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Education:

B.S. Physics, Lehigh University, Bethlehem PA, 1982
Ph.D. Physics, University of California, Berkeley CA, 1991

Professional Experience:

Chair, Department of Applied Physical Sciences, 2017 -
Taylor-Williams Distinguished Professor, 2010-
Bowman and Gordon Gray Professor, 2004-2009
Director, NIH Computer Integrated Sys. for Microscopy and Manipulation Center, 2002-present
Director, W. M. Keck Foundation Atomic Imaging Laboratory 2001-2005
Associate Professor of Physics, UNC-Chapel Hill, 1999-2004
Assistant Professor of Physics, UNC-Chapel Hill, 1992-99
Lawrence Berkeley Laboratory Postdoctoral Fellow, 1991-1992
Senior Technical Associate, AT&T Bell Laboratories, 1982-1985

Professional Honors, Affiliations and Activities:

Taylor-Williams Distinguished Professor – 2012 continuing
Bowman and Gordon Gray Award – University of North Carolina 2004
R&D 100 Award for nanoManipulator System 2001
White House/Smithsonian Millenium Celebration Panelist 2000
Johnson Teaching Award For Excellence in Undergraduate Education (UNC) 2000
Hettleman Prize For Research Excellence (UNC) 1998
Macres Award from the Microbeam Analysis Society-1995
Junior Faculty Development Award -University of North Carolina, 1992
Member: Biophysical Society; American Physical Society; Biomedical Engineering Society
Referee: Nature, Science, Nanoletters, Phys.Rev., Phys. Rev. Lett., Rev. Sci. Instr. Biophysical Journal
Review Panelist: NIH continuing, NSF continuing, NIH Study Section Biomedical Engineering 2004-2006, Naval Research Labs Review Panel 2000, NSF STC Site Review Panel 1999;
Conference Session Organizer: National Conference of the Cystic Fibrosis Foundation Symposium 2007, Gordon Research Conference symposium 2007, 2015; Carolina Biophysical Symposium 2010, 2008, 2006, 2004, 2002. American Vacuum Society 2001, Southeastern Section of the American Physical Society 2006, 2001, 1999.

Publication list:

129. Zdanski, Carlton; Davis, Stephanie; Hong, Yi, Quantitative Assessment of the Upper Airway in Infants and Children with Subglottic Stenosis, *Laryngoscope* Volume: 126 Issue: 5 Pages: 1225-1231 (2016)
128. Quammen, C.W., Taylor II, R.M., Krajcevski, P., Mitran, S., Enquobahrie, A., Superfine, R., Davis, B., Davis, S., and Zdanski, C. The Virtual Pediatric Airways Workbench. *Studies in health technology and informatics*. 220:295-300 (2016)
127. Farzal Z, Walsh, J., Lopes de Rezende Barbosa, G., Zdanski, C.J., Davis, S. D., Superfine, R., Pimenta, L.A., Kimbell, J.S., and Drake, A.F. Volumetric nasal cavity analysis in children with unilateral and bilateral cleft lip and palate. *Laryngoscope*. 126(6):1475-1480. PMC4752420 (2016)
126. Cribb, J., Lukas Osborne, Kellie Beicker, Matthew Psioda, Jian Chen, E. Timothy O'Brien, Russell Taylor, Leandra Vicci, Joe Hsiao, Chong Shao, Michael Falvo, Joseph Ibrahim, Kris Wood, Gerard Blobe, and Richard Superfine, "An Automated High-throughput Array Microscope for Cancer Cell Mechanics", *Scientific Reports* (2016)
125. Shao, C., A. Zhong, J. Cribb, L. D. Osborne, E. T. O'Brien, III, R. Superfine, K. Mayer-Patel and R. M. Taylor, II "Analysis-Preserving Video Microscopy Compression via Correlation and Mathematical Morphology." *Microscopy Research and Technique* 78(12): 1055-1061. (2015).
124. Wen, B., K. R. Campbell, B. L. Cox, K. W. Eliceiri, R. Superfine and P. J. Campagnola (2015). "Multi-view second-harmonic generation imaging of mouse tail tendon via reflective micro-prisms." *Opt Lett* 40(13): 3201-3204.
123. Mair, L. O., I. N. Weinberg, A. Nacev, M. G. Urdaneta, P. Stepanov, R. Hilaman, S. Himelfarb and R. Superfine (2015). "Analysis of driven nanorod transport through a biopolymer matrix." *Journal of Magnetism and Magnetic Materials* **380**: 295-298.
122. Judith, R. M., J. K. Fisher, R. C. Spero, B. L. Fiser, A. Turner, B. Oberhardt, R. M. Taylor, M. R. Falvo and R. Superfine (2015). "Micro-elastometry on whole blood clots using actuated surface-attached posts (ASAPs)." *Lab on a Chip* **15**(5): 1385-1393.
121. Fiser, B. L., A. R. Shields, M. R. Falvo and R. Superfine (2015). "Highly responsive core-shell microactuator arrays for use in viscous and viscoelastic fluids." *Journal of Micromechanics and Microengineering* **25**(2).
120. Cribb, J., L. D. Osborne, J. P.-L. Hsiao, L. Vicci, A. Meshram, E. T. O'Brien, III, R. C. Spero, R. Taylor, II and R. Superfine (2015). "A high throughput array microscope for the mechanical characterization of biomaterials." *Review of Scientific Instruments* **86**(2).
119. Bucay, I., E. T. O'Brien, III, S. D. Wulfe, R. Superfine, A. S. Wolberg, M. R. Falvo and N. E. Hudson (2015). "Physical Determinants of Fibrinolysis in Single Fibrin Fibers." *Plos One* **10**(2).
118. Ward, S. L. D., R. Amin, R. Arens, Z. Chen, S. Davis, E. Gutmark, R. Superfine, B. Wong, C. Zdanski and M. C. K. Khoo (2014). "Pediatric Sleep-Related Breathing Disorders." *IEEE Pulse* **5**(5): 33-39.

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115. Osborne, L. D., G. Z. Li, T. How, E. T. O'Brien, III, G. C. Blobel, R. Superfine and K. Myhre (2014). "TGF-beta regulates LARG and GEF-H1 during EMT to affect stiffening response to force and cell invasion." Molecular Biology of the Cell **25**(22): 3528-3540.
114. Hong, Y., B. Davis, J. S. Marron, R. Kwitt, N. Singh, J. S. Kimbell, E. Pitkin, R. Superfine, S. D. Davis, C. J. Zdanski and M. Niethammer (2014). "Statistical atlas construction via weighted functional boxplots." Medical Image Analysis **18**(4): 684-698.
113. Guilluy, C., L. D. Osborne, L. Van Landeghem, L. Sharek, R. Superfine, R. Garcia-Mata and K. Burrige (2014). "Isolated nuclei adapt to force and reveal a mechanotransduction pathway in the nucleus." Nature Cell Biology **16**(4): 376-+. PMC4085695
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107. Cribb, J. A., P. A. Vasquez, P. Moore, S. Norris, S. Shah, M. G. Forest and R. Superfine (2013). "Nonlinear signatures in active microbead rheology of entangled polymer solutions." Journal of Rheology **57**(4): 1247-1264. PMC3920902
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93. Mair, L. O., Evans, B., Hall, A. R., Carpenter, J., Shields, Ford, K., A., Millard, M., & Superfine, R.,. Highly Controllable Near-Surface Swimming of Magnetic Janus Nanorods: Application to Payload Capture and Manipulation. *Journal of Physics D: Applied Physics*. 44(125001) (2011).

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19. *Sticking to the Point: A Friction and Adhesion Model for Simulated Surfaces*, Chen, Jun, Chris DiMattia, Mike Falvo, Pichet Thiansathaporn, Richard Superfine and Russell M. Taylor II, *Proceedings of the Sixth Annual Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Dallas, Texas. November 17-18, 1997. pp. 167-171.
18. *In-Situ Imaging of Polymer Melt Spreading with a High Temperature Atomic Force Microscope*, D. Glick, P. Thiansathaporn, R. Superfine *Appl. Phys. Lett.*, (71) 3513-3515, 1997.
17. *Manipulation of Individual Viruses:Friction and Mechanical Properties*, M. Falvo, S. Washburn, R. Superfine, M. Finch, F. P. Brooks, Jr., V. Chi, and R. M. Taylor, II, *Biophysical Journal*, (72) 1396-1403, 1997.
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13. *Surface Modification Tools in a Virtual Environment Interface to a Scanning Probe Microscope*," Finch, Mark, Vernon Chi, Russell M. Taylor II, Mike Falvo, Sean Washburn, and Richard Superfine. *Proceedings of the ACM Symposium on Interactive 3D Graphics* (Monterey, CA, April 9-12, 1995), 13-18. special issue of *Computer Graphics*, ACM SIGGRAPH, New York, 1995.
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11. *Surface Vibrational Spectroscopy of Pure Liquids*, R. Superfine, J. Y. Huang, and Y. R. Shen, "", *Laser Spectroscopy X*, M. Ducloy, E. Giacobino, G. Camy, eds. (World Scientific, New Jersey, 1992)
 10. *Probing the Mechanisms for Surface Induced Alignment of Liquid Crystals*, Y. R. Shen, W. Chen, M. B. Feller, J. Y. Huang and R. Superfine, *Mol. Cryst. Liq. Cryst.*, **207**, 77 (1991)
 9. *Nonlinear Optical Studies of the Pure Liquid/Vapor Interface: Vibrational Spectra and Polar Ordering*, R. Superfine, J. Y. Huang and Y. R. Shen, *Phys. Rev. Lett.* **66**, 1066 (1991)
 8. *Experimental Determination of the Sign of the Molecular Dipole Moment Derivative: An Infrared Visible Sum Frequency Generation Absolute Phase Measurement Study*, R. Superfine, J. Y. Huang and Y. R. Shen, *Chem. Phys. Lett.* **172**, 303 (1990)
 7. *Phase Measurement for Surface Infrared Visible Sum Frequency Generation*, R. Superfine, J. Y. Huang and Y. R. Shen,, *Opt. Lett.* **15**, 1276 (1990)
 6. *A nonlinear spectroscopic study of coadsorbed liquid crystal and surfactant monolayers: Conformation and interaction*, J. Y. Huang, R. Superfine and Y. R. Shen,, *Phys. Rev. B*, **42**, 3660 (1990)
 5. *Molecular Conformation and Ordering in a Monolayer Determined by Simultaneous Surface Infrared-Visible Sum Frequency and Second Harmonic Generation*, R. Superfine, J. Y. Huang and Y. R. Shen, *Laser Spectroscopy IX*, edited by M. Feld, J. Thomas and A. Mooradian, p.212-215 (Academic Press, San Diego, 1989)
 4. *Surface Vibrational Spectroscopy of Molecular Adsorbates on Metals and Semiconductors by Infrared-Visible Sum-Frequency Generation*, R. Superfine, P. Guyot-Sionnest, J. H. Hunt, C. T. Kao, and Y. R. Shen,, *Surf. Sci.* **200**, L445 (1988).
 3. *Vibrational Spectroscopy of a Silane Monolayer at Air/Solid and Liquid/Solid Interfaces Using Sum-Frequency Generation*, P. Guyot-Sionnest, R. Superfine, J. H. Hunt and Y., R. Shen,, *Chem. Phys. Lett.* **144**, 1 (1988)
 2. *A Study of Diacetylene Monomer and Polymer Monolayers Using Second and Third Harmonic Generation*, G. Berkovic, R. Superfine, P. Guyot-Sionnest, and Y. R. Shen, *J. Opt. Soc. Am. B*, **5**, 662 (1988)
 1. *Observation of the Triplet Excited State of a Conjugated-Polymer Crystal*, L. Robins, Joseph Orenstein, and R. Superfine, , *Phys. Rev. Lett.* **56**, 1850 (1986)
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Patents

1. Techniques for Modulation of AFM cantilevers, Erie, D., G. Ratcliff and R. Superfine. United States. (2001) United States Patent 6,330,824 B1.
2. Methods and systems for controlling motion of and tracking a mechanically unattached probe, Vicci, L., R. Superfine, United States Patent 7,119,645, October 10, 2006.
3. Methods and systems for controlling motion of and tracking a mechanically unattached probe, Vicci, L., R. Superfine, United States Patent 7,189,969, March 13, 2007.
4. Methods and systems for controlling motion of and tracking a mechanically unattached probe, Vicci, L., R. Superfine, United States Patent 7,191,092, March 13, 2007.
5. Methods and systems for controlling motion of and tracking a mechanically unattached probe, Vicci, L., R. Superfine, United States Patent 7,305,319, December 4, 2007.
6. Methods and Systems for Multi-Force High Throughput Screening, R. Superfine, L. Vicci, United States Patent 8,490,469 (July 23, 2013).
7. Methods and Systems for Multi-Force High Throughput Screening, R. Superfine, L. Vicci, PCT International Application PCT/US2008/002331 (February 22, 2008).
8. Methods and Systems to use actuated surface-attached posts for biofluid rheology, R. Superfine, R. Spero, B. Evans, B. Fiser, A. Shields, United States Patent 8,586,368 B2 (November 19, 2013).
9. Methods and Systems to use actuated surface-attached posts for biofluid rheology, R. Superfine, R. Spero, B. Evans, B. Fiser, A. Shields, Europe 10792732.9 (January 24, 2012).
10. Methods and Systems to use actuated surface-attached posts for biofluid rheology, R. Superfine, R. Spero, B. Evans, B. Fiser, A. Shields, Japan, 2012-517775 (December 22, 2011).
11. Methods and Systems to use actuated surface-attached posts for biofluid rheology, R. Superfine, R. Spero, B. Evans, B. Fiser, A. Shields, United States Patent 9,238,869 (February 1, 2016).
12. Methods, Systems and Computer Readable Media for determining physical properties of a specimen in a portable point of care device, US Patent Application 61/732,278 (November 30, 2012)

Teaching

Year (Semester)	Course Number	Title	Enrollment
Fall 2016	PHYS 405 (BIOL431)	Biological Physics	17
Fall 2015	PHYS 405 (BIOL431)	Biological Physics	23
Fall 2013	PHYS 405	Biological Physics	23

Training

Graduate Students and Postdoctoral Fellows	Training Period	Current Position or Source of Support
PRIOR STUDENTS		
Michael R. Falvo	Physics, Ph. D. 1998	Res. Prof. UNC
Pichet Thiansathaporn	Physics, Ph. D. 1998	Teleion Wireless, Inc.
David Glick	Physics, Ph. D. 1999	Amazon.com
Charles Bartlett	Physics, M.S. 1997	Engineer
W. Garrett Matthews	Physics, Ph. D. 2001	Assistant Professor, University South Florida
Jeremy Cummings	Biomedical Engineering, Ph. D. 2002	President, Cummings Engineering, Inc.
Phillip Williams	Physics, Ph. D. 2002	Research Associate NASA Langley
Martin Guthold	Postdoctoral Fellow 1998-2001	Associate Professor Wake Forest Univ.
Stergios Papadakis	Postdoctoral Fellow 2000-2004	Research Associate, Applied Physics Lab, Johns Hopkins Univ.
Atsuko Negishi	Materials Science Ph. D. 2002	Research Assistant, Guelph Univ.
Michael Stadermann	Chemistry Ph. D. 2004	Lawrence Livermore left in October 2004
Lloyd Carroll	Postdoctoral Fellow 2001-2005	Associate Professor, West Virginia University
David Hill	Postdoctoral Fellow 2003-2006	Accepted research position at UNC CF Center
Onejae Sul	Physics Ph. D. 2006	
Sreeja Asokan	Physics Ph. D. 2006	Postdoctoral Fellow, UNC
Jing Hao	Materials Science Ph. D. 2006	Assistant Professor, Japan.
Kalpiti Desai	Biomedical Engineering Ph. D. 2007	Postdoctoral Fellow, UNC
Ashely Estes	Physics M. S. 2007	Engineering, Texas

Jay Fisher	Biomedical Engineering Ph. D. 2007	Postdoctoral Fellow, Harvard
Timothy Meehan	Chemistry Ph. D. 2007	Assoc. Lect./Res. Fellow University of Queensland
Ben Evans	Physics Ph. D. 2008	Assistant Professor, Elon University
Adam Shields	Physics Ph. D. 2010	Postdoctoral Fellow, NRC
Jeremy Cribb	Biomedical Engineering Ph. D. 2010	Postdoctoral Fellow, UNC
Richard Spero	Physics Ph. D. 2010	Postdoctoral Fellow, UNC
Lamar Mair	Materials Science Ph. D. candidate 2006-2012	Magnetic Nanoparticle Transport for Drug Delivery
Kris Ford	Biomedical Engineering Ph. D. candidate 2006-2013	Magnetic Nanoparticle Transfection
Jerome Carpenter	Materials Science Ph, D, candidate 2006-2013	Electrospun membranes for Cell Cultures under Cyclic Strain
Vinay Swaminithan	Materials Science Ph, D, candidate 2007-2012	Mechanobiology of Lung Epithelial Cells
Briana Fiser	Physics Ph. D. 2006-2011	High Point University
Nathan Hudson	Physics Ph. D. 2006-2012	Physics of Blood Clots
Luke Osborne	Physics Ph.D. 2009- 2015	Cell Mechanics: Instrumentation and Cancer
Robert Judith	Physics Ph. D. 2010-2016	Biomimetic Hydrodynamics for Blood Clots
Suzy Lynch	Biochemistry M.S. 2011-2015	Biophysics of Mucus Clearance
Kellie Beicker	Physics Ph.D. 2010-2016	Mechanics of Bonds and Cells
Bethany Lanham	Physics M.S. 2016	Biomimetic Cilia Hydrodynamics
Current Students		
Evan Nelsen	Physics Ph. D. 2015-	Mechanobiology of Cells
Jacob Brooks	Physics Ph.D. 2016-	Actuating surfaces

Undergraduate Research Training (many co-mentored with colleagues)

	First Name	Last Name	Period	Research
110	Ying	Zhou	(2012)	Statistical Analysis of Particle Trajectories
109	Pranav	Maddi	Present	Fluorescent Imaging of Nuclear Neighborhoods
108	Emily	Hower	Present	Microfluidics for Clearance Assays
107	Stephen	Wulfe	(2012-2013)	
106	Ben	Rardin	(2012)	Magnetic Systems for Cell Mechanics
105	William	Prins	(2012)	

104	Adam	Turner	(2011-present)	"Peptide Inhibition in Identifying the Alpha-C Region of Fibrinogen"
103	Lauren	Scheetz	(2011-2012)	"AC Magnetic Fields Effects on enhancing Cell Transfection"
102	Kyle	Pridgen	(2011-2012)	
101	Joseph	Sircar	(2011-2012)	"Mucus Plunger Project"
100	Travis	Hairfield	(2011-2012)	"Simulations and Computational Analysis of Fibrin Molecules"
99	Igal	Bucay	(2011-2013)	"Fibrin Fiber and Sheet Elongation in Early Stages of Lysis"
98	Alekhyia	Yechoor	(2011)	
97	Patrick	Mosby	(2011)	"The Effect of Blood Composition and Shear on Clot Structure"
96	James	William	(2011)	Artificial Cilia Fabrication
95	Max	Shepherd	(2010-2011)	DNA under stretching loads
94	Evan	Kazura	(2010-2012)	"Fabricating Cell Scaffolds of Varying Mechanical Properties for Culturing of Human Epithelial Lung Cells"
93	Olamide	Olusesi	(2009-2011)	"The B-b Knob-hole Interactions Contribute to the Mechanical Properties of Single Fibrin Fiber"
92	Elizabeth	Littauer	(2009-2012)	"Nanoparticle Transport in Fibrin Networks"
91	Rachel	Greene	(2009-2010)	Cell Mechanics and Particle Tracking
90	Alec (Alexander)	Nelson	(2009-2011)	"Correlative Immunofluorescence and Scanning Electron Microscopy of Cancer Cells during the Application of magnetic Forces"
89	Bjorn	Pederson	(2010-2012)	"Mucus Rheology"
88	Thomas	Sayre-McCord	(2008-2012)	"Finite Element Model of the Cell"
87	Briana	Whitaker	(2009-2010)	High Throughput Cell Mechanics Substrates
86	Miranda	McNear	(2010)	
85	Hans	Peng	(2010)	
84	Kyle	Prigden	(2010)	"Mechanics of Fibrin Sheets"
83	Zachary	Hackney	(2008-2012)	"Diffusion in tissue Mimics"
82	Sarita	Prakash	(2007-2009)	"Hydrogels for Artificial Cilia"
81	Jeff	Cohen	(2009)	Mucus Rheology Assays
80	Mike	Amato	(2009)	
79	Gregory	Benjamin	(2009-2010)	
78	Gresham	Fedora	(2010)	
77	Becky	Flint	(2009-2010)	"Cell Mechanics using Magnetic Probes"
76	Mike	Millard	(2008-2010)	"Microfluidics for Mucus Clearance Assay"
75	Vishal	Parikh	(2009-2010)	"Microfluidics for cell Cultures"
74	Alan	Liu	(2008-2009)	"Magnetic Biomimetic Silia"
73	Andy	Branscomb	(2009)	"Microfluidic Devices for Clot Biophysics"
72	Stephen	Norris	(2008-2009)	"Microbead Rheology of Biofluids"

71	Kaylah	Roberson	(2008-2009)	"Biomimetic Cilia for Fluid Flow"
70	Patrick	Moore	(2009)	"Mucus Rheological Properties"
69	Rachel	Sircar	(2007-2009)	"Fibrin Fiber Clot Transport Properties"
68	Matthew	Cozon	(2007-2009)	"Elastic Membranes for Polarized Cell Cultures"
67	Max	Ballenger	(2006-2009)	"DNA Force Measurements"
66	David	Zilber	(2006-2007)	"Templated Actuating Structures"
65	Anderson	Cox	(2006-2010)	"Spot Labeled Beads"
64	Ben	Laorque	(2006-2007)	"Functionalized Particles"
63	Sam	Davis	(2006-2007)	"Nanotemplated nanoMaterials"
62	Ben	Smith	(2006-2007)	"Fibrin Gel Rheology"
61	Russell	Schmitz	(2006)	"Ferrofluids for New Composites"
60	Richard	Samulski	(2006-2010)	"Hydrogels as Tissue Mimics"
59	Frances	Low	(2006-2008)	"Templated Hydrogels for Artificial Cilia"
58	Philip	Howard	(2005-2006)	"Fibrin Fiber Mechanics"
57	Michael	Adams	(2004-2006)	"Artificial Microtubule Actuating Surfaces"
56	Sorell	Massenburg	(2004-2007)	"Microbead Rheology of Mucus"
55	Andres	Gonzales	(2006)	"Electrospun Tissue Scaffolds"
54	David	Bober	(2006-2009)	"Magnetic Force Systems for Biology"
53	Angela	Garner	(2006)	
52	Lakia	Skoggins*	(2005)	"Nanocrystals from Templates"
51	Korsica	Lassiter	(2005)	"Cilia and Cystic Fobrosis Disease"
50	Chernelle	Hill*	(2005)	"Calcite Cystals"
49	Emilola	Abayomi	(2005)	"Michrobead Rheology"
48	Brittany	Cuthbertson	(2005)	"Biofluid Rheology"
47	Jerome	Carpenter	(2003-2006)	"Metallic Nanorods"
46	Rachel	Weiner	(2005-2006)	"Engineered Cilia Materials"
45	Adam	Hall*	2001	"Carbon Nanotube Processing and Patterning"
44	Jay	Fisher	2001	"3D Force Microscope"
43	Joseph	Dratz	2003 - 2004	"Nanotube Materials"
42	Dan	Blum	2004 - 2005	"Magnetic Characterization of Synthetic Cilia"
41	Rohit	Prakash	2002 - 2003	"Flourescent Labeling of Nanotubes"
40	Tneshia	Sweat	2002 - 2005	"Cell Biology Applications fo 3DFM"
39	Ben	Wilde*	2001 - 2002	"Magnetic Systems for a 3D Force Microscope"
38	Carl (CJ)	Bailey	2004	"Two-Particle Correlation Functions"
37	Gregory	Richard	2004	"An Algorithm for Tracking Particles"
36	Sara	Obeid	2004	"From PDMS to Velcro"
35	Adrienne	Yancey	2004	"Cystic Fibrosis and Microrheology"
34	Louise	Jawerth	2001 -2004	"Biomotor Analytical Systems"
33	Aarish	Patel*	2001 - 2004	"Nanotube Devices"
32	Jasmine C.	Davenport*	2003	"Magnetophoretic Separation"
31	Susan	Lee*	2003	"Cilia/Cystic Fibrosis Research"

30	Shelli	Pace*	2003	"Virus Binding in Channels"
29	Deborah	Sill	2001 -2002	"Design of a 3D Force Microscope"
28	Donald	Brandl	(9/2002)	"Magnetic Fields in MicroStructures"
27	Laura	Tolliver	2001 -2002	"Thermal CVD Growth of Nanotubes"
26	Roger	Holliday*	2000	"Arc Growth of Nanotubes"
25	Darius	Sanders*	2000	"EBeam Lithography Devices"
24	Janessly	Lopez-Alequin	2000	"Stability of Adenovirus Using AFM"
23	Ronald	Copeland	2000	"Functional Bio-Nanomaterials"
22	Claudia	Low*	2000)	"DNA/Carbon Nanotube Circuitry"
21	Ari	Yeskel	2000	"Nanotube Functionalization Strategies"
20	Lily	Yu	2001	"Stamp Printing of Molecuels"
19	Katy	Liu	2001	"Functionalization of Surfaces for Biomotors"
18	Kenneth	Garman	2001	"Interfacing of a Nanometer Stage"
17	Dante	Silman*	2000 - 2000	"Nanotube Devices"
16	Michael	Ricci*	1999 - 2000	"Nanotube Dynamics on Surfaces"
15	Keith	Thomas	1999 - 2000	"AFM Tips"
14	Ryan	Fuerier		"Surface Plasmon Apparatus"
13	Desiree	Bath*		"Particle/Polymer Adhesion"
12	Chekesha	Clingman*		"Particle Functionalization for Adhension Control"
11	Bernard	Griggs		
10	Jayvius	Wynn		
9	Roderick	Lim		
8	Ainhua	Phillip		
7	Cameron	Lily		
6	John	Ritzo		
5	Rob	Outerson		
4	Stefan	Nikles		
3	Danielle	Morgan		
2	Peter	Groves		
1	Claudine	Chen		

Grants History: Richard Superfine

(**Bold number** = active, *Italics* = Principal Investigator)

Principal Investigator (or Multi-PI) of over \$39 million dollars of research grants cumulative, ~45M total

	Sponsor (Role)	Title	Year	Award Total
42.	<i>NIH/NIBIB 5 P41-EB002025 (P. I.)</i>	<i>Computer Integrated Systems for Microscopy&Manipulation</i>	5/15-4/20	\$3,890,000 (dir)
41.	<i>NSF-1437751 (PI)</i>	Actuated Surface Attached Post Systems for Microscale Fluid Dynamics	8/14 – 8/17	\$270,000
40.	<i>NSF-1361375 (PI)</i>	Computational Cell Motility Model Educued from Single-Cell and High-Throughput Phenotype Analysis	8/14 – 8/18	\$1,028,000
39.	NIH 1R01HL114388	Rho-mediated Signaling in Lung Endothelial Cells	4/13-3/17	\$80,000 (sub)
38.	NIH Office of Director	Science of Gross Things	7/13-6/14	\$10,000
37.	Kitware (Subcontract)	Accelerating Community-Driven Medical Inn.	5/13-4/15	\$44,861
36.	<i>NSF-1068918</i>	<i>Ciliary Mechanics</i>	04/11 - 03/15	\$463,253
35.	<i>NIH NCI 1R01HL105241-01 (P.I.)</i>	<i>Array Microscope Assay for Cancer Cell Mechanics</i>	7/11 – 6/14	\$776,000 (dir)
34.	<i>NIH/NHLBI 1R01HL105241-01 (M.P.I.)</i>	<i>Predictive Modeling for Treatment of Upper Airway Obstruction in Young Children</i>	10/10-9/15	\$2,540,000 (dir)
33.	<i>NIH/NIBIB 5 P41-EB002025 (P. I.)</i>	<i>Computer Integrated Systems for Microscopy&Manipulation</i>	1/10-12/14	\$3,928,833 (dir)
32.	<i>GlaxoSmithKline</i>	<i>Mucus Clearance Assay</i>	1/10-12/10	\$70,000 (dir)
31.	<i>NIH NIEHS 1RC1ES018686-01 (P.I.)</i>	<i>Computational and Cell Culture Models for Mucus Clearance</i>	9/09 – 8/11	\$1,000,000 (dir)
30.	<i>NSF DMR-0817489 (P.I.)</i>	<i>The Multiscope</i>	09/08-09/10	\$440,000
29.	NSF DMR-0705977 (Co. P.I.)	Strong, Elastic and Novel Biomaterials	06/07-05/10	\$360,000
28.	<i>NIH NHLBI R01-HL077546-01A2 (P. I.)</i>	<i>The Virtual Lung Project: Integrated Modeling of Epithelial Fluid Flows</i>	08/01/06 07/31/11	\$3,500,000 (dir)
27.	NHI National Cancer Institute U54-CA119343 (Sen. Inv.)	Carolina Center of Cancer Nanotechnology Excellence	10/01/05 12/31/08	\$300,000 (RS part)
26.	NSF DMS-0502266 (Co-P. I.)	EMSW21-RTG: Laboratory and Mathematical Fluid Dynamics: Experiments, Computation, and Modeling	2005-2010	\$250,000 (RS part)
25.	NSF MCB-0451240 (Co-P. I.)	Biomechanics of Chromosome Structure and Dynamics in Living Cells	2005-2008	\$411,227
24.	<i>NSF CMS-0507151 (P. I.)</i>	<i>NIRT: Bio-inspired actuating Structures</i>	2005-2009	\$1,099,330
23.	<i>NIH/NIBIB 5 P41-EB002025 (P. I.)</i>	<i>Computer Integrated Systems for Microscopy&Manipulation</i>	2005-2009	\$4,575,005
22.	NASA/Princeton Univ. (co- P. I.)	Bioinspire Design and Process of Multifunction Nanocomposites	2003- 2007	\$300,000 (RS part)
21.	NIH/NIBIB (P. I.) 1R01EB000761-01	<i>3D Force Microscope for Microrheology and Active Transport</i>	2002-2007	\$2,602,000
20.	<i>W. M. Keck Foundation</i>	<i>Atomic Imaging Manipulation Laboratory</i>	2001-2005	\$1,000,000 (dir)

	<i>(Director)</i>			
19.	NIH/NIBIB (Senior Inv.)	Interactive Graphics for Molecular Studies and Microscopy	6/2001-12/2004	\$3,200,000 (dir)
18.	NSF ECS-0100629 (P. I.)	<i>The Development of Nanoelectromechanical Structures for GHz Oscillators and Other High Frequency Devices</i>	9/2001 – 9/2005	\$270,000
17.	NSF ECS Division (P. I.)	<i>Biomolecular motor/Nanotube integration for actuator nanotechnology</i>	9/2000 – 9/2004	\$1,100,000
16.	NSF ROLE 0017 (Co-P. I.)	Investigating Viruses With Touch: Nanotechnology and Science Inquiry	1/2001 – 12/2003	\$767,275
15.	Burroughs Wellcome Fund (P. I.)	<i>Targeted Opportunities in Nanotechnology: nanoManipulator Outreach</i>	9/2001 – 9/2005	\$25,000
14.	NSF ECS SGER 0004109 (P. I.)	<i>Carbon Nanotube Nanoelectromechanical Devices</i>	9/2000 – 9/2002	\$50,000
13.	NIH/NCRR (Senior Inv.)	Interactive Graphics for Molecular Studies and Microscopy	9/98-9/2004	\$1,284,304
12.	ONR – MURI (Co-Director)	Science and Technology of Nanotube-Based Materials and Devices	4/98-12/2003	\$5,579,930
11.	Army Research Office (P. I.)	<i>Acquisition and Development of a Unique SEM/AFM Analytical System: II</i>	3/99 – 3/2001	\$250,000
10.	Army Research Office (P. I.)	<i>Acquisition and Development of a Unique SEM/AFM Analytical System: I</i>	3/98 – 3/2000	\$250,000
9.	NSF ECS Division (P. I.)	<i>Mechanical Properties of Nanotubes: Elastic Moduli, Buckling and a Nanometer-Scale Switch</i>	1997-2001	\$419,854
8.	NSF (ACS-9527192) (Co. P. I.)	Application of High Performance Graphics Supercomputers and Communication to Provide Improved Interfaces to Scanning Probe Microscopes	9/95-9/2001	\$2,300,000
7.	NSF (DMR-9512431) (P. I.)	<i>Development of the Nanomanipulator: Real-Time Scanning Probe Microscope Interface for Nanometer Science</i>	9/95 - 8/97	\$230,000 (+\$100,000 Thermomicroscopes, Inc.)
6.	Hoechst Celanese, Inc. (P. I.)	<i>Adhesion of Dissimilar Materials</i>	1/97 - 12/97	\$50,100
5.	Hoechst Celanese, Inc. (P. I.)	<i>LCP Interfaces and Adhesion: AFM and Quantitative Pull-off Characterization</i>	1/97 - 12/97	\$50,690
4.	UNC-Hoechst Celanese Partnership Seed Grant (P. I.)	<i>Optical Processing for Optimized Adhesion</i>	8/96 - 7/97	\$25,000
3.	Hoechst Celanese, Inc. (P. I.)	<i>Characterization of Photoresist Films</i>	9/96 - 3/97	\$9,000
2.	UNC-CH Res. Fnd. (P. I.)	<i>Near Field Optical Microscope Head Design</i>	4/96 – 4/97	\$1,900
1.	NSF (DUE-9350914) (P. I.)	<i>Scanning Tunneling Microscope Instrumentation for Introductory Electronics and Materials Characterization Courses</i>	4/93 – 4/95	\$19,000

Invited Presentations:

100. "New Methods for Cell Mechanotransduction" Triangle Cytoskeleton Meeting, Chapel Hill, NC 2016
99. "From cilia to mucins: The physics of lung defense", Cell Biology & Physiology Center Seminar Series, February 19, 2015, National Institutes of Health, Bethesda, MD.
98. "The Physics that keeps your lungs clean", Frontiers of Biophysics Seminar, January 27, 2015, Duke University, Durham NC.
97. "The Physics that Keeps your Lungs Clean", Georgetown University Physics Department Colloquium, November 11, 2014, Washington, DC.
96. "Cell Mechanotransduction: New Tools for Molecular Insight", Triangle Cytoskeleton Meeting September 12, 2014, Research triangle Park, NC.
95. "Cilia Generated Flows: Insights from Cell Cultures and Engineered Arrays", 2014 Annual Meeting Society of Industrial and Applied Mathematics, July 6-11, 2014.
94. "New Tools for Mucus Clearance: High throughput Rheology and a Vertical Mucociliary Clearance Assay", 7th World Congress of Biomechanics, Boston, MA July 6-11, 2014.
93. "The River Within: How the lung stays clean ", Polymer and Advanced Materials Lecture Series, University of Akron, Akron, OH, February 7, 2014.
92. "The Physics that Keeps Your Lungs Clean", Department of Physics Colloquium, University of Texas, Austin, TX, February 26, 2014.
91. "Biomimetic cilia for flow generation and rheological measurements", American Chemical Society National Meeting 2013, , Indianapolis, IN, September 8-12, 2013
90. Computer Integrated Systems For Microscopy and Manipulation, NIH P41 Principal Investigators Meeting, February 21,2013, Bethesda MD.
89. "Mucus, Cilia and MucoCiliary Interactions", Gordon Research Conference, Barga, Italy, April 10, 2013.
88. "Functional Modeling of the Pediatric Airway," NIH Consortium Meeting, April 28, 2013, Bethesda MD.
87. "The River Within", Keynote at 2nd European Conference on Microfluidics (muFlu 2010), Toulouse, France, 8-10 December 2010.
86. "Cilia Forces and Flows: Single Cilia, Microfluidics and Biomimetics meet Computational Biology", 6th World Congress of Biomechanics, Singapore, 1 - 6 August 1-6, 2010.
85. "Biophysics of Mucus Clearance", GlaxoSmithKline, Lower Merion, PA, June 9th, 2010.
85. Physics of Lung Defense, Chemical Engineering Department Colloquium, North Carolina State University, Raleigh, NC. November 30, 2009
84. Cilia, Silia and Silly Putty: Real and Engineered Biofluidics. Biomedical Engineering Dept. Colloquium, University of Virginia, Charlottesville, VA, October 30, 2009.
83. "In Silico Modeling with Virtual Tissues", Computational Toxicology: From Data to Analyses to Applications, National Academy of Sciences Committee on Use of

- Emerging Science for Environmental Health Decisions, Washington, DC, September 21, 2009.
82. "A Systems Biology Approach to Mucociliary Clearance", invited speaker GlaxoSmithKline, King of Prussia, PA, June 22, 2009.
 81. "The Virtual Lung Project", V-Tissues 2009, Environmental Protection Agency, Research Triangle Park, April 20, 2009.
 80. "Hydrodynamics of the Lung", Chemical Engineering Department Symposium, Johns Hopkins University, Baltimore, MD, October 15, 2008.
 79. "The Virtual Lung Project", North Carolina Society of Anesthesiology Annual Meeting, Charlotte, NC, September 20, 2008.
 78. "Nanotechnology and Biomedical Applications", UNC Wilmington, Wilmington, NC April 14, 2008
 77. "Mucociliary Interactions", North America Cystic Fibrosis Conference, Anaheim Ca, October 3-6, 2007.
 76. "Nanotechnology and Biology", Vasculata 2007, University of North Carolina, Chapel Hill, NC. August 5-8, 2007.
 75. "New Magnetic Technologies for Mucus Clearance Studies", Williamsburg Meeting of the Cystic Fibrosis Foundation, Williamsburg, MD, June 3-5, 2007.
 74. "The Virtual Lung Project", Gordon Research Conference on Mucus, Cilia and Mucociliary Interactions. Ventura Beach, CA, February 4-9, 2007.
 73. "Nanotechnology in Biomedical Sciences", Physics Department Colloquium, Fayetteville State University, Fayetteville, NC, March 20, 2007.
 72. "NANOMACHINES: From Atomic Lattice Gears to Cystic Fibrosis", Indo-US Shared Vision Workshop on Soft, Quantum and Nano Computing (SQUAN-2007), Dayalbagh Educational Institute Dayalbagh, Agra India, February 20, 2007
 71. "Fluid Flows and Lung Defense", Single Molecule Symposium at University of Michigan, Ann Arbor, MI, May 20, 2006
 70. "Spinning Rods and Human Lung Cell Cultures", SIAM Conference on the Life Sciences, Raleigh, North Carolina, July 31-August 4, 2006
 69. "Biomimetic Structures and Materials", URETI program BiMAT annual review, Univeristy of California, Santa Barbara, May 24, 2006.
 68. "Nanotechnology and Lung Defense", Physics Department Colloquium, University of South Florida, Tampa, FL, September 22, 2006
 67. "NEMS: Tools, Nanostructures, Biology", Department of Physics Colloquium, Univeristy of Virginia, Charlottesville, VA. (February, 2005)
 66. "The Virtual Lung Project: Multiscale Challenges in Pulmonary Mucus Flows." DOE Workshop. (July 20-22, 2005)
 65. "Biological Hydrodynamics: From live cilia to engineered systems" North Carolina State University, Raleigh, NC. (September 7, 2005)
 64. "Nanotechnology: What is it all about?" SPIRE program speaker, North Carolina Central University, Durham, NC. (September 15, 2005)
 63. "Materials Studies and Nanofabrication challenges in lung defense", Dow Chemical, Inc. , Midland, Michigan. (October 14, 2005)
 62. "Biological Hydrodynamics: From real to engineered cilia" Keynote speaker,

- Midland Section American Chemical Society Annual Meeting, Midland, Michigan. (October 15, 2005)
61. "Nanomachines: Oscillators to Cilia." Lehigh University, Department of Physics, Bethlehem, PA. (Jan. 22, 2005)
 60. "Nanoscale Actuating Devices and Structures." 12th International Conference on Experimental Mechanics, Bari, Italy. (Aug. 29-Sept. 4, 2004)
 59. "NanoMedicine: New Technologies from Imaging to Cilia." Arkansas Biosciences Fall Research Symposium (keynote speaker), Little Rock, AR(October 28, 2004)
 58. "Biomimetic Actuating Structures." Joint Symposium between the North Carolina Section of the Materials Research Society and Carolinas Central Chapter of ASM International, MCNC, Research Triangle Park, NC. (November 5, 2004)
 57. "Nanotechnology: Tools, Devices, and Biology." 2004 Annual Biomedical Research Conference for Minority Students, Dallas, TX. (November 10-13, 2004)
 56. Multiscale challenges in Fluid Flows(?), DOE Fluids Workshop, Denver CO, July 20-22, 2004
 55. Magnetic Manipulation: Biology and Biomimetic Materials, Microscopy and Microanalysis, Savannah, Georgia, August 1-5, 2004.
 54. *NanoMedicine: New Technologies from Imaging to Cilia*. Arkansas Biosciences Fall Research Symposium (keynote speaker), Little Rock, AR, October 28, 2004.
 53. *Force Measurements in Biology* (workshop). 2004 Annual Biomedical Engineering Society Fall Meeting Pre-Conference Workshop, Philadelphia, PA, October 13, 2004.
 52. *Nanoscale Actuating Devices and Structures*. 12th International Conference on Experimental Mechanics, Bari, Italy, Aug. 29-Sept. 4, 2004.
 51. *Nanomechanics: From materials to Biology*. Nanotechnology and MEMS: Experiments and Modeling Symposium, 12th International Conference on Experimental Mechanics, Bari, Italy, Aug. 29-Sept.4, 2004.
 49. *NEMS: Tools, Nanostructures and Biology*. 3rd Swiss/US-Nanoforum, University of Basel, Oct. 13-14, 2003.
 48. *Touching at the Nanoscale: Particle Properties in Devices and as Microprobes*. 77th American Chemical Society Colloid and Surface Science Symposium, Georgia Tech University, Atlanta, GA, June 15-18, 2003.
 47. *Nanomanipulation: From nanotube to biological nanomachines*. Modern Microscopy/Scanning 2003, San Diego, CA, March 2-5, 2003
 46. *Microfabricated Magnetic Pole Structures for Biological Force Measurements*. 47th Biophysical Society Annual Meeting, San Antonio, Texas, March 3, 2003.
 45. *Nanomachines: From Nanotubes to Biology*. NanoElectroMechanical Systems. Chicago, Il, Army Research Office, Chicago, Il, November 14, 2002.
 44. *Nanoscale Manipulation and Microscopy: goals and needs*. Mathematics in Nanoscale Science and Engineering, UCLA Institute for Pure and Applied Mathematics, November 4, 2002.
 43. *Biological Nanomachines: Tools and Science*. Southeastern Section of the American Physical Society Annual Meeting. Auburn, Al. November 1, 2002.
 42. *Touching In Biological Systems: A 3D Force Microscope*. Microscopy and

- Microanalysis 2002, Quebec City, Canada. August 6, 2002.
41. Nanomachines: Tools, Technology and Biology. Materials Research Society of Brazil Annual Meeting. Rio DeJaniero, Brazil, July 9, 2002
 40. *Nanotechnology at UNC*. Venture 2002, Council for Economic Development, Chapel Hill, NC, May 1, 2002.
 39. *BioNanotechnology and Molecular Motors*, Nanotech and Biotech Convergence-2002, Stamford CT, May 5-6, 2002
 38. *The Atoms Matter, Lattice registry effects in dynamics and electron transport of nanotubes*, The 2nd International Conference On Scanning Probe Microscopy Of Polymers, Weingarten Germany, July, 21-25, 2001.
 37. *NanoBiotechnology*, Biotech 2001, Chapel Hill, NC, May 21, 2001.
 36. *The Atoms Matter: Lattice registry effects in NEMS devices*, International Center of Excellence Symposium of Institute for Molecular Science, Institute for Molecular Science, Okazaki, Japan, March 15-17, 2001.
 35. *Remote Manipulation: from Viruses to Nanotubes*, Nineteenth Annual Symposium on Advances in Microscopy, North Carolina Society for Microscopy and Microbeam Analysis, Wilmington, NC, October 13-15, 2000
 34. *The Atoms Matter: Lattice registry effects in NEMS devices*, Eighth Foresight Conference on Molecular Nanotechnology, Bethesda, MD, November 3-5, 2000
 33. *Rolling nanotubes: Atomic lattices as gears*, International Winterschool on Electronic Properties of Novel Materials, Kirchberg, Austria, March 8, 2000
 32. *Buckling and Rippling of Carbon Nanotubes*, Complex Fluids Gordon Conference, Salve Regina University, Newport, RI, August 13-18, 2000
 31. *Touching on the nanometer scale: slip, roll and tear*, International Union of Microbeam Analysis Societies, Kailua-Kona, Hawaii, June 8-13, 2000
 30. *Touching Viruses Through the Web: a Remote Atomic Force Microscopy Outreach Project*, American Association of Physics Teachers Summer Meeting, Guelph, Ontario, August 1-3, 2000
 29. *Nanorobotics: Atomic lattices as gears*, Department of Chemistry, University of Vienna, Vienna, Austria, March 14, 2000
 28. *Touching Viruses In A Networked Microscopy Outreach Project*, Superfine, R., M. G. Jones and R. M. Taylor II, Invitational Conference on K-12 Outreach from University Science Departments, Raleigh, NC, February 10-12.(2000)
 27. *Atomic View of Nanotube Dynamics on Surfaces*, Second International Conference on Nanotechnology in Carbon and Related Materials, University of Sussex, Brighton, UK, September 8-10, 1999
 26. *Slip, Slide and Roll: Nanometer objects in motion*, Seventh Foresight Conference on Molecular Nanotechnology, Santa Clara, CA, October 15-17, 1999
 25. *Nanomanipulation for nanoscale science*, Sigma XI, Research Triangle Park, NC, February 2, 1999
 24. *Recent DoD MURI Results in Carbon Nanotube S&T*, Defense Science & Technology Seminar on Emerging Technologies: Carbon Nanotubes Revolutionary Opportunities, Deputy Under Secretary of Defense for Science & Technology and the Office of Naval Research, Arlington, VA, March 19, 1999

23. *Slip, Slide and Roll: Nanotube Dynamics on Surfaces*, Symposium on the Science and Technology of Carbon Nanotubes, University of Pennsylvania, Philadelphia, PA, March 20, 1999
22. *Nanomanipulation for material properties and devices*, U.S. Army Science and Technology Meeting, Army Research Office, Research Triangle Park, NC, May 6-7, 1999
21. *Nanomanipulation for Nanoscale Science*, ThermoMicroscopes, Inc., Tokyo, Japan, December 6, 1999
20. *Nanomanipulation for Material Properties, Interactions and Devices*, American Vacuum Society Annual Meeting, Baltimore, MD, November 15, 1998
19. *Nanomanipulation for material properties, substrate interactions and devices*, Microscopy Society of America Annual Meeting, Atlanta, GA, July 12, 1998
18. *Nanometer-Scale Material Properties and Interactions Through Nanomanipulation.*, Southeast Regional Meeting of the ACS (SERMACS '98), Research Triangle Park, NC, November, 1998
17. *The Nanomanipulator*, 9th International Conference on Scanning Tunneling Microscopy (Plenary Talk), Hamburg, Germany, July 20-25, 1997
16. *Scanning Probe Microscopy Short Course*, Invited Seminar Series, Royal Institute of Technology, Stockholm, Sweden, May 12-16, 1997
15. *Handcrafting nanometer scale systems - pushing, bending, and building with macromolecular assemblies using AFM*, Nanotechnology: Materials, Manufacturing and Applications, San Francisco, CA, June 26, 1997
14. *Manipulation of Nanometer Objects: Friction, Mechanical Properties and Devices*, International Conference on Novel Materials, Puri, India, April 10, 1997, 1997
13. *Polymer Adhesion and Wetting at the Nanometer Scale: The View From Atomic Force Microscopy*, Hoechst Celanese, Inc., Summit NJ, December 11, 1996
12. *Polymer Surfaces from Atomic Force Microscopy*, UNC-Hoechst Celanese Polymer Workshop, UNC-Chapel Hill, May 7, 1996
11. *Scanning Probe Microscopy for the Characterization and Modification of Polymeric and Macromolecular Materials*, American Chemical Society NC Polymer Section, North Carolina State University, Raleigh, NC, April 11, 1996
10. *Virtual Reality Technology and Scanning Probe Microscopy*, Industrial Applications of Scanning Probe Microscopy (IASPM), NIST, Washington, DC, 2-3 May, 1996
9. *Linear and Nonlinear Optical Studies of Polymer Interfacial Kinetics*, International Conference on Lasers '95, Charleston, SC, December 5, 1995
8. *The Nanomanipulator: A Pantograph for Nanometer Scale Modification and Manipulation*, Materials Research Society Southeast Section Annual Meeting, Research Triangle Park, NC, November 10, 1995
7. *The Nanomanipulator: A Teleoperator for Manipulating Materials at the Nanometer Scale*, 5th International Symposium on the Science and Engineering of Atomically Engineered Materials, Richmond VA, November 5, 1995
6. *The Nanomanipulator: A Virtual Reality Interface for Scanning Probe Microscopy*, Microbeam Analysis Society Annual Meeting, Breckenridge, CO, August 7, 1995
5. *Touching on the Nanometer Scale: A Virtual Reality Interface for Scanning Probe*

Microscopy, Center for Biomolecular Technology, University of Washington, Seattle, August 4, 1995

4. *Linear and Nonlinear Optical Studies of Polymer Interfacial Kinetics*, International Conference on Laser Science and Applications, Charleston, NC, December 4, 1995
3. *Touching on the Nanometer Scale: A Virtual Reality Interface for Scanning Probe Microscopy*, Proc. 29th Ann. Conf. of the Microbeam Analysis Soc., Breckenridge, CO, 1995, 1995
2. *Phase Measurements of Surface Infrared-Visible Sum Frequency Generation: Determination of Polar Ordering of Molecules at Surfaces*, International Quantum Electronics Conference, Anaheim, CA, May 21-25, 1990
1. *Molecular Conformation and Ordering in a Monolayer Determined by Simultaneous Surface Infrared-Visible Sum Frequency and Second Harmonic Generation*, Ninth International Conference on Laser Spectroscopy, Bretton Woods, NH, June 18-23, 1989

University Service: current in bold

Chair, Department of Applied Physical Sciences

UNC BeAM Makerspace Network– Director – 2013-present

Morehead Planetarium and Science Center Faculty Advisory Board – Chair 2009-present

North Carolina Science Festival Advisory Board 2010-present

Morehead Planetarium and Science Center Grossology Exhibit Advisory Board 2012– 2015

UNC Conflict of Interest Committee – 2013-2015

Applied Sciences Task Force 2012

Interdisciplinary Work and Values Subcommittee (Provost's Task Force on Tenure and Promotion) 2009

Curriculum in Applied Sciences Planning Committee 2007-2009

Morehead Planetarium and Science Center Zoom Exhibit Advisory Board 2006 – 2010

Scientific Advisory Committee, Michael Hooker Microscopy Center 2006 - 2010

Personnel Review Committee (Proposal Development Initiative), Chair 2006

Board of Governors UNC meeting speaker 2005

UNC Institute for Advanced Materials Executive Board 2005-2012

Graduate Student Mentorship Award Selection Committee 2005

Burroughs Wellcome Fund Fellowship Selection committee 2005

Friday Center “What’s the Big Idea” Series Advisory Board 2005

UNC Undergraduate Recruiting Committee 2004 - 2010

Imaging Task Force 2003

Undergraduate Science Recruiting Committee 2003-2007

Institute for Advanced Materials Nanoscience and Technology Steering Committee 2003

Development Presentation: Washington DC Meeting, May 2003.

Provost Academic Planning Task Force 2002

Postdoc Affairs Advisory Committee 2002-2004

Curriculum Review Committee Co-Chair, Interdisciplinary Studies 2001-2002

University Research Committee of the Faculty Council 2000-2002

Development Presentation: From Stars to Molecules: Great Science at UNC, Executive Steering Committee Meeting, Reynold’s Plantation, GA, May 10, 2001.

Morehead Discovery Center Advisory Board 2001

Johnston Award Graduate Assistant Award Committee 2001

Facilities Planning Science Complex Subcommittee 2001

Ad Hoc committee on Nanotechnology 2001

Proposal Evaluation Committees: NSF Major Research Instrumentation Program 2001, Howard Hughes Medical Institute Professorships 2001

Provost Search Committee, 2000

Administrative committee, Program in Molecular and Cellular Biophysics 1998-2001

Science Advisory Board, Senior Assoc. Dean of Sciences 1998-1999

Administrative Board of the Library 1996-1999

Advisory Committee for the Curriculum in Applied Sciences 1996-1999

Advisory Committee for the Materials Science Graduate Program 1996-1999