

Hang (Jerry) Qi

Department of Mechanical Engineering
University of Colorado
Boulder, CO 80303
Tel: 303 492 1270, Fax: 303-492-3498
E-mail: qih@colorado.edu

EDUCATION

Massachusetts Institute of Technology Cambridge, MA
Sc.D. in Mechanics and Materials (08/99~08/03)
Advisor: Professor Mary C. Boyce, Mechanical Engineering Department
Thesis: Mechanics of Abrasive Wear of Elastomeric Materials

Tsinghua University Beijing, China
Ph.D. in Computational Mechanics (09/94~06/99)
Advisors: Professor Zhenhan Yao, Engineering Mechanics Department
Professor Daining Fang, Engineering Mechanics Department
Thesis: Geometrically Nonlinear FEM Analysis of Shell and Three Dimensional
Elasto-Dynamic Time Domain Direct Integral BEM

Tsinghua University Beijing, China
M.Sc. in Solid Mechanics (09/94~06/99)
Advisors: Professor Zhenhan Yao, Engineering Mechanics Department
Professor Daining Fang, Engineering Mechanics Department
Thesis: Geometrically Nonlinear Analysis of Laminate Composite Shell and
Electromechanical Analysis of Smart Materials

Kyoto University Kyoto, Japan
International Visiting Student (03/97~04/98)
Advisors: Professor Shaoyichi Kobayashi, Civil Engineering Department
Professor Naoshi Nishimura, Civil Engineering Department

Tsinghua University Beijing, China
B.Eng. with honors in Engineering Mechanics (09/89~06/94)
B.Eng. in Machine Design

PROFESSIONAL APPOINTMENTS

University of Colorado Boulder, CO
Assistant Professor, Department of Mechanical Engineering (08/04~Present)

Massachusetts Institute of Technology Cambridge, MA
Post-doctoral Associate, MIT Army Institute of Soldier Nanotechnology (09/03~08/04)
Advisors: Professor Christine Ortiz, Professor Mary C. Boyce

AWARDS

NSF Career Award (2007)
Woodward Outstanding Mechanical Engineering Faculty (2006-2007)
University of Colorado Graduate School Junior Faculty Development Award (2005)
Fellowship of AIEJ (Association of International Education of Japan) (1997)

Fellowship of Baoshan, (First Prize, Baoshan Steel Company, 1996)
Fellowship of Takada (First Prize) (SMC of Japan, 1995)

RESEARCH INTERESTS

Mechanical behavior of soft active materials, including shape memory polymers, hydrogels
Mechanical behavior of biomolecules and soft tissues
Cell mechanics

TEACHING INTERESTS

Solid Mechanics
Finite Element Methods and Computational Mechanics
Mechanics of Soft Matter
Mechanical Behavior of Materials

PUBLICATIONS -- ARCHIEVED JOURNALS

1. T. D. Nguyen, H. J. Qi, F. Castro, K.N. Long, 2008. A thermoviscoelastic model for amorphous shape memory polymers: Incorporating structural and stress relaxation, *J. Mech. Phys. Solids*, in press, available online since April, 2008.
2. H.J. Qi, T.D. Nguyen, F. Castro, C. Yakacki, R. Shandas, 2008. Finite Deformation Thermo-Mechanical Behavior of Thermally Induced Shape Memory Polymers, *J. Mech. Phys. Solids*, 56:1730-1751.
3. K.K. Westbrook, H.J. Qi, 2008. Novel Actuator Designs Using Environmentally Responsive Hydrogels, *J. Intelligent Material Sys. Struct.*, 19:597-607.
4. C.F. Martino, D. Belchenko, V. Ferguson, S. Nielsen-Preiss, H.J.Qi, 2008, The Effects of Pulsed Electromagnetic Fields on the Cellular Activity of SaOS-2 Cells, *Bioelectromagnetics*, 29:125-132.
5. M. Arslan, M. C. Boyce, H. J. Qi, and C. Ortiz, 2008. Constitutive Modeling of the Stress-Stretch Behavior of Two-Dimensional Triangulated Macromolecular Networks Containing Folded Domains. *J. Applied Mechanics*, 75:011020.
6. H.J. Qi, C. Ortiz, M. C. Boyce, 2006. Mechanics of biomacromolecular networks containing folded domains. *J. Eng. Mat. Tech.*, 128:509-518.
7. K. Tai, H. J. Qi, C. Ortiz, 2005. Effect of mineral content on the nanoindentation properties and nanoscale deformation mechanisms of bovin tibial cortical bone. *J. Materials Science: Materials in Medicine*, 16:947-959.
8. B.J.F. Bruet, H.J. Qi, M.C. Boyce, R. Panas, Tai, K., Ortiz, C., 2005. Nanoscale morphology and indentation of individual nacre tablets from the gastropod mollusc *Trochus Niloticus*. *J. Material Research*. 20: 2400-2419.
9. H.J. Qi, M.C. Boyce, 2005. Stress-strain behavior of thermoplastic polyurethane, *Mech. Mater.*, 36:817-839.

10. H.J. Qi, M.C. Boyce, 2004. Constitutive model for stretch-induced softening of stress strain behavior of elastomeric material, *J. Mech. Phys. Solids*, November, 52:2187-2205.
11. H.J. Qi, 2003. Mechanics of Abrasive Wear of Elastomeric Materials, doctoral thesis, Massachusetts Institute of Technology, August, 2003.
12. H.J. Qi, K.B.K. Teo, K.K.S. Lau, M.C. Boyce, W.I. Milne, J. Robertson, K.K. Gleason, 2003. Determination of mechanical properties of carbon nanotubes and vertically aligned carbon nanotube forests using nanoindentation, *J. Mech. Phys. Solids*, 51:2213-2237.
13. H.J. Qi, K. Joyce, M.C. Boyce, 2003. Relationship between durometer hardness and the stress-strain behavior of elastomeric and elastomeric-like materials, *Rubber Chem. Tech.*, 76:419-435.
14. H. Qi, D. Fang, Z. Yao, 2001. Analysis of electric boundary condition effects on crack propagation in piezoelectric ceramics, *ACTA Mech. Sinica*, 17:59-70.
15. D. Fang, H. Qi, Z. Yao, 1998. Numerical analysis of crack propagation in piezoelectric ceramics. *Fatigue, Frac. Eng. Mater. Struc.* 21:1371-1380.
16. H. Qi, D. Fang, Z. Yao, 1997. FEM analysis of electro-mechanical coupling effect of piezoelectric materials, *Compu. Mater. Sci.*, 8:283-290.
17. D. Fang, H. Qi, T. Liu, 1997. Optimization of micro structures to elastoplastic properties in fiber reinforced composite materials, *Tsinghua Sci. Tech.*, 2:539-544.
18. Z. Yao, H. Qi, M. Fu, J. Yao, 1997. A kind of super-parametric finite element for geometric nonlinear analysis of plates and shells, *Tsinghua Sci. Tech.*, 2:707-712.
19. Z. Yao, H. Qi, M. Fu, J. Yao, 1997. Geometric nonlinear finite element analysis of sandwich plates and shells, *Chinese J. Compu. Mech.*, 14:173-176. (in Chinese)
20. D. Fang, H. Qi, S. Tu, 1996. Elastic and plastic properties of metal-matrix composites: geometrical effects of particles, *Comput Mater. Sci.*, 6:303-309.
21. D. Fang, H. Qi, 1996. Numerical study of effective properties of particulate reinforced composite materials, *ACTA Mechanica Sinica*, 28:475-482. (in Chinese)

PUBLICATIONS -- CONFERENCE PROCEEDINGS

1. H. J. Qi, L. Xiao, 2008, Micromechanical Modeling of Large Deformation Behavior of Red Blood Cell Membranes, in Proceedings of NSF CMMI Grantee Conference, Knoxville, TN, January, 2008.
2. H. J. Qi, F. Castro, K. N. Long, Finite Element Simulations of Thermally Induced Shape Memory Polymers Based Applications, in Proceedings of NSF CMMI Grantee Conference, Knoxville, TN, January, 2008.
3. W.H. Francis, M.S. Lake, M.R. Schultz, D. Campbell, M. Dunn and H.J. Qi, 2007. Elastic Memory Composite Microbuckling Mechanics: Closed-Form Model with Empirical Correlation. 48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural

Dynamics, and Materials Conference, 23 - 26 April 2007, Honolulu, Hawaii, AIAA 2007-2164.

4. H.J. Qi, M.L. Dunn, K. Long, F. Castro, R. Shandas, 2007. Thermomechanical Indentation of Shape Memory Polymers, in Behavior and Mechanics of Multifunctional and Composite Materials 2007, edited by M.J. Dapino, Proc. of SPIE v.6526, 652615.
5. H.J. Qi, C. Ortiz, Boyce, M.C., 2005. Protein forced unfolding and its effects on the finite deformation stress-strain behavior of biomacromolecular solids. Mater. Res. Soc. Symp. Proc. Vol. 874. L4.3.1
6. H. J. Qi, B. F. J. Bruet, J. S. Palmer, C. Ortiz, and M. C. Boyce. 2004. Micromechanics and macromechanics of the tensile deformation of nacre, in *Mechanics of Biological Tissues, Proceeding of IUTAM*, G. Holzapfel and R. W. Ogden, eds. Graz, Austria, 2005, Springer Verlag, p189-203.
7. H. Qi, N. Nishimura, Z. Yao, S.Kobayashi, 1998. Application of 3D time domain direct integral BEM to crack and inverse problem, In: *Theory and Application of Boundary Element Methods, Proc. of the 8th Chinese-Japan Symposium on Boundary Element Methods*, Beijing, China, May, 1998, International Academic Publishers, p105-112.
8. H. Qi, D. Fang, Z. Yao, N. Nishimura, S. Kobayashi, 1998. FEM analysis of crack problem with different crack surface electric boundary conditions in piezoelectric materials. In: *Mechanical Properties of Advanced Engineering Materials, Proc. of the Third International Symposium on Microstructures and Mechanical Properties of New Engineering Materials*, Tsu, Japan, August 1997, Mie University Press, p315-322.
9. D.Fang, H. Qi. 1996. An investigation of 3-D simulations for predicting elastic and plastic properties of particulate-reinforced metal-matrix composites. Wang T.C., Chou T. W. eds., *Progress in advanced materials and mechanics, ICAm'96*, 1996, 2 , p96-101.

INVITED TALKS

1. Smart Polymers: The Elastigirl. Tsinghua University, Beijing, June, 2007.
2. Smart Polymers: The Elastigirl. Xi'an Jiaotong University, Xian, Shannxi Provice, June, 2007.
3. Experiments and Constitutive Modeling on the Thermo-Mechanical Behaviors of Shape Memory Polymers, Cornerstone Research Group and Air Force Research Lab, Dayton, OH, January, 2007.
4. Soft Active Polymers: The Elastigirl. Sandia National Laboratories, Livermore, CA, November, 2006.
5. Smart Polymers: The Elastigirl. Civil and Environmental Engineering Department Seminar, Louisiana State University, Baton Rouge, LA, March, 2006.
6. Biological Mechanism of Mechanical Behavior of Nacre. Sandia National Laboratories, February, 2005.
7. Biological Mechanism of Mechanical Behavior of Nacre. Dept. Mechanical Engineering, Ohio State University, May, 2005.

PRESENTATIONS/POSTERS IN CONFERENCES

2008

1. H. J. Qi, L. Xiao, 2008, A Multiscale Modeling Approach for Large Deformation Behavior of Erythrocyte Membrane (poster), NSF CMMI Grantee Conference, Knoxville, TN, January, 2008.
2. H. J. Qi, F. Castro, K. Long, K. Westbrook, 2008, CAREER: Integrative Research and Education on Multiphysical Behaviors of Soft functional Materials (poster), NSF CMMI Grantee Conference, Knoxville, TN, January, 2008.

2007

3. H. J. Qi, F. Castro, J. M. Hermiller, D. E. Havens, On the Development of Constitutive Models of Finite Deformation Behavior of Shape Memory Polymers, SAMPE, SAMPE Fall Technical Conference and Exhibition Cincinnati, OH, Oct 29-Nov. 31, 2007.
4. P. Kao, H. Jerry Qi, Mechanical Properties of Fresh Artery Tissues and Elastin-Network, SES 2007, College Park, TX, October, 2007.
5. F. Castro, H. J. Qi, Thermo-mechanical Behaviors of Shape Memory Polymers, SES 2007, College Park, TX, October, 2007.
6. K. Long, M. Dunn, H. J. Qi, Shape Memory Effect of Shape Memory Polymers due to Nano-/Micro- Indentation, SES 2007, College Park, TX, October, 2007.
7. L. Xiao, H. J. Qi, A structural micromechanical approach for modeling large deformation behavior of red blood cells, SES 2007, College Park, TX, October, 2007.
8. H.J. Qi, Thermo-Mechanical Behaviors of Shape Memory Polymers, (**Keynote**), McMat 2007, Austin, TX, June, 2007.
9. L. Xiao, H.J. Qi, A Structural Micromechanical Approach for Modeling Large Deformation Behaviors of Red Blood Cells, McMat 2007, Austin, TX, June, 2007.
10. K. Westbrook, H.J. Qi, Design of Environmentally Responsive Hydrogel Based Sensors and Actuators, McMat 2007, Austin, TX, June, 2007.
11. P. Kao, H.J. Qi, A Comparative Study of Mechanical Properties of Fresh Artery Tissues and Elastin-Network, McMat 2007, Austin, TX, June, 2007.
12. L. Xiao, H.J. Qi, A Structural Micromechanical Approach for Modeling Large Deformation Behaviors of Red Blood Cells, The 5th International Conference on Nonlinear Mechanics, Shanghai, China, June, 2007.
13. K. Westbrook, H.J. Qi, Design of Environmentally Responsive Hydrogel Based Sensors and Actuators, The 5th International Conference on Nonlinear Mechanics, Shanghai, China, June, 2007.
14. H.J. Qi, F. Castro, Constitutive Modeling of Finite Deformation Behavior of Shape Memory Polymers, The 5th International Conference on Nonlinear Mechanics, Shanghai, China, June, 2007.
15. M. Dunn, K. Long, F. Castro, H. J. Qi Instrumented Indentation of Shape Memory Polymers, SPIE Conference on Smart Structures, San Diego, CA, March, 2007.

2006

16. H.J. Qi, C. Yakacki, R. Shandas, K. Gall, Thermo-Mechanical Modeling of Shape Memory Polymers. MRS Spring Conference, San Francisco, CA, April, 2006.
17. K. Westbrook, H.J. Qi, Constitutive Modeling of Large Deformation Behavior of Thermo-Responsive Hydrogels. MRS Spring Conference, San Francisco, CA, April, 2006.
18. H.J. Qi, C. Yakacki, R. Shandas, K. Gall, Constitutive Modeling of Thermo-Mechanical Behavior of Shape Memory Polymers. U.S. National Congress of Theoretical and

- Applied Mechanics 2006 Conference, Boulder, CO, June, 2006.
19. K. Westbrook, H.J. Qi, Large Deformation Behavior of Thermo-Responsive Hydrogels, SES 2006, State College, PA, August, 2006.
 20. H.J. Qi, C. Yakacki, R. Shandas, K. Gall, Thermo-Mechanical Finite Deformation Behavior of Shape Memory Polymers. SES 2006, State College, PA, August, 2006.
 21. M.L. Dunn, H.J. Qi, Shape Memory Effect of Shape Memory Polymers due to Nano-/Micro- Indentation, ASME IMECE 2006, Chicago, November, 2006.
 22. H.J. Qi, C. Yakacki, R. Shandas, K. Gall, Constitutive Modeling of Shape Memory Polymers and its Application to Shape Changing Biomedical Device Design. MRS Fall Conference, Boston, MA, 2006.
 23. L. Xiao, H.J. Qi, Modeling of Large Deformation Behavior of Red Blood Cells, MRS Fall Conference, Boston, MA, 2006.
 24. K. Westbrook, H.J. Qi, Photo-patterned Environmentally Responsive Composite Hydrogel Actuators. MRS Fall Conference, Boston, MA, 2006.

2005

25. H.J. Qi, C. Ortiz, M.C. Boyce, Protein forced unfolding and its effects on the finite deformation stress-strain behavior of biomacromolecular solids. MRS Spring Conference, San Francisco, CA, April, 2005.
26. H.J. Qi, C. Ortiz, M.C. Boyce, Biological Mechanism of Mechanical Behavior of Nacre. (Poster). MRS Spring Conference, San Francisco, CA, April, 2005.
27. H.J. Qi, C. Ortiz, M.C. Boyce, Biological Mechanism of Mechanical Behavior of Nacre. McMat 2005, Baton Rouge, LA, June, 2005.
28. H.J. Qi, M.C. Boyce, Stress-Strain Behavior of Thermoplastic Polyurethane Elastomer and Its Application to the Traction of Elastomers. McMat 2005, Baton Rouge, LA, June, 2005.
29. H.J. Qi, C. Ortiz, M.C. Boyce, Protein Forced Unfolding and Its Effects to the Finite Deformation Stress-Strain Behavior of Biomacromolecular Membrane and Solids. McMat 2005, Baton Rouge, LA, June, 2005.
30. H.J. Qi, C. Ortiz, M.C. Boyce, Protein Forced Unfolding and Its Effects to the Finite Deformation Stress-Strain Behavior of Biomacromolecular Membrane and Solids Summer Bioengineering Conference, Vail, CO, June, 2005
31. H.J. Qi, M.C. Boyce, Large Strain Rate Dependent Stress-Strain Behavior of Thermoplastic Polyurethane Elastomers. IMECE 2005, Orlando, FL, November, 2005.
32. H.J. Qi, C. Ying, S. Hus, Nano-scale Mechanistic Study of Tribological Behavior of Silicon (Poster). CU-NIST Symposium, November, 2005.

2004

33. H.J. Qi, M.C. Boyce, C. Ortiz, Protein unfolding and mechanics of nacre, in Workshop on Reliability Issues in Nanomaterials (invited only), Boulder, CO, August 16-18, 2004.
34. B. Bruet, H.J. Qi, K.L. Frick, C. Ortiz, M.C. Boyce. Nanomechanical properties of individual nacre plates from *Trochus Niloticus* (poster), MRS Spring Meeting, San Francisco, CA, April, 2004.

2003 and before

35. H.J. Qi, K. Teo, K. Lau, J. Lao, M.C. Boyce, J. Robertson, W. Milne, Z. Ren, K.K. Gleason, Nanoindentation of Vertically Aligned Carbon Nanotubes, PMMA Coated

- Nanotubes, and ZnO Nanofibers, MRS Fall Meeting, Boston, MA, December, 2003.
36. H.J. Qi, M.C. Boyce, Influence of time dependence and cyclic softening on surface traction of elastomers, 40th Annual Technical Meeting, Society of Engineering Science, Detroit, MI, October, 2003.
 37. H.J. Qi, M.C. Boyce, Topography studies of thermoplastic polyurethane upon cyclic micro scratching tests, 40th Annual Technical Meeting, Society of Engineering Science, Detroit, MI, October, 2003.
 38. H.J. Qi, M.C. Boyce, FEM simulations of micro indentation/scratching tests on elastomeric materials, 2003 ASME Mechanics and Materials Conference, Scottsdale, AZ, June, 2003.
 39. H. Qi, K. Teo, K. Lau, M.C. Boyce, J. Robertson, W. Milne, K.K. Gleason, On determining the mechanical properties of carbon nanotubes and vertically aligned carbon nanotube forests using nanoindentations, MRS Spring Meeting, San Francisco, CA, April, 2003.
 40. H. Qi, K. Lau, M.C. Boyce, K.K. Gleason, K. Teo, J. Robertson, W. Milne, Effects of processing conditions and dimensions on the mechanical properties of vertically aligned carbon nanotube forests, Annual APS March Meeting 2003, Austin, TX, March, 2003.
 41. H. Qi, M.C. Boyce, Micro in-situ SEM study of abrasive wear of elastomeric materials (poster), presented at 2001 Gordon Research Conference on Elastomers, Networks and Gels, Colby-Sawyer College, New London, NH, August, 2001.
 42. H. Qi, M.C. Boyce, Micro in-situ SEM study of abrasive wear of elastomeric materials, presented at the Symposium on the Durability of Elastomeric Material Systems, part of the national 2001 Mechanics and Materials Conference, San Diego, CA, June, 2001.

SERVICES

Department

1. 09/2007-05/2008, member of faculty search committee
2. 09/2005-05/2007, member of graduate committee
3. 09/2005-05/2007, faculty member responsible for ME graduate seminars
4. 04/2005-04/2007, leader for Applied Mechanics topic in prelim exams in 2005-2007.
5. 09/2005-05/2006, member of ad hoc committee on “implementing matlab into ME curriculum”
6. 09/2004-05/2005, member of faculty search committee

College

1. 05/2006, judge for undergraduate DLC Apprenticeship Competition

Campus

1. 03/2005-05/2007, member of Task Force on International Graduate Education
2. 03/2007, reviewer for CU-NREL seed grants applications

Society

1. 11/2007-10/2009, recording secretary of AMD executive committee.

PROFESSIONAL SOCIETIES

Member of American Society of Mechanical Engineers
Member of Material Research Society
Member of SPIE

PROFESSIONAL ACTIVITIES

Journal Special Issue

R.B. Hall, H.J. Qi, 2006. Special Issue on Time Dependent Behavior in Polymeric Composites and Their Matrices, *Journal Engineering Materials and Technology*, Vol. 128, October, (As a guest editor)

Conferences and Symposia

Conference Co-Chair (with Richard B. Hall and Hongbin Lu), 6th International Conference on Mechanics of Time-Dependent Materials 2008, Monterey, CA.

Organizer (with Rebecca Dupaix, Jorgen Bergstrom, Thao Nguyen), the 3rd *Symposium of Mechanics of Soft Materials and Soft Biological Tissues* in SES 2007 (15 presentations), College Station, TX.

Co-Organizer (with Philip LuDec, and Gang Bao) the *Symposia on Mechanics in Biomedicine* in AMD McMat 2007, Austin, TX.

Co-Organizer (with Hongbin Lu and Richard B. Hall) the *Symposium on Time Dependent Behaviors of Polymer* in AMD McMat 2007, Austin, TX.

Co-Organizer (with Sanjeev Khanna), the *Symposium of Characterization of Nanomaterials for Biomedical Applications* in ASME 2006, Chicago, IL.

Organizer (with Jeff E. Bischoff, Jorgen Bergstrom), the 2nd *Symposium of Mechanics of Soft Materials and Soft Biological Tissues* in SES 2006 (22 presentations), State College, PA.

Organizer (with Jeff E. Bischoff, Jorgen Bergstrom), the *Symposium of Mechanics of Soft Materials and Soft Biological Tissues* in McMat 2005, Baton Rouge, LO.

Co-Organizer (with Sanjeev Khanna), the *Symposium of Characterization of Nanomaterials for Biomedical Applications* in ASME 2005, Orlando, FL.

Co-Organizer (With Richard B. Hall), the *2nd Symposium on Time Dependent Behaviors of Polymer* in ASME 2005, Orlando, FL.

Grant Review Panels

1. 10/2006, NSF MPM Material Processing Career Proposal Review Panel
2. 01/2006, NSF Material Processing Review Panel
3. 01/2005, NSF DMI Review Panel, 01/10/2005

STUDENTS ADVISED

Doctoral Students

Kevin Long, 08/2006 – present, CU, “Multiphysical Behavior of Shape Memory Polymers”.

Co-Advise with Martin Dunn

Philips Kao, 08/2006 – present, CU, “Mechanical Behaviors of Arterial Tissues”. Co-Advise with Robin Shandas

Francisco Castro, 08/2005 – present, CU, “Thermo-mechanical Behavior of Shape Memory Polymers”

Long Xiao, 08/2005 – present, CU, “Micromechanical Modeling of Large Deformation Behavior of Red Blood Cells”.

Kristofer Westbrook, 08/2005 – present, CU, “Thermo-Mechanical Modeling of Environmental Responsive Hydrogels”

Master Students

Will Francis, 08/2005 – present, CU, “Micromechanical Modeling of Fiber Reinforced Shape Memory Elastic Materials”. Co-advise with Martin Dunn

Y. Ge, 08/2004 – 05/2005, CU, “Micro Mechanics of Cytoskeleton of Red Blood Cell.”. Transferred to Purdue University without finishing.

K. Tai (Co-advised with C. Ortiz), 09/2003 – 08/2004, MIT, “Micro- and nano- mechanics of cortical bone tissue”.

Undergraduate Students

Kevin Fiedler, 09/2007 – present, DLC apprentice, CU, “Hydrogel actuators”

Jennifer Miller, 09/2007 – present, CU, “Multiphysical behaviors of SMPs”

Christine Renes, 09/2007 – present, CU, “Multiphysical behaviors of SMPs”

Trenton Lynch, 05/2005 – 07/2007, CU, DLC apprentice (09/2006-05/2007), “Nanomechanical properties of diatoms”.

K. Gredvig, 08/2004 – 08/2006. CU, “Surface mechanical properties of thermoplastic polyurethane”.

K. Mcneilly, 08/2004 – 08/2005. CU, “Nanoindentation on thermoplastic polyurethane”.

K. Joyce, (Co-advised with M.C. Boyce), 02/2002 – 06/2002. MIT, S.B. Thesis, “FEM simulations of Durometer Hardness”.

G.F. Ebeling (Co-advised with M.C. Boyce), 02/2004 – 06/2004. MIT, S.B. Thesis, “Macro Scale Physical Model of Nanoindentation on Vertically Aligned Carbon Nanotube Forests”.