under the ALANA program.

(ii) Service to the profession

- Registered reviewer for Physical Review Letters (appx. 6/year), Physical Review E. (appx. 3/year), Proceedings of National Academy of Sciences (PNAS), Biophysical Journal (appox 4/year), Biochemistry, Biomacromolecules, FEBS Letts, American J. of Physiol., European Biophysics J., Physical Biology, etc. **In 2005**, I reviewed 3 reports for PRL, 2 manuscripts for PRE, 3 for Biophys J., 1 for Chemical Physics, 1 for Langmuir, 1 for Biomacromolecules
- Invited reviewer for Molecular Cell Biology, by Lodish et al., Sixth Edition. 2002; Book Review for Garland Science Publishing for a proposed biophysics textbook, 2004; Book review for CRC Press for proposed 2nd edition of Introduction to Molecular Biophysics, by, Tuszynski and Kurzynski, 2005.
- External referee for the soft condensed matter physics program, institute of physics, Chinese Academy of Sciences, Nov., 2001.
- Reviewed neutron scattering proposals to National Institute of Standard and Technology (NIST), summer, 2002 (9); spring, 2003 (6).
- Review 1 NSF program proposal in 2003, 3 individual NSF proposals and one program proposal in 2004. **In 2005**, I served on the NIH review panel for a group grant. In addition, I also reviewed by mail 1 NSF Proposal and one workshop proposal for European Science Foundation.
- **I organized the 18th New England Complex Fluids Workshop, held successfully at Brown University, March, 2004. Approximately 60 people attended.**

(iii) Service to the community

- Faculty facilitator for the annual Physics Open House (Oct., 1999, 2000, 2001 & 2002)
- Keynote speaker to the Advanced College Program (ACP) annual meeting for high school physics teachers, Oct., 2000, Indiana University.
- Faculty judge for Indiana Outstanding Junior Scientist Competition, Nov., 2001.
- Keynote speaker to the IU Chapter Sigma Xi annual banquet, April, 2002

Since joining Brown Faculty

- Volunteer Judge for Rhode Island Science and Engineering Fair, 2003, 2004, and 2005.
- Faculty mentor for Research Experience for Teachers (RET), Brown MRSEC. Teachers advised include Mr. John Foley, summer, 2004; Mr. F. Dorsey, 2005.
- Sunday school 6th grade math teacher for Newton Chinese Language School, spring, 2004.
- Volunteer, 5th grade math fair, Heights Elementary School, Sharon, MA, June, 2004.
- Atomic Force Microscopy (AFM) lecture and demonstration for RET teachers, July, 2004.
- Volunteer tutor of 3 students from the local Classic High School in preparation of their participation in Physics Olympiad. Spring 2005.
- Freshmen advisor 2004 and 2005; Sophomore advisor 2005; Mentor of Neerav Parekh, a Brown Freshman of under-represented background, under the ALANA program.

8. Academic Honors and Fellowships

- China and the U. S. Physics Examination and Application (CUSPEA), a joint program designed to select top Chinese physics students for graduate study in the US, July, 1987.
- Martin Fisher Scholar of Physics, Brandeis University, Sept., 1988 - May, 1991.
- Stephen Berko Memorial Prize for Outstanding Research, Brandeis University, May, 1994.
- Departmental Nomination for Sloan Fellowship, Sept, 2000.
- Joseph and Sophia Konopinski Award for Teaching Excellence, April, 2002, Indiana University.
- Salomon Award, Brown University, 2004.

9. Teaching and Training Activities

- Initiating an introductory biophysics course for graduate students and advanced undergraduate science majors, first offered in the fall of 2000. The fall 2000 class enrolls 10 graduate students in physics and chemistry and 2 advanced undergraduate students, with 1 staff scientist and 1 condensed matter postdoc auditing. The fall 2001 class enrolls 8 graduate students in physics and chemistry and 2 undergrads in physics and biology. The fall 2002 class enrolls 11 graduate students in physics and chemistry and 3 advanced undergraduate students, plus one IU alumnus auditing.
- Teaching introductory physics courses (P101 in spring, 2000 & P222 in spring, 2001).
- Faculty sponsor of the Undergraduate Research and Creative Activity Partnership grants awarded to Mr. Lee Tremblay, summer, 2000; and Ms. Tia Harvey, spring of 2001.
- Faculty sponsor of the Graduate Minority Achievers Program, awarded to Ms. Anna Roberts, summer, 2000.
- Faculty mentor of Mr. Amrish Malhi, an IU senior of biochemistry major from the McNair Scholars Program, summer, 2001.
- Supervised Ms. Lynda Wosniewski for a computational physics course project, fall, 2002.

Since joining Brown Faculty

Teaching and training activities in 2003

- First PhD student Mr. Karim Addas successfully defended his thesis on August 30, 2004. Second PhD student Mr. Ariel Balter successfully defended his thesis in April, 2005. Both received their degrees from Indiana University. Mr. Jorge Viamontes is the first to complete his thesis work at Brown and successfully defended in Sept, 2005.
- Thesis advisor of current Ph.D. students: Qi Wen (Galkin Fellow), Hyeran Kang, Yifeng Liu, Patrick Oakes, and Jun He.
- Undergraduate students trained in the lab: Demetrious Harrington, Sareet Jacob, Mariana Mihalusova, Kelly Molloy, Daniel Dwortis, and Worasom Kundhikanjana. Undergraduates currently trained: Lick-Kong Tam, Edward Baher, and Deepa Galaiga.
- Attended a 4-day conference for new physics teachers, Nov., 2003, organized by American Institute of Physics Teachers.
- Planned and sought university approval for a new course, PH0161, Biological Physics, offered each fall since 2004. Also one of the key organizers for an advanced biophysics course test run in Spring, 2005.
- Initiated the weekly Biophysics Journal Club, which is running healthy in its second year.