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EDUCATION:

Ph.D., Applied Mechanics, June 1990
California Institute of Technology
Thesis Advisor: Professor Wolfgang G. Knauss
Thesis Title: "Time-Temperature Characterization of Solids Containing Multiple Viscoelastic Phases by Numerical Analysis"

MS., Applied Mechanics, June 1986
California Institute of Technology

BS., Engineering Science and Mechanics, June 1985
Summa Cum Laude
Virginia Polytechnic Institute and State University

PROFESSIONAL EXPERIENCE:

Professor of Mechanical Engineering and Materials Science, *Duke University*, Sept 2017 – present
Adjunct Professor, Mechanical Engineering Dept., *Northwestern University*, Sept 2017 – present
Associate Dean for Academic and Professional Initiatives, McCormick School of Engineering, *Northwestern University*, Sept 2015 – June 2017
Jerome B. Cohen Professor of Engineering, *Northwestern University*, Jan 2004 – Aug 2017
Full Professor, Mechanical Engineering Dept., *Northwestern University*, Sept. 2003 – Aug 2017
Secondary Appointment, Materials Science & Eng, *Northwestern University*, June 2003- Aug 2017
Visiting Professor, *NIST*, Sept 2014 - March 2015
Visiting Professor, *Universität des Saarlandes*, 2013-14
Department Chair, Mechanical Engineering, *Northwestern University*, 2007 - 2013
Visiting Professor, *Helmut Schmidt Universität* and *Technische Universität Hamburg-Harburg*, Hamburg, Germany, September 2006-Aug 2007
Associate Department Chair, Mechanical Engineering, *Northwestern University*, 2002 - 2006
Associate Professor, Mechanical Engineering Dept., *Northwestern University*, Sept 1998-Aug 2003
Visiting Professor, *Universität der Bundeswehr*, Hamburg, Germany, October 2000-Aug 2001
Assistant Professor, Mechanical Engineering Dept., *Northwestern University*, Oct. 1992 - 1998
Guest Scientist, *DLR-German Air & Space Agency*, Göttingen, Germany, April 1991 - Aug. 1992
Visiting Scientist, *Institut für Fertigungstechnik*, Erlangen, Germany, Aug. 1990 - Nov. 1990
Research Assistant, *California Institute of Technology*, Pasadena, CA, July 1986 - June 1990
Teaching Assistant, *California Institute of Technology*, Pasadena, CA, Sept. 1987-June 1988
Engineer, *Hercules Aerospace*, Salt Lake City, UT, Summer 1985
Research Assistant, Experimental Mechanics Laboratory, *Virginia Tech*, Blacksburg, VA, 1982-85
Engineering Technician, *Naval Research Laboratory*, Washington, D.C., Summers 1982, 1983

HONORS, AWARDS, EDITORSHIPS:

Nadai Medal, for "distinguished contributions to materials engineering", ASME, 2014

Fellow, *American Academy of Mechanics*, 2013
Humboldt Visiting Scholar Award, Humboldt Foundation, 2013
Academic Leadership Program Fellow, CIC, 2011-12
Chair of NRC Study Committee on Lightweight Materials, 2010-11
Fellow, *American Society for Mechanical Engineers*, 2009
Fellow, *Society for Engineering Science, 2007*
Friedrich Wilhelm Bessel Prize, Alexander von Humboldt Foundation, 2006-07
National Materials Advisory Board member, Jan. 2005 - Dec. 2010
Chair of NRC Study Committee on Durable Polymer Composites 2004-05
Editorial Board, *Advanced Engineering Materials*, 2004-2010
Editorial board, *Mechanics of Advanced Materials and Structures*, 2008 - 2013
ASME Thomas JR Hughes Young Investigator Award, 2003
Alexander von Humboldt Research Fellowship, 2000-2001
President of the *Society of Engineering Science*, 1999; Vice-President, 1998
DSSG - Defense Science Study Group, Institute for Defense Analysis, 1998-2000
Associate Editor, ASME *Journal of Engineering Materials & Technology*, 1997-2003
Board of Directors, *Institute for Mechanics and Materials Young Investigators*, 1997
Associate Editor, *Journal of Intelligent Material Systems and Structures*, 1996-2002
Honorable Mention, *McCormick Teacher of the Year Award*, Northwestern Univ. 1997
Board of Directors, *Society for Engineering Science*; 1996-00
Honored in *Celebration of Women Leaders at Virginia Tech*, March 1996
Northwestern Associated Student Government *Faculty Honor Roll* 1996
NSF CAREER Award, 1995-2000
ASEE New Mechanics Educator, 1995
ASEE Summer Faculty Fellowship, NASA-Langley, 1993
June and Donald Brewer Junior Professor, endowed chair, Northwestern University, 1992-94
AAUW (American Association of University Women Educational Foundation) Postdoctoral Fellowship, July 1991-July 1992
Special Language Scholarship for Ph.D.'s, *Deutscher Akademischer Austausch-Dienst*, Summer 1990
Caltech Special Institute Fellowship, 1985-86
ESM Departmental Scholarship, Virginia Tech, 1984-85
Finalist, *Woman of the Year Award*, Virginia Tech, 1984-85
T. Marshal Hahn Freshman Engineering Scholarship, Virginia Tech, 1981-82
Member of *Phi Kappa Phi* and *Tau Beta Pi* (National and Engineering Honor Societies)

PUBLICATIONS:

Books

Polymer Engineering Science and Viscoelasticity, 2nd Edition, H. F. Brinson and L. C. Brinson, Springer, (2014). **Over 50,000 chapter downloads from e-version since publication combined for 1st and 2nd edition.**

Polymer Engineering Science and Viscoelasticity, H. F. Brinson and L. C. Brinson, Springer, (2008).

Refereed Journal Articles (for pdf files see http://www.mech.northwestern.edu/fac/brinson/reference.html)
over 150 refereed journal publications with over 17000 citations and an h-index of 60 in Google Scholar

He Zhao, Yixing Wang, Anqi Lin, Bingyin Hu, Rui Yan, James McCusker, Wei Chen, Deborah L. McGuinness, Linda Schadler, L. Catherine Brinson, *NanoMine Schema: A Data Representation for Polymer Nanocomposites*, manuscript in preparation, 2018.

Pavan V. Kolluru, Matthew D. Eaton, David W. Collinson, Xu Cheng, David Delgado, Kenneth R. Shull, and L. Catherine Brinson, *An AFM-based Fast Dynamic Scanning Indentation (DSI) Experiments for Direct, High Resolution Quantitative Spatial Mapping of Local Viscoelastic Properties*, to be submitted to Macromolecules, 2018.

Jeremiah Woodcock,* Richard Sheridan,* Ryan Beams, Steve Stranick, Jeff Gilman, L. Catherine Brinson, Gale Holmes, Vamshi Gudapathi, David Hartman, Amol Vaidya, *Spatially resolved detection of fiber-matrix stress transfer using a damage sensing epoxy resin*, manuscript in preparation 2018.

Anqi Hu, Xiaolin Li, Amin Ajdari, Bing Jiang, Craig Burkhart, Wei Chen, L Catherine Brinson, *Computational analysis of particle reinforced viscoelastic polymer nanocomposites–statistical study of representative volume element*, Journal of the Mechanics and Physics of Solids, https://doi.org/10.1016/j.jmps.2018.02.013, accepted, published online, 2018.

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Harshad M Paranjape, Partha P Paul, Behnam Amin-Ahmadi, Hemant Sharma, Darren Dale, JY Peter Ko, Yury I Chumlyakov, L Catherine Brinson, Aaron P Stebner, In situ, 3D characterization of the deformation mechanics of a superelastic NiTi shape memory alloy single crystal under multiscale constraint, Acta Materialia, vol 144, pp. 748-757, https://doi.org/10.1016/j.actamat.2017.11.026, 2018.

Ramin Bostanabad, Yichi Zhang, Xiaolin Li, Tucker Kearney, L Catherine Brinson, Daniel W Apley, Wing Kam Liu, Wei Chen, *Computational Microstructure Characterization and Reconstruction: Review of the State-of-the-art Techniques*, Progress in Materials Science, Vol 95, pp. 1-41, https://doi.org/10.1016/j.pmatsci.2018.01.005, 2018.

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Vipula Rawte, James McCusker, He Zhao, L Catherine Brinson, Wei Chen, Linda Schadler, Deborah L McGuinness, *An Ontology for a Polymer Nanocomposite Community Data Resource*, Proceedings of the 2017 ACM on Web Science Conference, pp. 411-412, doi 10.1145/3091478.3098866, 2017.

Zhang M, Aksar S, Torkelson JM, Brinson LC, *Stiffness Gradients in Polymeric Model Nanocomposites Characterized via Atomic Force Microscopy and Fluorescence Spectroscopy*, Macromolecules, 50 (14), 5447-5458, DOI 10.1021/acs.macromol.7b00917, 2017.

Zhao H, Li Y, Huang Y, Krentz T, Bell MH, Benicewicz B, Schadler LS, Brinson LC, Dielectric Spectroscopy Analysis using Viscoelasticity-inspired Relaxation Theory with Finite Element Modeling, to appear in IEEE Transactions on Dielectrics and Electrical Insulation, 2017.

Bessa MA, Bostanabad R, Liu Z, Hu A, Apley D, Brinson LC, Chen W, Liu WK, *A framework for data-driven analysis of materials under uncertainty: Countering the curse of dimensionality*, Comp Meth App Mech & Engr, 320:633-667, DOI 10.1016/j.cma.2017.03.037 2017.

Paranjape HM, Paul PP, Sharma H, Kenesei P, Park JS, Duerig TW, Brinson LC, Stebner AP, *Influences of granular constraints and surface effects on the heterogeneity of elastic, superelastic, and plastic responses of polycrystalline shape memory alloys*, J Mech Phys Solids, 102:46-66, 2017

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Bewerse C, Emery AA, Brinson LC, Dunand DC, *NiTi porous structure with 3D interconnected microchannels using steel wire spaceholders*, Mat Sci & Eng A 634: 153–160 2015.

Li Y, Valavala P, Watcharotone S, and Brinson LC, *Models for nanoindentation of compliant films on stiff substrates*, J Mat Res, DOI 10.1557/jmr.2015.126, vol 30:11, pp 1747-1760, 2015.

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Wood CD, Vijayvergia M, Miller FH, Carroll T, Fasanati C, Shea LD, Brinson LC, Woodruff TK, *Multi-modal magnetic resonance elastography for noninvasive assessment of ovarian tissue rigidity in vivo*, Acta Biomat, Vol: 13, pp: 295-300, 2015.

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Cheng X, Putz KW, Wood CD, Brinson LC, *Characterization of Local Elastic Modulus in Confined Polymer Films via AFM Indentation*, Macromolecular Rapid Communications, DOI 10.1002/marc.201400487, 36: 391-397, 2015.

Zhu P, Stebner AP, Brinson LC, *Plastic and transformation interactions of pores in shape memory alloy plates*, Smart Materials and Structures, vol 23:10:104008, 2014.

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Xu H, Li Y, Brinson LC, Chen W, *A descriptor-based design methodology for developing heterogeneous microstructural materials system*, J Mech Design, vol 136:5:051007, DOI 10.1115/1.4026649 2014.

Breneman CM*, LC Brinson*, LS Schadler*, B Natarajan, M Krein, K Wu, L Morkowchuk, Y Li, H Deng, H Xu, *Stalking the Materials Genome: A Data-Driven Approach to the Virtual Design of Nanostructured Polymers*, Advanced Functional Materials, 2013, doi: 10.1002/adfm.201301744 *co-first authors.

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Xu H, Green MS, Deng H, Dikin D, Brinson LC, Liu WK, Burkhart C, Papkonstanopoulos G, Poldeff M, Chen W, *Stochastic reassembly strategy for managing information complexity in heterogeneous materials analysis and design*, J Mech Design, vol 135:10: 101010, 2013.

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Stebner, A.P. Brown, D.W. Brinson, L.C. *Young's Modulus Evolution and Texture Based Elastic-Inelastic Strain Partitioning of Large Uniaxial Deformations of Monoclinic Nickel- Titanium* Acta Materialia, Vol 61:6: 1944-1956 http://dx.doi.org/10.1016/j.actamat.2012.12.015, 2013.

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H Deng, Y Liu, D Gai, D Dikin, C Burkhart, M Poldneff, B Jiang, GJ Papkonstantopoulos, KW Putz, W Chen, LC Brinson, *Utilizing real and statistically reconstructed microstructures for the viscoelastic modeling of polymer nanocomposites*, Composites Science and Technology, vol 72, pp. 1725-1732, 2012.

CD Wood, MJ Palmeri, K Putz, G Ho, R Barto, and LC Brinson *Nanoscale structure and mechanical properties of MWNT-grafted hybrid composites*, Composites Science and Technology, vol 72, pp. 1705-1710, 2012.

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Compton OC, Abouimrane A, An Z, Palmeri MJ, Brinson LC, Amine K, Nguyen ST, *Exfoliation and Reassembly of Cobalt Oxide Nanosheets into a Reversible Lithium-Ion Battery Cathode*, Small, vol 8:7: 1110-1116, 2012.

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M Panico, A Bansiddhi, DC Dunand and LC Brinson, *Modeling of Twinning and Shape-memory Recovery in Porous NiTi Produced by NaCl Space-Holders*, submitted to Mechanics of Materials, 2011.

C Tupper, K Gall, G McFarland, LC Brinson, *Local and Global Strains and Strain Ratios in Shape Memory Alloys Using Digital Image Correlation*, Mat Sci Engr A, vol 568, pp 134-142, 2013.

A Zhi; OC Compton, KW Putz, LC Brinson, ST Nguyen, *Bio-Inspired Borate Cross-Linking in Ultra-Stiff Graphene Oxide Thin Films*, Advanced Materials, vol:23(33): 3842-+, 2011.

KW Putz, OC Compton, C Segar, Z An, ST Nguyen, LC Brinson, *Evolution of Order During Vacuum-Assisted Self-Assembly of Graphene Oxide Paper and Associated Polymer Nanocomposites*, ACS Nano, 5(8): 6601–6609, 2011. (**ACS Nano Podcast**, Episode 49)

A. Stebner, X. Gao, D. W. Brown, and L. C. Brinson, *Neutron diffraction studies and multivariant simulations of shape memory alloys: Empirical texture development - mechanical response relations of martensitic Nickel-Titanium*, Acta Materialia, vol 59(7):2841-2849, 2011.

X. Gao, A. Stebner, D. W. Brown, and L. C. Brinson, *Neutron diffraction studies and multivariant simulations of shape memory alloys: Concurrent verification of texture development – mechanical response predictions*, Acta Materialia, vol 59(15): 5924-5937, 2011.

S. Narayanan, M. Panico, P Valavala, LC Brinson, *Simulations of Crazing Failure in Glassy Polymer Nanocomposites*, submitted to Macromolecules, 2010.

R Qiao, X Gao, LC Brinson, *Model and Simulation of an SMA Enhanced Lip Seal*, Journal of Materials Engineering and Performance, vol 20(4-5): 570-578, 2011.

H Shen, LC Brinson, *A numerical investigation of porous titanium as orthopedic implant material*, Mechanics of Materials, vol 43(8): 420-430, 2011.

X Chen, I Beyerlein, LC Brinson, *Bridged Crack Models for the Toughness of Composites Reinforced with Curved Nanotubes*, J. Mech Phys Solids, vol 59(9): 1938-1952, 2011.

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M. Palmeri, K. Putz, T. Ramanathan, L. C. Brinson, *Multi-scale Reinforcement of CFRPs Using Carbon Nanofibers*, Composites Science and Technology, vol 71:2, 79-86, 2011.

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R. Qiao, H Deng and LC Brinson, *Effect of particle agglomeration on the glass transition temperature of polymer nanocomposites*, J Poly Phys B, vol. 49:10, 740-748, 2011.

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A. Flory, T. Ramanathan, L. C. Brinson, *Physical Aging of Single Wall Carbon Nanotube Polymer Nanocomposites: Effect of Functionalization of the Nanotube on the Enthalpy Relaxation*, Macromolecules, 43:9, 4247-4252, 2010.

K. Putz, OC Compton, MJ Palmeri, ST Nguyen, LC Brinson, *High Nanofiller-Content Graphene Oxide-Polymer Nanocomposites via Vacuum- Assisted Self-Assembly*, Advanced Functional Materials, vol 20:19, 2207-2215, 2010.

M. Panico, S. Narayanan, LC Brinson, *Simulations of Tensile Failure in Glassy Polymers: Effect of Cross-link Density*, Modelling Simul. Mater. Sci. Eng, vol 18, 055005, 2010.

RK Duncan, R Qiao, JB Bult, D Burris, LC Brinson, LS Schadler, *Viscoelastic Behavior of Nanotube Filled Polycarbonate: Effect of Aspect Ratio and Interface Chemistry*, to be submitted to International Journal of Smart and Nano Materials 2010.

M Palmeri, KW Putz and LC Brinson, *Polymer Nanocomposite Toughening Via Rupture of Sacrificial Bonds in Stacked-Cup Carbon Nanofibers*, vol 4:7, 4256-4264, ACS Nano, 2010.

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DOE, *Natural Fiber Nanocomposites*, co-PI, 10/1/2006 – 1/31/08

Goodrich BRITE award, *Processing, Modeling and Characterization of Nanoreinforced Polymer Composites*, co-PI, 1/1/2006 – 12/31/2007.

NSF Materials Science and Research Center Interdisciplinary Research Group, *Novel Processing Routes to Nanostructured Polymer Blends and Composites*, co-PI, 9/1/2005 – 8/31/2010

NSF, Mechanically- and Biologically-Active Nickel-Titanium Foam as Biomimetic Material for Skeletal Repair , co-PI, 6/1/2005 – 5/31/2009

NSF NIRT CMS-0404291: *Interphase Design for Extraordinary Nanocomposites*, Principal Investigator, 9/1/04-8/31/10

FAA, *Aging of Polymeric Insulation in Aircraft Wiring: Mechanical and Electrical Property Characterization and Correlation*, Principal Investigator, 9/1/03 – 8/31/06

NASA-Langley URETI, *Bioinspired Design and Processing of Multifunctional Nanocomposites*, Co-Principal Investigator, 7/1/02 – 6/30/07

NASA-Langley, *Micromechanics – Continuum – Numerical Modeling of Shape Memory Alloys*, Principal Investigator, 1/16/02 - 1/15/06

NSF Award DMR-0108342, *Organoapatite-Coated Titanium Foam: A Biohybrid for Skeletal Repair*, Co-Principal Investigator, 8/1/01 – 4/30/05

NASA-Langley, *Nano-, Micro- and Macro-mechanics of Nanoreinforced Polymeric Materials*, Principal Investigator, 10/1/00 – 9/30/03.

NSF Award POWRE CMS-0074921, *Bone Cell Growth and Strength Characteristics of Microporous Titanium*, Principal Investigator, 9/1/00 – 8/31/01.

NSF Award CMS 0089977, *Self-Sensing Actuation and Control with SMAs*, 9/1/00 – 9/1/03.

Los Alamos National Lab, *Development of Physically Based Models for U-6Nb Alloys*, Principal Investigator, 6/1/00 – 6/1/03.

FAA, *Aging Characterization and Lifetime Assessment of Polymeric Insulation in Aircraft Wiring,* Principal Investigator, 6/1/00 – 7/31/03.

NSF-SGER Grant, CMS-9908368, *Micromechanical Testing and Multivariant Model Correlation for Shape Memory Alloys*, Principal Investigator, 6/1/99-6/1/00

NASA-Langley Research Grant, NCC1-271, *Synergistic Effects of Physical Aging and Damage on Long-term Behavior or Polymer Matrix Composites*, Principal Investigator, 11/1/97-11/1/99

3M Nontenured Faculty Grant, *Mechanics of Polymeric and Smart Materials*, Principal Investigator, 12/1/96-12/1/98

NSF CAREER Award, CMS-9501792, *Characterization and Modeling of Multidimensional SMA Behavior and Coupled Effects of Temperature, Aging Time and Moisture in Polymer Composite Systems*, Principal Investigator, 9/1/95-3/15/00

NASA-Langley Research Grant, *Effects of Chemical and Physical Aging on Long-Term Behavior of Polymer Matrix Composites*, Principal Investigator, 1/1/95-1/1/98

NSF-Research Initiation Award, MSS-9308937, *Constitutive and Finite Element Modeling of Shape Memory Alloys*, Principal Investigator, 9/15/93-9/15/96

Northwestern University Research Grants Committee Award, *Characterization of Multi-Dimensional Shape Memory Alloy Behavior*, Principal Investigator, 6/1/93-6/1/94

INVITED SEMINARS:

CHIMAD/NIST Data Summit, Rockville, MD, Sept 25-27, *Building a Polymer Data Schema*, 2017.

Keynote Talk, PPS Europe/Africa 2017, Polymer Processing Society, Dresden Germany, NanoMine: *Development of Material Data Resource and Analysis*, June 2017

Keynote Talk, Society of Polymer Science, Chiba, Japan, NanoMine: *Development of Material Data Resource and Analysis,* May 29 2017

NIMS, National Institute of Materials Science, Tsukuba, Japan, NanoMine: *Development of Material Data Resource and Analysis*, May 26, 2017

NIST, Functional Polymers Group, *Using AFM to measure local polymer properties near surfaces, Gaithersburg MD,* 14 Feb 2017.

ACS Polymer Composites Conference, *Stalking the Materials Genome: A Data Driven Approach to the Virtual Design of Nanostructured Polymers*, Sonoma CA, 25-28 July 2016.

Plenary Lecture, Mechanics of Time Dependent Materials Conference, *Local Polymer Properties at Interfaces*, Paris, France, 17-20 May 2016.

ICMEg (Integrated Computational Materials Engineering), *Development of Material Data Resource and Analysis for Polymer Nanocomposites*, Barcelona, Spain, April 2016.

SouthWest Mechanics Lecture Series, April 2016.

University of Michigan, *Local Polymer Response via AFM,* Ann Arbor, MI, 10 November 2015.

ESM Seminar, *Materials Genome Application to Polymer Nanocomposites*, 18 March 2015, Va Tech

US-Japan MGI Workshop, NIMS, June 23-24, 2015, *Nanomine: A materials data resource for polymer nanocomposites*.

Avant Symposium Keynote Lecture, 15-17 April 2015, *AFM to Characterize Local Polymer Properties,* Barcelona Spain.

NIST Seminar, *CHIMAD and Nanomine for Materials Genome*, 1 Dec 2014.

Nadai Lecture, *Local Polymer Behavior: Surfaces, Confinement, Composites,* as part of the Nadai Medal at the ASME IMECE, 17 November 2014, Montreal, Canada

Bell Lecture, *Polymers at Interfaces*, 23 October 2014, Johns Hopkins University.

IUTAM Symposium Connecting Multiscale Mechanics to Complex Materials Design, *Polymers at interfaces – properties at the nanoscale and their multiscale impact*, Evanston IL, 15 May 2014.

University of Dortmund, *Localized Polymer Response and a Materials Genome Approach for Nanocomposite Propery Prediction*, Dortmund, Germany, 30 January 2014.

University of Toronto, *Local Polymer Behavior: Surfaces, Confinement, Composites,* Toronto, Canada, 17 January 2014.

University of Saarbrücken, *SMA Modeling and Experiments: Reorientation and Novel Porous Microstructures*, Saarbrücken Germany, 22 October 2013.

Invited speaker for Prager Symposium in Society for Engineering Science, 49th Technical Meeting, Providence, RI, July, 28-31, 2013, *Nanomechanics of Nanocomposites*

Northwestern-Chongqing University, Workshop on Engineering Mechanics, June 25-30, 2013, *Local Polymer Behavior: Surfaces and Confinement*.

UNC Chemistry Department, *Polymer Mechanics Under Confinement*, Chapel Hill, NC, April 11, 2013.

Big Data Domain Dinner, *Big Data in Materials Science*, Northwestern, March 18, 2013

NIMS-NU Workshop, *Computational Mechanics of Materials*, Tsukuba, Japan, Feb 25-Mar 1, 2013

Plenary Lecture, International Conference on Solid Mechanics and Applications, Bangalore, India, Aug 19-24, 2012, *Local polymer behavior in nanocomposites: chemistry vs confinement*.

15th International Conference on Deformation, Yield and Fracture in Polymers, Kerkrade, Netherlands, April 1-6, 2012, *Interphases and Local Properties in Nanostructured Polymer Systems*.

Georgia Tech, Feb 23, 2012, *Interfaces and Interphases in Nanostructured Polymer Systems*.

Curie Lecture, University of Florida – Gainesville, Feb 7, 2012, *Interfaces and Interphases in Nanostructured Polymer Systems*.

Invited speaker, International Conference on Martensitic Transformations (ICOMAT), Osaka Japan, September 4-9, 2011, *Multiscale Modeling, Characterization and Design of Shape Memory Alloys and their Applications*.

Opening Plenary Speaker, International Conference on Mechanical Properties of Materials, Zhejiang University, Huangzhou, China, June 12-15, 2011, *Interfaces and Interphases in Nanostructured Polymer Systems*.

Invited speaker, MRS Boston Nov 29 – Dec 2, 2010, *Nanoscale Effects in Hierarchical Composite Systems*.

Distinguished Fowler Lecture, Texas A&M, Nov 10-11, 2010, *Confined Polymers: from Nanocomposites to Nanoindentation*.

Rensselear Polytechnic Institute, *Effects of Interface, Interphase and Substrate on Mechanical Properties of Polymers via Experiments and Simulations of Nanoindentation*, Oct 20, 2010

International Conference on Interfaces and Interphases in Multicomponent Materials, *Effects of Interface, Interphase and Substrate on Mechanical Properties of Polymers via Experiments and Simulations of Nanoindentation,* 1-3 Sept 2010, Sheffield, UK

Gordon Research Conference - Polymer Physics, *Exploring the Interphase Mechanical Properties in Thin Polymer Films and Nanocomposites: Coupled Experiments and Modeling of Nanoindentation*, June 27 – July 1, 2010, Mount Holyoke, MA.

ARO workshop on Intelligent and Active Protective Systems for Dynamic Load Mitigation, *SMA Modeling and Experiments: Reorientation and Novel Porous Microstructures*, Aberdeen, MD, May 27-28, 2010.

University of Minnesota, *Nanoindentation for Local Polymer Property Measurements – Implications for Nanocomposites*, April 22, 2010.

Keynote speaker at Composites at Lake Louise, Lake Louise, Canada, "*Model Nanocomposites for Local Interphase Property Determination – Novel Nanoindentation Experiments and Modeling*", Oct 25 – Oct 29, 2009.

University of Illinois Urbana Champaign, Materials Science Departmental Lecture, *Development of the Interphase in Polymer Nanocomposites: gradients, local properties and percolation*, 12 October 2009.

Carbon Nanotube Polymer Composites International Conference, Hamburg, Germany, September 20-23, 2009, *Development of the Interphase in Polymer Nanocomposites: gradients, local properties and percolation*.

Neutron School, Los Alamos National Lab, 6-12 July 2009, *Crystallography of Martensite*.

ExxonMobil, Clinton, NJ, *Inside Polymer Nanocomposites - interphases and percolation* June 2, 2009

University of Northern Texas, *Inside Polymer Nanocomposites - interphases and percolation*, September 17, 2008

Keynote Speaker, Smart Structure System Technologies Workshop, Prague, Czech Republic, *Porous Shape Memory Materials – Robust Modeling and Characterization*, May 4-7, 2008.

Southern California Mechanics Tour, Lectures at UCSD, UCLA, USC, Caltech, *Inside Polymer Nanocomposites - interphases and percolation*, March 3-7, 2008

Keynote speaker at Mechanics of Time Dependent Materials Conference, *Aging and Enthalpy Relaxation in Polymer Nanocomposites*, March 30- April 4, 2008

Gordon Conference, Ventura, CA. *Designer Polymer Nanocomposites*, January 13-18, 2008

Domain Dinner Speaker for Energy Efficient Transportation, Northwestern University, 3 December 2007

Keynote speaker at Composites at Lake Louise, Lake Louise, Canada, "*Polymer Nanocomposites - Controlling the Interphase and its Impact*", Oct 28 – Nov 2, 2007

US- China NSF Workshop and Summer Institute (UCWSI2007) on Bio- and Nano- Mechanics and Applications, *Polymer Nanocomposites: Mechanics, Modeling and Biomimetics* , August 31 - September 4, 2007, Beijing, China.

Helmut Schmidt University, Hamburg Germany, *Nanocomposites: Polymers Made Durable and the Vision for Materials Informatics*, 29 June 2007.

National Research Council, Integrated Computational Materials Engineering Workshop, *Materials Informatics: What, How and Why: Analogy to Bioinformatics*, Irvine NAS Beckman Center, 30 May 2007.

University of Hamburg, Applied Math Department, *Polymer Nanocomposites: Percolating Interphases*, 3 May 2007.

TMS Annual Meeting, *Micro to Macro Strain Mapping and Reorientation Based Modeling in Shape Memory Alloys*, San Antonio, TX, Feb 25-28, 2007.

DSRC Worshop on Reliable Polymers, *Time, Temperature and Aging in Polymers: the Nanocomposite Solution*, Chicago, 8 Feb. 2007

Technical Universität Hamburg-Harburg, 25 Jan 2007, *Percolated Interphases in Polymer Nanocomposites*.

Materials Science and Technology Conference (MS&T) 2006, *Materials Informatics*, 15-19 October 2006.

TMS Annual Meeting, *Interphase Design in Nanocomposites*, San Antonio, TX, March 12-16, 2006.

Materials Science Colloquium, Northwestern University, 7 Feb. 2006, *Polymer Nanocomposites and the Interphase*.

International Institute for Nanotechnology Kick-off Symposium, *Designing Polymer Nanocomposites*, Nov 5-6, 2005.

Keynote Panel at Materials Science and Technology Conference (MS&T), *Moving Materials Informatics Forward*, Pittsburgh, PA, Sept 25-28, 2005.

Carbon Nanotube Polymer Composites International Conference, Hamburg, Germany, September 5-7, 2005, *Controlling and Modeling the Interphase in Polymer Nanocomposites*.

Summer Institute for Nanomechanics, Nanoscale Mechanics, Bio-inspired Hierarchical Structures, and Potential Applications, *Bioinspired Polymer Nanocomposites* and *Engineered Self-healing Materials*, June 2005.

International Shape Memory and Damping Conference, Metz France, 10-11 May 2005, *SMA Constitutive Modeling: Applications to Adaptive Control, Self-Healing Composites and Foams*,

Princeton University, 15 April 2005, *Controlling and Modeling the Interphase in Polymer Nanocomposites*.

University of Southern California, 28 March 2005, *Controlling and Modeling the Interphase in Polymer Nanocomposites*.

Winter Neutron School, Los Alamos National Lab, 7-11 March 2005, *Crystallography of Martensite*.

Symposium for W. G. Knauss' 70th Birthday, Pasadena CA, Nov. 15-16, 2004, *Controlling and Modeling the Interphase in Polymer Nanocomposites*.

American Vacuum Society, AVS 51st International Symposium, Anaheim, CA, November 14 - 19, 2004, invited lecture for Nanotube Processing and Composite Materials symposium.

ICTAM – International Congress on Theoretical and Applied Mechanics, *SMA Hybrid Composites: Self-healing, Self-stiffening and Shape Control Simulations*, Warsaw, Poland, 15-19 Aug 2004.

Summer Institute for Nanomechanics, Multiscale Modeling and Simulation of Nano Mechanics and Materials, *Polymer Nanocomposites: Challenges of Theory and Experiment*, June 2004

ASME Department Head Meeting, *Bioengineering and the Neural Engineering Initiative in Mechanical Engineering at Northwestern University*, Clearwater FL, 6-9 March 2004.

GALCIT 75th Anniversary Symposium, Caltech, 14 Nov 2003, *Scaling Issues in Polymer Nanocomposites*.

US-Swiss Nanoforum, Basel Switzerland, 13-14 Oct 2003, *Polymer Carbon Nanotube Composites*

Mechanics of Time-Dependent Materials Conference: Special Symposium honoring Max Williams, Lake Placid, NY, Oct 7-10, 2003, *Geometry and Interphase Effects in Nano-Reinforced Polymer Composites*.

Workshop on New Directions in Mechanics, DOE, *Nanomechanics to Design Materials of the Future*, Washington, DC, Sept. 2003.

Michigan Tech, 2 September 2003, "Why Nanocomposites?: Mechanics Issues"

Los Alamos National Laboratory, 24 July 2003, *Multiaxial SMA Modeling Considering Reorientation Effects*

TMS/ASM Spring Symposium: Frontiers in Materials Development: Computation, Nanomaterials, and Alternative Energy, Schenectady, NY, GE, May, 12 2003, *Geometry and Interphase Effects in Nanotube Reinforced Polymer Composites*.

Texas A&M University, 17 April 2003, "Why Nanocomposites?: Mechanics Issues"

Duke University, 6 March 2003, "Why Nanocomposites?: Mechanics Issues"

TMS Meeting, *Modeling and In Situ Observations of Stress Induced Transformation in Shape Memory Alloys*, Keynote speaker for "Martensitic Transformations in Low Symmetry Materials" Symposium. San Diego, CA, 3-6 March 2003.

Oregon State University, 14 May 2002, "Micromechanics Characterization of Shape Memory Alloys"

Los Alamos National Laboratory, 12 October 2001, "Micromechanical Modeling and Experiments for Shape Memory Alloys"

University of Michigan, Distinguished Lecture Series, 27 September 2001, "Micromechanical Modeling and Experiments for Shape Memory Alloys"

International Workshop Shape Memory Alloys – Experimental Verification and Numerical Modeling, Karlsruhe Germany, 9-11 July 2001, "Micromechanical Modeling and Experiments for Shape Memory Alloys"

University of Karlsruhe, 23 January 2001, "Micromechanical Modeling of Shape Memory Alloys"

NASA-Langley, 8-9 January 2001, "Effect of Nanotube Waviness on Nanoreinforced Polymers"

Universität der Bundeswehr, Hamburg Germany, 18 October 2000, "SMA Modeling: A Multivariant Approach and a Microplane Model"

Alexander von Humboldt Foundation, Introductory Meeting for 2000-01 Fellows/Awardees, Göttingen Germany, 8-11 October 2000, "Shape Memory Alloy Modeling and Experiments"

Conference Honoring Retirement of Prof. H. F. Brinson, Virginia Tech, 22-24 September 2000, "Micromechanical Issues in SMA Behavior and Modeling"

Los Alamos National Laboratory, 9-11 August 2000, Martensite Workshop, "SMA Modeling: A Multivariant Approach and a Microplane Model"

Hong Kong University of Science and Technology, 24 February 2000, "The Power of Materials and Mechanics - from smart materials to biomaterials"

Los Alamos National Laboratory, 27 September 1999, "Micromechanical Issues in SMA Behavior and Modeling"

Texas A&M University, 29 April 1999, "SMA Constitutive Modeling", and "Updating Undergraduate Engineering Curricula"

University of Massachusetts - Amherst, 25 February 1999, "Aging and Damage in Viscoelastic Composites"

The Boeing Company, High Speed Research Workshop, 15 September 1998, "Physical Aging and Damage in Polymer Composites"

Hong Kong University of Science and Technology, 25 March 1998, "Micromechanical Modeling of Shape Memory Alloys via the Multivariant Approach"

Gordon Conference, Santa Barbara, CA, 5-9 January 1998, "Aging in Polymeric Composites"

Northwestern University, 30 October 1997, Tenure Talk: "Mechanics of Shape Memory Alloys"

NASA-Langley, 11 September 1997, "Characterization and Modeling of Viscoelastic Composites with Nonisothermal Physical Aging"

Lawrence Livermore National Laboratory, CA, 5-6 December 1996, "Mechanics Modeling of Shape Memory Alloys"

3M - St Paul, MN, 4 November 1996, "Mechanics of Polymeric and Smart Materials"

NASA-Langley, 17 September 1996, "Aging, Time and Temperature"

University of Illinois - Urbana-Champaign, 7 December 1995, "Physical Aging in Polymers and Polymer Composites – aging in anisotropic materials under general variable thermomechanical loading"

NASA-Langley, 17 August 1995, "Physical Aging in Polymers and Polymer Composites – aging in anisotropic materials under general variable thermomechanical loading"

Michigan State University, 6 December 1994, "Finite Element and Micromechanics Models of Viscoelastic Composites"

1993 ASEE Summer Faculty Fellowship Program Final Presentations (selected from other summer fellows in division to present final presentation), Hampton VA, 11-12 August 1993, "Effects of Physical Aging on Long-Term Behavior of Composites"

NASA-Langley, Hampton, VA, 22 March 1993, "Thermorheologically Complex Behavior of Multiphase Viscoelastic Materials"

National Institute of Standards and Technology, Gaithersburg, MD, 19 March 1993, "Thermorheologically Complex Behavior of Multiphase Viscoelastic Materials"

Katholieke Universiteit Leuven, Belgium, 23 September 1992, "Constitutive and Finite Element Modeling of Shape Memory Alloys"

University of Poitiers, France, 18 September 1992, "Thermorheologically Complex Behavior of Multiphase Viscoelastic Materials" and "Constitutive and Finite Element Modeling of Shape Memory Alloys"

Free University of Brussels, Belgium, 22 May 1992, "One Dimensional Constitutive Behavior of Shape Memory Alloys"

Free University of Brussels, Belgium, 21 March 1991, "Finite Element Analysis of Multiphase Viscoelastic Solids"

CONFERENCE PRESENTATIONS:

Society of Engineering Mechanics Conference, Greenville, SC, *Semi-quantitative de-convolution of the measured interphase in particle-matrix polymer nanocomposites*, June 2018

International Conference on Shape Memory and Superelastic Technologies, *Size effects in SMAs: Effect of texture in determining grain scale performance in SMAs*. San Diego, CA, May 2018.

TMS Annual Meeting and Exhibition, *Novel 3D Crystallite-scale Characterization of Deformation During Cyclic Loading of Low Crystal-symmetry Phases*. Phoenix, AZ, March 2018.

MRS 2017 Spring Meeting and Exhibit, Phoenix, AZ, *An adaptive design approach for exploring the interphase properties in polymer nanocomposites* and *A Computational Graph-based Approach for Stochastic Reconstruction of Microstructures Using a Deep Learning Framework*. Phoenix, AZ, April 20 2017

ASME International Mechanical Engineering Congress and Exposition, *Study of Martensite Deformation and Toughening Mechanisms at Notch Tip in NiTi based SMAs*. Tampa, FL, Nov 2017.

Polymer Processing Society, *Nanoprobe Investigations of Viscoelastic Behavior in Elastomeric Nanocomposites*, Dresden, Germany. June 29, 2017

Society for Engineering Science, 53rd Technical Meeting, College Park, MD, 5 talks on polymers, confinement, materials genome, October 2016.

Materials Research Society Fall Meeting & Exhibit, *The Role of Microstructural and Structural Constraints in Determining Local Superelastic Response in Planar SMA Specimens with Micro-holes*, Boston, MA, Nov 2016.

MRS Meeting, Mar 28 – Apr 1, 2016, Phoenix, AZ, *Application of NanoMine Data Resource to Analysis of Interphase Mechanism in Polymer Nanocomposites*

MRS Meeting, Nov 30-Dec 4, 2015, Boston MA. *An Integrated System for Material Informatics for Polymer Nanocomposites*.

ASME IMECE, Nov 13-19, 2015, Houston TX, Nanoscale Mechanical Properties of Polymer Interphase via AFM Indentation

International Indentation Workshop, UT Dallas, Nov 1-5, 2015, Measurement of local mechanical properties of ultra-soft hydrogels and biological tissues using nanoindentation.

MRS Meeting, Nov 30-Dec 5, 2014, Boston MA. Two talks on local polymer behavior and data mining strategies for polymer nanocomposite image processing.

Society for Engineering Science, 51st Technical Meeting, Purdue, IN, October 2014, 5 talks on polymers, confinement, materials genome and SMA digital property mapping.

Society for Engineering Science, 50th Technical Meeting, Providence, RI, July, 28-31, 2013, *Thermomechanical Properties and Deformation of Coarse-Grained Models of Hard/Soft Block Copolymers*

Society for Engineering Science, 49th Technical Meeting, Atlanta, GA, Oct, 10-12, 2012, *Hierarchical Design of Higher Filler Content Polymer Nanocomposites*

MRS Annual Meeting, Boston, MA, Nov 28 – Dec 2, 2012, *Nanoscale Effects in Hierarchical Composite Systems*.

Society for Engineering Science, 48th Technical Meeting, Evanston, IL, Oct, 12-15, 2011, *Viscoelastic Characterization of Soft Tissue Samples Via a Semi-empirical Nanoindentation Method (Wood, Brinson, Shea); Tuning The Hierarchical Structure In Graphene-oxide Papers (Palmeri, Putz, Brinson); Transformation Strain Anisotropy And Plasticity In A Robust 3d Shape Memory Alloy Constitutive Model (Stebner, Brinson); Local Phase Transformations In*

Porous NiTi Structures – Microscale Characterization And Modeling (Brinson, Tupper, Stebner); The Effect Of X-ray Irradiation On The Creep Behavior Of Bovine Cortical Bone (Black, Yuan, Singhal, Almer, Brinson, Dunand); Structure-mechanical Properties Relationship Of Sea Urchin Spine – A Finite Element Study (Yuan, Stock, Brinson)

Society for Engineering Science, 47th Technical Meeting, Ames, IA, Oct 3-6, 2010, *Determination of Nano-scale Mehanical Properties near Hybrid Fiber Interfaces in Polymer Systems*

ASME Annual Meeting, Vancouver, Nov 14-18, 2010, *Effects of Interface, Interphase and Substrate on Local Mechanical Properties of Polymers via Experiments and Simulations of Nanoindentation*

Society for Engineering Science, 45th Technical Meeting, Iowa State, Oct, 4-6, 2010, *Determination of Nanoscale Mechanical Properties near Hybrid Fiber Interfaces in Polymer Systems, An SEM Image-Based Finite Element Approach on the Viscoelastic Behaviors of Rubber-Carbon Black Composites*

ASME Conference, Orlando FL, *Model Nanocomposites for Local Interphase Property Determination – Novel Nanoindentation Experiments and Modeling,* 15-19 Nov 2009

AIAA Conference, Palm Springs, May 4-7, 2009, *Suppression of Aging in Chemically Designed Polymer Nanocomposites*

ACS Annual Meeting, Salt Lake City, Mar 22-26, 2009 *Biofunctionalized and Graphene Based Polymer Nanocomposites – the Role of the Interphase*; and *Intelligent Design of Nanocomposites via Informatics*

TMS Annual Conference, San Francisco, Feb 15-20, 2009, *Percolation and Clustering Effects in Polymer Nanocomposites*

Society for Engineering Science, 43rd Technical Meeting, Urbana, IL, Oct, 12-15, 2008. *SMA Multiscale Characterization of Shape Memory Alloys Using Digital Image Correlation*, *Effects of a bio-inspired interfacial modification on the properties of polymer matrix nanocomposites*, and *Effect of particle clustering on the viscoelastic properties of polymer nanocomposites*

MS&T, Pittsburgh PA, October 5-8, 2008, *Impact of MWNT dispersion in polymer nanocomposite – A comparison of two different processing methods* and *Effects of a bio-inspired interfacial modification on the properties of polymer matrix nanocomposites*

Society for Engineering Science, 42nd Technical Meeting, College Station, TX, Oct, 21-25, 2007. *SMA Constitutive Modeling Incorporating Reorientation Effects and Application to Porous Materials*, and *A Numerical Study of Interphase Percolation Effects in the Polymeric Nanocomposites*

ECCOMAS Thematic Conference on Modeling of Heterogeneous Materials, Prague, Czech Republic, 25-27 June 2007, *The Influence of Nanotube Geometry on Polymer Composite Properties*.

US National Congress on Computational Mechanics (USNCCM 9), San Francisco, July 23-26, 2007, SMA *Constitutive Modeling Incorporating Reorientation Effects and Application to Porous Materials*.

American Chemical Society Meeting, Chicago, IL, 25-29 March 2007, *Improved Interfacial Adhesion Between NiTi and PMMA Utilizing a Biomimetic Initiator*.

ASME IMECE, Nov 2006, Chicago, IL, *Nanoparticle composites utilizing a biomimetic initiator for bone implants; A three dimensional phenomenological model for reorientation in shape memory alloys; Enthalpy relaxation in carbon nanotube polymer composites; Structure, Mechanical and Electrical Properties of model polymer gel nanotube composites; Implementation of shape memory alloy constitutive model in ABAQUS; Graphite*

nanocomposites: strategies to superior properties; Modeling the creep behavior of polymer nanocopmosites; Curved fiber pullout model for nanocomposites; Effect of bone filling on response of porous Ti as potential new orthopedic implant material.

Materials Science and Technology Conference (MS&T) 2006, *Interphases and Aging in Polymer Nanocomposites*, 15-19 October 2006.

Gordon Conference on Composites, 15-20 Jan 2006, Ventura, CA, Discussion Leader for *New Developments in Experimental Mechanics*, Poster on *Interphase Design in Nanocomposites.*

Society of Rheology, 77th Annual Meeting, 17-20 Oct 2005, Vancouver, British Columbia, Canada, *Graphene Nanocomposites.*

Society for Experimental Mechanics, Portland, OR, June 7-9, 2005, *Controlling and Modeling the Interphase in Polymer Nanocomposites.*

ASME IMECE, 15-19 November 2004, Anaheim, CA, *SMA Hybrid Composites: Self-healing, Self-stiffening and Shape Control Simulations* and *A Hybrid Numerical-Analytical Method for Modeling the Viscoelastic Properties of the Polymeric Nanocomposites.*

NASA BIMat Workshop, *Interphase effects of nanofillers in polymers*, May 25-26, 2006, Santa Barbara, CA.

NASA BIMat Workshop, *Polymer Nanocomposites: strength at the interphase*, Jan 31, 2006, Hampton, VA.

APS Meeting 2006, *Structure and Mechanical Properties of Model Nanotube Composites.*

NSF NIRT Review presentation, Dec 13, 2005.

NASA BIMat Workshop, *Polymer Nanocomposites: strength at the interphase*, Oct 7-8, 2004, Hampton, VA.

Society for Engineering Science 41st Technical Meeting, Lincoln, NE, 11-13 Oct 2004, *Electrical Resistance in SMAs and Controlling and Modeling the Interphase in Polymer Nanocomposites.*

ASME IMECE, 17-20 Nov 2003, *SMA Hybrid Composites: Self-healing, Self-stiffening and Shape Control Simulations* and *Reorientation in Shape Memory Alloys: Micromechanics and Continuum Modeling.*

Society for Engineering Science 40th Technical Meeting, *Representing SMA Multivariant Model Simulation Results Using Peak Intensity and Pole Figures* and *SMA Continuum Model with Martensite Reorientation Effects*, Ann Arbor, MI, 12-15 Oct 2003.

Frank Fisher, Ramanathan Thillaiyan, Lesley Meade, Benjamin Levy, Rod Ruoff, and L. Cate Brinson, *The impact of chemical functionalization on nanoparticle-reinforced polymers: Nanoscale characterization and effective mechanical properties*, American Society for Composites 18th Meeting, October 19-22, 2003.

44th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics, and Materials Conference, 7-11 April 2003, Norfolk, VA, "Macroscale Experimental Evidence of a Reduced-Mobility Non-bulk Polymer Phase in Nanotube-reinforced Polymers"

39th Annual SES Conference, Penn State University, 13-16 October 2002, "SMA Kinetics Characterization: Micromechanics to Continuum"

Mini-Conference on Mechanics Innovations, 13-14 September 2002, San Antonio, TX, "Mechanics in Engineering First at Northwestern"

National Congress for Theoretical and Applied Mechanics, Va Tech, 23-28 June 2002, "Viscoelastic and Nano-geometry Effects in carbon nanotube-reinforced polymers", "A 3-D Two-tier Multivariant Model Based on Hierachical Structural Characteristic of SMA Martensites"

SEM Conference, Milwaukee, WI, 10 -12 June 2002, "Viscoelasticity and Physical Aging of Carbon Nanotube-Reinforced Polymers"

TMS Conference, Indianapolis, IN, 4-7 November 2001, "Effects of nanotube waviness on the properties of nano-reinforced polymers"

Sixth U.S. National Congress on Computational Mechanics, Dearborn, Michigan, 1-3 August 2001, "Mechanical response of carbon nanotube-reinforced polymers"

Joint ASME/ASCE/SES Summer Meeting, 27 June - 29 June 2001, San Diego CA, "Studies of SMA response to cyclic loading: strain rate and cycle dependence with microstructural observations" and "In situ SEM & EBSD Observation of Variant Formation, Detwinning and Reorientation in CuAlNi Single Crystals" and "Effects of curvature on the elastic modulus of carbon nanotube-reinforced polymers"

Society for Engineering Science 36th Technical Meeting, 21-25 October 2000, Columbia, SC, "Scaling Issues in SMA Modeling and Experiments"

International Congress for Theoretical and Applied Mechanics, 27 August - 2 September 2000, Chicago IL, "Simplified multivariant model and SEM/EBSD verification of variant formation and switching", "Titanium foam for use in bone implants: Microstructure effects on mechanical properties", and "Three dimensional constitutive model for shape memory alloys based on microplane model"

SPIE's 7th Annual International Symposium on Smart Structures and Materials, 5-9 March 2000, Newport Beach, CA, "SMA Single Crystal Experiments and Micromechanical Modeling for Complex Thermomechanical Loading"

Society for Engineering Science 35th Technical Meeting, 24-27 October 1999, Austin, TX, "Micromechanics Issues for SMA Constitutive Modeling"

ASME Summer Meeting, 26-30 June 1999, Va Tech, "Synergistic Effects of Aging and Damage in Viscoelastic Composites"

International Plasticity'99 Conference, 5-13 January 1999, Cancun Mexico, "Micromechanics Based Polycrystalline Model for SMAs"

Society for Engineering Science 34th Technical Meeting, 27-30 September 1998, Pullman, WA, "A Micromechanics Damage Model for Viscoelastic Composites"

Workshop on Reform of Undergraduate Mechanics Education, Penn State University, 16-18 August 1998, "The Engineering First Curriculum at Northwestern University"

ASTM Conference, Atlanta, 4 May 1998, "Aging During Elevated Temperature Stress Relaxation of IM7/K3B Composite"

Mechanics of Time Dependent Materials Conference, Pasadena CA, 3 March 1998, "Physical Aging in Polymers and Composites: A New Analysis Method for Isothermal and Nonisothermal Aging"

ASME IMECE'97, Dallas, TX, "Two-Phase Zone and Single Interface Solutions for SMAs" and "Combined Aging and Moisture Effects in Polymers and Polymer Matrix Composites"

Joint ASME/ASCE/SES Summer Meeting, McNU'97, 29 June - 2 July 1997, Evanston IL, "A Multivariant SMA Model" and "A Unified Theory for Macro-scale SMA Kinetic Laws and Phase Diagrams" and "Nonisothermal Physical Aging" and "Mechanics in the Engineering First Curriculum"

ASEE Annual Meeting, 15-18 June 1997, Milwaukee WI, "Mechanics in the Engineering First Curriculum"

Society for Engineering Science 33rd Technical Meeting, 20-23 Oct. 1996, Tempe, AZ, "Modeling and behavior of SMAs under multiaxial loading" and "Aging, Time and Temperature"

ASME Summer Meeting, 12-14 June 1996, Johns Hopkins, "Physical Aging in Polymers and Polymer Composites: Aging in Anisotropic Materials Under General Thermomechanical Loading" and "Toward the Integration of Mechanics, Mathematics and Computational Methods in an Undergraduate Engineering Curriculum"

Society for Engineering Science 32nd Technical Meeting, 28 Oct. - 1 Nov. 1995, New Orleans, "Thermo-Induced Transformation in Prestressed 1-D SMA Body - Model and Numerical Simulation"

ASME Summer Meeting, 28-30 June 1995, Los Angeles, "A New Look at SMA Constitutive Models: Comparisons and Micromechanics"

ASEE Annual Meeting, 25-28 June 1995, Annaheim, "Introducing Basic Finite Elements into Sophomore Mechanics of Materials"

ASME International Congress and Exposition, 6-11 Nov. 1994, Chicago, "A Macromodel of Thermo-induced Martensite Transformation in a 1-D SMA Polycrystalline Body"

Society for Engineering Science 31st Technical Meeting, 10-12 Oct. 1994, College Station, TX, "Deformation Wave in 1-D SMA Rod Due to Martensitic Phase Transition Induced by Cooling of the Boundary"

International Conference on Composites Engineering, 28-31 Aug. 1994, New Orleans, LA, "Analysis of Variable Stress History on Polymeric Composite Materials with Physical Aging"

Symposium for the 60th Birthday of Wolfgang Knauss, 1-2 February 1994, Pasadena, CA, "Effects of Physical Aging on Long-Term Creep Behavior of Polymers and Polymer Matrix Composites"

ASME Winter Annual Meeting, 28 November - 3 December 1993, New Orleans, "Development and Application of One-Dimensional Truss Finite Elements for Shape Memory Alloys"

ASME Winter Annual Meeting, 8-13 November 1992, Anaheim, CA, "Finite Element Analysis of Multiphase Viscoelastic Solids"

Recent Advances in Adaptive and Sensory Materials and their Applications, 27-29 April 1992, Blacksburg, VA, "Constitutive Behavior of Shape Memory Alloys"

MEMBERSHIP IN TECHNICAL SOCIETIES:

MRS (Materials Research Society), 2003 – present

SES (Society for Engineering Science), 1994- present
Board of Directors, 1995-2000; Vice-President, 1998; President, 1999

TMS (The Minerals Metals and Materials Society), 2001-present

SEM (Society for Experimental Mechanics), 1986-present

ASME (American Society of Mechanical Engineers), 1986-present
Computational Mechanics Committee, 1996-present

ASEE (American Society for Engineering Education), 1992-present
Director at-large for *Women in Engineering Division*, 1996-98

American Academy of Mechanics, 1992-present

AAUW (American Association of University Women), 1994-present

DUKE ADMINISTRATIVE ACTIVITIES:

Diversity and Inclusion Committee, Pratt School of Engineering, Fall 2017 - present

NU ADMINISTRATIVE ACTIVITIES:

Associate Dean for Academic and Professional Initiatives, 2015 – present.

Provost Search Committee, Fall 2016

Data Science Institute Committee, 2015 – present.
Office of Change Management, Governing Committee, 2015 – present.
CLAMMP Advisory Committee, 2014 – present.
Department Chair, Mechanical Engineering Department, 2007 - 2013
NUANCE Advisory Committee, 2012 - present
Conflict of Interest Committee, 2011-12
Strategic Planning Committee, Chair of Diversity and Inclusion Subcommittee, 2010
Presidential Search Committee, 2008-09
Northwestern Honorary Degree Committee, 2007 - 2010
Associate Department Chair, Mechanical Engineering Department, 2002 - 2006
Chair, Search Committee for joint ME-BME faculty line in nanobiomaterials/mechanics, 2005-06
Acting Department Chair, Mechanical Engineering Department, Jan-March 2004
McCormick Tenure and Promotion Committee, 2004-2006
Northwestern Program Review Committee for Athletics and Recreation, 2005
UFRPTPAD (University tenure/promotion appeal committee), 2003-04
Research Systems Planning Advisory Committee, 2003
Dean Search Committee, Engineering School, 2003
Internal Review Committee, Program Review for Chemistry Department, 2002
Graduate Student Admission Officer, ME Department, 1997 - 2000
Graduate Studies Committee for ME Dept., November 1993 - 2000
Chair of committee, September 1997 - 2000
Coordinator for Mechanics courses Teaching Assistants, 1995-97
Committee on ME Office Efficiency, December 1993 - June 1996
Organizer of Mechanics Colloquia Seminar Series, 1993-95
Committee on Excellence (October 1992-October 1994), including Subcommittees "Hiring, Tenure and Post-Tenure Decisions" and "Selection of Graduate Students"

NATIONAL COMMITTEE WORK

NRC Panel on Mechanical Science and Engineering at Army Research Laboratory, Member, March 2015 – April 2017
TMS Materials Data Infrastructure Working Group, report forthcoming, March 2016-April 2017
Committee member for *Fuel Economy of Light Duty Vehicles, Phase 2*, Board on Energy and Environmental Systems, NRC of the National Academies, 2012-14.
Co-Chair, Invited *DOD Workshop on Future Research Trends in Mechanical and Civil Engineering*, April 23-25, 2012, Report published Fall 2012.
Chair of Study Committee: *Application of Lightweighting Technology to Military Vehicles, Vessels and Aircraft*, National Materials Advisory Board and Division on Engineering and the Physical Sciences of the National Academy of Engineering, 2010-11.
Committee Member: *Benchmarking US Competitiveness in Mechanical Engineering*, National Research Council, 2006 (study publish date 2007)
Chair of Study Committee: *Going to Extremes: Meeting the Emerging Demand for Durable Polymer Matrix Composites*, National Materials Advisory Board of the National Academy of Engineering, 2004 (study publish date 2005).

REVIEWING:

Texts: Mechanics of Solids by Bickford; Mechanical Response of Polymers by Wineman and Rajagopal

Actively review papers for many Journals, including: *Acta Materialia, Advanced Materials, ASME Journal of Applied Mechanics, International Journal of Solids and Structures, Journal of the Mechanics and Physics of Solids, Journal of Intelligent Material Systems and Structures, Journal of Polymer Science, Composites Science and Technology, Mechanics of Composite Materials and Structures, Mechanics of Materials, Nature Materials, PNAS*

NSF Review Panel for Graduate Fellowships, February 15-18, 2004.

NSF Review Panels for Division of Civil and Mechanical Systems (previously Mechanical and Structural Systems), numerous from 1993 - present

Review proposals for AFOSR, ONR, NSF and other agencies on an ongoing basis.

CONFERENCE ORGANIZATION:

Lead Organizer of ASME International Mechanical Engineering Leadership Summit, March 14-16, 2013, San Diego, CA

Co-Organizer of Society of Engineering Science Annual Meeting, Chair of *Mechanics in Medicine Track*, Evanston IL, Oct 2011.

Co-Organizer of symposium on *Advanced Nanocomposite Systems*, ASME/ASCE/SES Summer Meeting, Baton Rouge, LA, June 1-3, 2005.

Co-Organizer of symposium on *Constitutive Relations of Advanced Materials*, ASME IMECE, Washington DC, Nov 15-21, 2003.

Co-Organizer of symposium on *Shape Memory Materials*, SES, Univ. Michigan, Oct. 12-15, 2003.

Co-Organizer of symposium on *Time Dependent Failure Phenomena*, The 14th U.S. Congress of Theoretical and Applied Mechanics, 23-28 June 2002, Blacksburg VA

Co-Organizer of symposium on *Physics, Mechanics and Modeling of Phase Transformations*, Joint ASME/ASCE/SES Summer Meeting, 27 June - 29 June 2001, San Diego CA

Co-Organizer of symposium on Active Materials, SPIE, 2000

Co-Organizer of symposium *Functionally Graded and Shape Memory Materials*, ASME IMECE, Dallas, TX, November 1997.

Co-Organizer of symposium on *Characterization and Modeling of Polymeric Material Systems*, Joint ASME/ASCE/SES Summer Meeting, Northwestern University, June 1997.

Program Co-Chair for McNU'97, Joint ASME/ASCE/SES Summer Meeting, Northwestern University, June 1997.

Co-Organizer for "Engineering Technology Forum", a short course for integrating design, multi-media and Working Model software into the basic mechanics curriculum, Northwestern University, 4 March 1995

Co-Organizer of *Symposium on Phase Transformations and Shape Memory Alloys*, ASME IMECE, Chicago, November 1994

Session Developer for Composite Durability; Chair of Session on "Aging, Creep and Durability of Composites I", International Conference on Composites Engineering, New Orleans, LA, August 28-31, 1994

OTHER PROFESSIONAL ACTIVITIES:

German Excellence Initiative Review Panel, June 2017

External Reviewer, City University Hong Kong, January 9-11, 2017.

Engineering Panel of Research Grants Council, University Grants Committee of Hong Kong 2015-2018.

Engineering and Applied Science Visiting Committee Member, Caltech, 2013 – present.

Mechanical Engineering Advisory Council, University of Delaware, 2013 – present.

Mechanical Engineering Visiting Committee member, Boston University, 2013 – present.

Panelist NextProf Workshop for Future Women Faculty, Univ. Michigan, Sept 30 – Oct 1, 2015.

Senior Mentor, BigTen Women's Workshop, April 3-5, 2013, Milwaukee, WI.

External Reviewer, Notre Dame University, March 3-5, 2013.

Established joint educational exchange program between Northwestern University and Shanghai Jiao Tong University, 2011- present.

Invited review panelist for Deutsche Forschungsgemeinschaft (DFG) in materials science and engineering for "German Excellence Initiative", 14-16 Jan 2012.

ASME Department Head Executive Board, 2011-13

External Reviewer, University of Florida Gainesville, Aerospace and Mechanical Engineering Department, Dec 4-6, 2011.

External Reviewer, Penn State Mechanical Engineering Department, Nov 1-2, 2010.

Invited review panelist for Deutsche Forschungsgemeinschaft (DFG) in materials science and engineering for new "German Excellence Initiative", November 2010.

Panelist for *Motherhood and Success in Science & Engineering* Panel Discussions, Northwestern University and University of Chicago, 18 May 2009.

Executive Education Course, Business for Scientists and Engineers, Kellogg Business School, 2008.

Northwestern Representative at Annual Coalition for National Science Funding, Poster title: *Bionic Bones*, June 25, 2008, Rayburn House Office Building, Washington DC.

Invited review panelist for Deutsche Forschungsgemeinschaft (DFG) in materials science and engineering for new "German Excellence Initiative", 21-22 June 2007 and 28-30 June 2006.

Invited review panelist for Methusalem Project, Leuven Belgium, 17-19 May 2007.

Thesis committee member, Andrey Vishnevsky, Helmut Schmidt University, Hamburg Germany, May 11, 2007.

Invited Committee Member, New Directions in Mechanics Workshop, DOE, Washington DC, September 2003.

Co-author of web-based text for freshman course Dynamics of Systems 1998-02; coordination of asynchronous learning tools for course 2001-02 (http://othello.mech.nwu.edu/ea3/).

Structural and Multifunctional Materials Panel for National Materials Advisory Board of the *National Academy of Sciences*, Materials Research for the Defense After Next, Jan. 2001 – Jan 2002.

Advisor and Founder of *Preparing Future Engineering Faculty*, professional development group for Northwestern engineering graduate students, 1999-present

Co-developer of new core undergraduate "Engineering First Curriculum" at Northwestern, 1996-02

Faculty Associate for the Women's Residential College at NU, 1999-2000

Moderator for the Mechanics Curriculum sessions at the Workshop on Reform of Undergraduate Mechanics Education, Penn State University, 16-18 August 1998

Organized SWE students at NU as coaches for Science Olympiad teams from a local middle school, 1998.

Attended IMM Workshops for Young Investigators (Seattle, October 1996; Albany, August 1997).

MEAS Speaker for NU Admissions Office Forum, 1 June 1997

Resident Associate, Ayers CCI Dormitory on Northwestern Campus, 1995 -1996.

Keynote speaker for "Women in Engineering – the Challenge of the 21st Century" a career workshop for women students and their parents at Northwestern University, 14 May 1994

Speaker at Northwestern SWE student chapter meetings

Panelist for "Women in Science" session of the 1994 *Women in Leadership* conference at Northwestern University

MEAS Academic Panelist for NU Admissions Office Open House, 29 August 1993

GRADUATE STUDENTS AND POSTDOCS

Ph.D. Students:

Anqi (Claire) Lin, Mechanical Engineering and Materials Science, Demonstration of Data Mining in Polymer Nanocomposites, PhD expected 2022.

Bingyin Hu, Mechanical Engineering and Materials Science, Infrastructure and Software for Facile Materials Data Repository, PhD expected 2022.

David Collinson, Mechanical Engineering, *Characterization of 3d Printed of Polymers*, PhD expected 2020.

Ridvan Kahraman, Materials Science and Engineering, *Molecular Modeling and Experiments on Polymer-Nanocellulose Interfaces*, PhD expected 2020.

Matt Eaton, Materials Science and Engineering, *Investigations of Viscoelastic Interphase in Elastomer-Carbon Systems*, PhD expected 2020.

Min Zhang, Theoretical and Applied Mechanics, *Molecular Modeling of Multiphase Polymer Systems*, PhD expected 2018.

Yixing Wang, Mechanical Engineering, *Multiscale Modeling and Data Mining of Dielectric Properties of Polymer Nanocomposites*, PhD expected 2019

Xiaolin Li, Theoretical and Applied Mechanics, *Data Mining, Modeling and Design of Polymer Nanocomposites,* PhD expected 2018.

Min Zhang, Materials Science and Engineering, *Nanoscale Mechanical Characterization of Polymers Near Confining Surfaces*, PhD expected 2018.

Partha Paul, Mechanical Engineering, *Local Characterization of Shape Memory Alloys and Porous SMAs via Digital Image Correlation*, PhD expected 2018.

Angie Hu, Mechanical Engineering, *Multiscale Nonlinear Viscoelastic Modeling of Filled Elastomers*, PhD expected 2018.

Richard Zhao, Mechanical Engineering, *Multiscale Modeling and Data Mining for Polymer Nanocomposites*, PhD 2017.

Krishanu Nandy, Mechanical Engineering, *Graphene Oxide Papers and Composites*, PhD 2016.

PingPing Zhu, Mechanical Engineering, *Shape Memory Alloy Modeling and Applications to Porous and Composite Structures*, PhD 2015. First position: Chrysler.

Xu Cheng, Mechanical Engineering, *Characterization of Local Mechanical Properties of Polymer Thin Films and Polymer Nanocomposites via AFM indentations*, PhD 2014. First position: Nike.

Yang Li, Materials Science and Engineering, *Exploring the Role of Interphase in Mechanical, Viscoelastic and Dielectric Response of Polymer and Polymer Nanocomposites using Modeling Method*, PhD 2014. First position: Dow Chemical.

Catherine Bewerse, Materials Science and Engineering, *Micromechanical Testing and in situ Characterization of SMA phase transformation*, PhD June 2014. First position: Boston Consulting.

Charlie Wood, Mechanical Engineering, *Developing Nanoindentation Techniques for Characterizing Local Mechanical Properties of Soft Matter*, PhD Dec 2013, Currently at Motorola.

Aaron Stebner, Mechanical Engineering, Partitioning of Elastic, *Transformation, and Plastic Strains of Shape-Memory NiTi through Modeling and Neutron Diffraction*, PhD 2012. Currently Assistant Professor at CO School of Mines.

Fang Yuan, Materials Science and Engineering, *Bone Mechanics Modeling*, PhD 2012. Currently Senior Design Engineer at Apple.

Marc Palmeri, Materials Science and Engineering, *Toughening Mechanisms in Nanocomposites*, PhD 2011.

Supinda Watcharotone, Mechanical Engineering, *Interfaces and Dispersion of nanoparticles in Polymer Nanocomposites*, PhD 2011, currently at R&D Engineer, Sunstar Americas.

Keith Gall, Mechanical Engineering, *Microstructural Measurements of Phase Transformation and Relation to Macroscopic Properties for Shape Memory Alloys*, PhD 2010.

Lesley Meade Hamming, Materials Science and Engineering, *Self-healing polymer nanocomposites utilizing a biomimetic initiator*, PhD 2010. Currently Associate at Winston and Strawn.

Andy Schoch, Materials Science and Engineering, *Structural Development and Mechanical Response of Thermoreversible Triblock Copolymer Gels and Gel/Nanotube Composites*, PhD 2009. Currently Research Associate at Saint-Gobain Abrasives.

Ray Qiao, Mechanical Engineering, *Interphase Percolation Effects in Polymer Nanocomposites*, PhD June 2009. Currently research scientist at Apple Computer.

Grace Chen, Mechanical Engineering, *Fracture Mechanics for Nanoreinforced Polymers*, PhD 2009, currently at CFD Research Corp.

Michele Panico, Mechanical Engineering, *Multiscale modeling of shape memory alloys,* PhD June 2008. Currently research scientist at Exxonmobil.

Hua Liu, Mechanical Engineering, *Characterization and Modeling of Viscoelastic Behavior of Carbon Nanotube Reinforced Polymers: The Influence of Interphase and Nanotube Morphology*, PhD September 2007. Currently research scientist at Pactiv.

Huanlong Li, Mechanical Engineering, *Modeling and Simulation of Microporous Titanium: Effects of Morphology with Application to Orthopaedic Implants*, PhD June 2006.

Debbie Burton, Theoretical and Applied Mechanics, *Continuum Models for Shape Memory Alloys for Simulations*, PhD June 2005.

Tao Bai, Mechanical Engineering, *Impedance Spectroscopy and Mechanical Response effects of Physical and Chemical Aging of Polymers*, 2003-2006, no degree.

Frank Fisher, Mechanical Engineering, MS Thesis: *Combined Aging and Moisture Effects in Polymers and Polymer Matrix Composites;* PhD Thesis: *Nanomechanics and the viscoelastic behavior of carbon nanotube-reinforced polymers*, Ph.D. June 2002, currently Professor at Stevens Institute of Technology, NSF CAREER Award 2009.

Xiujie Gao, Mechanical Engineering, *Multivariant Modeling and Characterization of SMAs Based on Hierarchical Characteristics of Martensite Crystallography*, Ph.D. March 2002, currently at GM.

Alex Bekker, Applied Math, *Mathematical Modeling of One-Dimensional Shape Memory Alloy Behavior: Phase Diagram Kinetics and Temperature Induced Transformation*, Ph.D. Fall 1997, currently in computer industry in Silicon Valley (exact whereabouts unknown)

MiinShiou Huang, Mechanical Engineering, *A Multivariant Shape Memory Alloy Model*, Ph.D. Fall 1997, Research Associate, Univ. Tenn. 1998, currently at Ford Company.

Roger Bradshaw, Mechanical Engineering, *Nonisothermal Physical Aging in Polymer Composite Materials*, Ph.D. Summer 1997, currently Professor at University of Lousiville.

M. S. Students:

Jinqiang Ning, Mechanical Engineering, *The Fabrication and Structure-Processing Relationships of Biomimetic Artificial Rat Whisker*, MS expected June 2017.

Anqi (Claire) Lin, Materials Science and Engineering, *Data Driven Heuristic Model for Polymer Nanocomposite Interphase*, MS expected June 2017.

Xiaojing (Michelle) Yuan, Data Extractor for Online Curation of Polymer Nanocomposite Data, MS expected 2018 (joint with SJTU).

Zijiang Yang, Mechanical Engineering, *Data Structures and Models for Microstructure-Property Relations*, MS June 2016.

Angie Hu, Mechanical Engineering, *Modeling of Nanocomposite properties using statistical approaches*, MS December 2013.

Donghai Guo, Mechanical Engineering, *Nanocomposites and Materials Informatics*, MS June 2011.

Sankar Narayanan, Mechanical Engineering, *Molecular Dynamics and Multiscale Modeling of Polymer Nanocomposites*, MS Aug 2009.

Robert Friedrich, Diplomarbeit, Helmut Schmidt Universität, Hamburg Germany, *Modeling of nanoindentation experiments of thin, polymeric Films*, performed research work on site at NU campus for one year 2008-09.

Keith Gall, *Digital Image Correlation Analysis of Shape Memory Alloys*

Ray Qiao, *Numerical Modeling of Shape Memory Alloys and Interfacial Effects in Self-Healing Composites*, MS Feb 2006.

James Washington, Mechanical Engineering, *Multi-scale Measurements of Viscoelastic Properties of Polymeric Materials by Tensile and Indentation Deformations*, MS Feb 2006.

Zhu He, Mechanical Engineering, *Use of Electrical Resistance Testing to Redefine the Transformation Kinetics and Phase Diagram for SMAs*, MS Dec 2004.

Sarah Thelen, Mechanical Engineering, *Mechanics of Ti- Foam Implant Materials*, MS June 2000.

Frank Fisher, Mechanical Engineering, *Viscoelastic Behavior of Polymer Matrix Composites with Interphase Effects: Theoretical Models and Finite Element Analysis*, M.S., Fall 1998.

Richard Hansen, Mechanical Engineering, *Multiviscoelastic Materials in a Single Constrained Layer*, M.S. Spring 1997.

WenSheng Lin, Mechanical Engineering, *Micromechanics Studies of Multiphase Viscoelastic Composites*, M.S. Winter 1996.

Shiyi Hwang, Mechanical Engineering, *Behavior of One-Dimensional Shape Memory Alloy Wires with Heat Transfer Effects*, M.S. Winter 1994.

Postdoctoral Fellows:

Harshad Paranjape, *Micromechanics Modeling of Effects of Grain Size and Defects on Shape Memory Alloys*, 2016-present.

Pavan Kolluru, *Nanoscale Testing of Polymer Interphases and Interfaces*, 2015 - present.

Marc Palmeri, lab group coordinator, *Self-Assembled GO systems*, 2011-present

Zhiwei Cui, *Molecular Simulations of Nanostructured Polymers*, 2012-2015, currently at GM

Amin Ajdari, Modeling of Nonlinear Response of High Loading Nanofilled Elastomers, 2012 – 2014, currently at Current.

Pavan Valavala, *Molecular Dynamics and Modeling of Thermoplastic Elastomers and Nanocomposites*, August 2010 – Dec 2011, currently at Dow Chemical.

Hua Deng, *Modeling of Elastomer Nanocomposites*, 2009- 2012, currently at Western Digital.

Michele Panico, Mechanical Engineering, *Multiscale modeling of shape memory alloys and Molecular Modeling of Polymers*, 2008- 2009, currenty at Exxonmobil.

Karl Putz, *Thermosetting Nanocomposite Systems and Effects of Nanoparticle Geometry on Interphase and Mobility*, 2006 – present.

Anny Flory, *Aging and Structural Relaxation in Nanocomposites*, 2005-07, now research scientist at Dow Corning.

Hui Zhang, *Indentation Mechanics for Polymer Coatings*, 2004-2005

Hui Shen, *Numerical Micromechanics for Porous Metallic Materials*, 2004 – 2006, currently professor at Ohio Northern University

Frank Fisher, *Viscoelastic Effects in Nanoreinforced Polymers*, 2002 – 2004, currently professor at Stevens Institute of Technology

Xiujie Gao, *Micromechanical Shape Memory Behavior – Modeling and Experiments*, 2002-2005, currently at GM

T. Ramanathan, *Aging Characterization of Polymeric Wiring Insulation Materials and Design and Characterization of Polymer Nanocomposites*, 2001-2008

Xiangyang Zhang, *SEM Identification of SMA Variants During Loading*, 1999

Nagendra Akshantala, *Physical Aging and Damage Mechanics in Composites*, 1997-99, currently at Goodyear Co.

Martin Monahan, *Physical Aging in Composites – Use of Reduced Time in Viscoelastic Constitutive Equations for Long Term Response*, 1993-94, currently at Baxter Corporation.

Undergraduate Students working on research:

Valentina Guarino, MRSEC Summer 2016, Nanomine Data Curation

Kelly Ruffenach, MRSEC Summer 2016, interfaces in 3d printed polymers

Anetta Siemianowicz, Summer 2016, Data Curation for NanoMine

Karen Qu, Summer 2015, Data Curation and Database Expansion for the Nanomine Data Resource

Max Brinson, Summer 2015, Web Application and Interface Design for Nanomine Website

Mathias Schmutz, Summer 2015, Data Curation and Database Expansion for the Nanomine Data Resource.

Charlie Scheftic, IIN REU Summer 2015, Towards Rapid Prototyped Lab Instruments: Inexpensive, Open-Source, In-Situ Tensile Tester for Use in Scanning Electron Microscopy.

Marven Laborde, REU Summer 2015, Characterizing the influence of substrate stiffness on model polymer nanocomposites

Alan Grossman, REU, Summer 2014, Characterization of Nano-Scale Local Mechanical Properties on the Surfaces of Polymer Thin Films

Konner Scott, Summer 2014, Microstructural Characterization and Microscopic Image Process

Ty Higashi, REU, Summer 2014, Investigation of the evaporative formation mechanism of graphene oxide papers

Marai Hayes, REU, Summer 2014, Characterization of Polymer Nano-confinement Effects in Thin Films on Functionalized Substrates

Paul Perkovich, Summer 2014, Spin Coating as a Method of Depositing CNF/PDMS Electrodes on EAP Substrate

Brett Glassner, Summer 2014, Origins of Oscillations in Mechanical Testing of Graphene Oxide Papers

Kevin Zhu, IIN REU, Summer 2013, Local Mechanical Properties of Polymers in Nanocomposites

Alyssa Leright, MRSEC REU, Summer 2013, Extraction of Polymer from Graphene Oxide Composites

Kareem Youssef, nuVIBE, Summer 2013, Interfacial Mechanics of Fused Graphene Oxide Papers

Brett Glassner, Volunteer, Summer 2013, Fatigue Testing of Graphene Oxide Papers

Alejandro Jimenez, MRSEC REU 2012, Sandwich Graphene Oxide Composites and Detailed Mechanics of Graphene Oxide Papers

Veronica Perez, MRSEC REU, Fabrication of h-BN papers

Christopher Eley, IIN REU, Summer 2012, Local Mechanical Properties of Polymers Near Interfaces

Peter Kaminski, Diplomarbeit completed at NU, 2012, Local Mechanical and Electrical properties of Graphene Filled Polymers.

Colin Burke, MRSEC REU Summer 2011, h-BN Exfoliation for Nanocomposite Research; returned Summer 2012 Stop Motion Self-Assembly of Graphene Oxide Papers

Fatma Diouf, NSEC REU Summer 2011, Investigation of Hairpin to Duplex Transition for Polyacrylamide Hydrogel Crosslinking

Tracy Galla, NSEC RET Summer 2011, The Mechanical Properties Of Graphene Oxide As Influenced By Thickness & The Carbon-Oxygen Ratio

Melissa Stangl, MRSEC REU Summer 2011, Mechanisms Governing Infiltration and Fusion of Graphene Oxide Paper with Polymers to Yield Hierarchically-Structured Nanocomposites

Helena Varela, visiting researcher, University of Alicante, Spain, *Effect of nanoparticle geometry on interphase creation*, 2010.

Claire Segar, Washington University, *Formation of Graphene Oxide Paper*, summer 2010.

Sule Alabi, UIC, *Injectable Protein Sponge*, summer 2010.

Robert Friedrich, visiting researcher, *Modeling of Nanoindentation for Local Polymer Properties*, Diplomarbeit completed at NU, 2008-09.

Thomas Yu, *Characterization of nanofiller dispersion stability in solution*, 2009.

Zhefei Li, *Synthesis and characterization of carbon nanofiber hybrid composites*, 2009.

Katja Leckband, part of Diplomarbeit completed at NU, *Evaluation of the Influence of Cnt - Functionalization on the Nano-Scale Mechanical and Thermo-Mechanical Properties of Epoxy Nanocomposites*, Fall 2008.

Wang Pai, *Synthesis and Characterization of conducting nanocomposites using graphitic nanofillers*, summer 2008.

Rachel Cohn, *Effect of Crosslink Density on Interphase Creation in Polymer Nanocomposites*, summer 2007.

Angela Alexander, *Polymer Nanocomposites: Carbon Nanotubes and Beyond*, summer 2007.

Laura Jamison, *Buckyballs in Nanocomposites*, summer 2006

Jeff Schumacher, *Polymer Nanocomposites*, 2004 - 2005

Ben Levy, *Imaging and analysis of nanoinclusions in polymers*, 2003 - 2004

Lesley Meade, *Influence of nanoparticles on polymer mechanical response*, 2002-2005

Ben Mangrich, *Thermomechanical Testing of SMA wires*, 2003- 2004

Peter Golovin, *Micromechanical modeling programming*, 2002 - 2003

Werner Brand, *SMA wire characterization and beam control modeling*, 1994

Craig Balanos, *Chemical Aging of Polymer Films and Impedance Spectroscopy Testing*, high school teacher summer intern, 2000.

Mentees:

Kathleen Issen, PhD 2000, currently Assoc. Professor at Clarkson University.

Amy Rechenmacher, PhD 2001, currently Asst. Professor at University of Southern California, received CAREER Award, 2007.

COURSES TAUGHT

Engineering Analysis III: Dynamics of Systems, ENG-205, spring 97-98, spring 98-99, spring 99-00, spring 01-02, spring 02-03, spring 03-04, Spring 2014-15

Mechanics of Materials, CE-216, winter 92-93, spring 92-93, spring 93-94, winter 96-97

Computer Enhanced Mechanics of Materials, CE-216, pilot section, winter 94-95, winter 95-96

Mechanics, CE 212, fall 93-94, fall 94-95

Theory of Elasticity, CE-415, winter 93-94, winter 94-95, fall 95-96, fall 96-97, fall 97-98, fall 2005-06, winter 2010-11.

Mechanics of Advanced Materials, ME-495 (now ME 456), new graduate course, spring 96-97, spring 98-99, fall 01-02, fall 03-04, winter 04-05, winter 07-08, winter 09-10, winter 15-16.

SMA Crystallography and Mechanics, ME-495, graduate course, winter 2011-12, spring 2011-12.