

Yibin “Anna” Xue

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Mechanical & Aerospace Engineering
Utah State University
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EDUCATION

- Ph.D.** in Mechanical Engineering
G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA,
Dissertation: *Three-dimensional interface cracks in anisotropic bimerials*
- M.S.** in Mechanical Engineering
G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA,
- M.S.** in Computational Mechanics
Institute of Computational Mechanics, Dalian University of Technology, Dalian, China
Thesis: *Optimal analysis of composite laminated plates under in-plane loads*
- B.S.** in Applied Mechanics
Dept. of Engineering Mechanics, Dalian University of Technology, Dalian, China
Thesis: *Stability of oil containers under lateral earthquake loads*

PROFESSIONAL EXPERIENCE

- 08/08-TD **Assistant Professor**, Mechanical & Aerospace Engineering, Utah State University, Logan, UT
- 07/08-08/08 **Associate Research Professor**, Center for Advanced Vehicular Systems, Mississippi State University, Mississippi State, MS
- 2004-06/08 **Assistant Research Professor**, Center for Advanced Vehicular Systems, Mississippi State University, Mississippi State, MS
- 2003 **Research Coordinator**, Research and Technology Center, Clark Atlanta University, Atlanta GA
- 1999-02 **Senior Research Scientist and Project Manager**, MicroCoating Technologies, Inc. Atlanta, GA
- 1999 **Post-Doctoral Researcher**, School of Mechanical Engineering/Packaging Research Center, Georgia Tech, Atlanta, GA
- 1998-92 **Lecturer**, Dept. of Planning & Statistics, Dongbei University of Finance and Economics, Liaoning, China

PUBLICATIONS

Book Chapters

- Xue Y, Qu J**, Mixed-Mode Fracture Mechanics Parameters of Elliptical Interface Cracks in Anisotropic Bimerials. Mixed-Mode Crack Behavior, ASTM STP 1359, K. J. Miller and D. L. McDowell, Eds., West Conshohocken, PA, 1999, 143-59.

Peer-Reviewed Journal Articles

25. **Xue Y**, Modeling Fatigue Small-Crack Growth with Confidence – a Multistage Approach, *Int. J. Fatigue*, doi:10.1016/j.ijfatigue.2009.12.016. (in-press).
24. **Xue Y**, The Goodness of the Paris Model: Are C & m Correlated? *Int. J. Fatigue* (accepted).
23. Zhang Z, Ward D, **Xue Y**, Horstemeyer, M, Zhang, HW, Interface characteristics of polyethylene-carbon nanotube using molecular dynamics simulations, *Applied Physics Letters*, (Done at CAVS, to be submitted).
22. **Xue Y**, Pascu A, Horstemeyer MF, Liang W, Wang P, Micromechanisms and modeling of fatigue of LENSTM-processed Steel, *Acta Mat.* (Accepted, March 2010).
21. Du, Y., J. Zhang, H. Toghiani, T. E. Lacy, **Y. Xue**, M. F. Horstemeyer, and C. U. Pittman, Processing techniques for high kenaf-fiber loading/unsaturated polyester composites. *Forest Products Journal*, (submitted in 2009).
20. **Xue Y**, Wright AM, McDowell DL, Horstemeyer MF, Solanki K, Hammi Y, Micromechanics Study of Fatigue Damage Incubation Following an Initial Overstrain, *ASME JEMT* April 2010; 132/021010-1:8, DOI: 10.1115/1.4000227.
19. Lee S, Shi SQ, Groom LH, **Xue Y**, Properties of Unidirectional Kenaf Fiber-Polyolefin Laminates, *Polymer Composites* 2009, DOI 10.1002/pc.
18. Zhang Y, Toghiani H, Zhang J, **Xue Y**, Pittman C, Studies of Surface-modified Wood Flour/Polypropylene Composites. *J Mater Sci.* 2009; 44:2143-51.
17. **Xue Y**, Du Y, Elder S, Wang K, Zhang J, Temperature and Loading Rate Effects on Tensile Properties of Kenaf Bast Fiber Bundles and Composites, *Composites: Part B* 2009; 40:189–96.
16. Wang XS, Yan CK, Li Y, **Xue Y**, Meng XK, Wu BS, SEM in-situ investigation on failure of nanometallic film/substrate structures under three-point bending loading, *Int J of Fracture* 2008; 151:2:269-79.
15. Shi J, Zhang J, Pittman CU, Jr., Toghiani H and **Xue Y**, Preliminary study of the stiffness enhancement of wood–plastic composites using carbon nanofibers, *Holz Roh Werkst* 2008; 66:313-22.
14. Du Y, Zhang J, **Xue Y**, Temperature-Duration Effects on Tensile Properties of Kenaf Bast Fiber Bundles, *Forest Products Journal* 2008; 58:9:59-65.
13. El Kadiri H, Horstemeyer MF, Jordan JB, and **Xue Y**, Fatigue Crack Growth Mechanisms in High Pressure Die-Cast Magnesium Alloys, *Metallurgical and Materials Transactions A* 2008; 39:190-205.
12. **Xue Y**, McDowell DL, Horstemeyer MF, Dale MH, Jordon B, Microstructure-based multistage fatigue modeling of a 7075-T651 aluminum alloy, *Eng Fract Mechanics* 2007; 74:2810-23.
11. Jordon JB, Horstemeyer MF, Solanki K, **Xue Y**, Damage and Stress State Influence on the Bauschinger Effect in Aluminum Alloys, *Mechanics of Materials* 2007; 39:920-31.
10. **Xue Y**, Burton CL, Horstemeyer MF, McDowell DL, Multistage Fatigue Modeling of Cast A356-T6 and A380-F Aluminum Alloys, *Metallurgical and Materials Transactions B* 2007; 38:601-606.
9. **Xue Y**, El Kadiri H, Horstemeyer MF, Jordon JB, Weiland H., Micromechanism of multistage crack growth in aluminum alloy 7075-T651, *Acta Materialia* 2007; 55:1975-84.
8. **Xue Y**, Horstemeyer MF, McDowell DL, El Kadiri H, Fan J, Microstructure-based multistage fatigue modeling of cast AE44 magnesium alloys, *Int J of Fatigue* 2007; 29:666-76.
7. **Xue Y**, Veazie DR, Glinsey C., Horstemeyer MF, Rowell RM, Environmental Effects on the Mechanical and Thermomechanical Properties of Aspen Fiber-Polypropylene Composites, *Composites B: Engineering* 2007; 38:152-58.
6. El Kadiri H, **Xue Y**, Horstemeyer MF, Jordan B, and Wang P, Fatigue Crack Growth Mechanisms in a Die Cast AM50 Alloy, *Acta Materialia* 2006; 54:5061–76.
5. **Xue Y**, Jairazbhoy VA, Niu X, Qu J, Large Deflection of Thin Plates under Certain Mixed Boundary Conditions – Cylindrical Bending. *J. of Electronic Packaging* 2003; 125:53-58.
4. **Xue Y**, Qu J, On the Energy Release Rate of Elliptical Cracks in Anisotropic Elastic Media. *Chinese J. of Mechanics - Series A* 2003; 19(1):109-15.

3. **Xue Y**, *et al*, Development of Ceramic Insulation Coatings for Bi-2212 and Nb₃Sn Tape and Wires. IEEE Trans. of Applied Superconductivity 2003; 13(2):1796-99.
2. Qu J, **Xue Y**, Three-Dimensional Interface Cracks in Anisotropic Bimaterials – The Non-Oscillatory Case. J. of Applied Mechanics 1998; 65:1048-55.
1. Tang J, **Xue Y**, Optimum Analysis of Composite Laminated Plates under In-Plane Loads. J. of Dalian Univ. of Tech. ISSN 1000-8608, 1990; 30(6):637-42.

Peer-Reviewed Conference/Proceeding Papers

28. **Xue Y**, Li T, Micromechanical simulations for fatigue damage incubation mechanisms of LENSTM processed steel, 10th International Fatigue Congress, June 6-11, 2010, Prague, Czech Republic.
27. **Xue Y**, Bode B, Brueckner-Foit A, Micromechanical simulation for texture induced uncertainty in fatigue damage incubation using crystal plasticity model, 10th International Fatigue Congress, June 6-11, 2010, Prague, Czech Republic.
26. A Brueckner-Foit, F Zeismann, B Bode, **Xue Y**, Fatigue cracks in a thermal-mechanically processed high-strength steel, 10th International Fatigue Congress, June 6-11, 2010, Prague, Czech Republic.
25. **Xue Y**, Jha S, M. Caton, JM Larsen, Modeling stochastic interaction between fatigue damage evolution and random heterogeneities, 2010 TMS Annual Meeting, Seattle, WA.
24. **Xue Y**, T Li, JM Larsen, Multistage fatigue modeling for three wrought aluminum alloys, 2010 TMS Annual Meeting, Seattle, WA.
23. **Xue Y**, Jordon B, Horstemeyer MF, Physics-based Multistage Fatigue Model for Fatigue Damage in Notched Structures, 2010 TMS Annual Meeting, Seattle, WA.
22. **Xue Y**, Lugo M, Pascu A, Horstemeyer MF, Fatigue Mechanism and Multistage Fatigue Modeling for Wrought Mg-3Al-1Zn, TMS (The Minerals, Metals & Materials Society) 2009, San Francisco, CA, 2009.
21. **Xue Y**, Fletcher SA, Wang K, Micromechanical simulations on waving and kinked natural fiber-reinforced plastic composites, Proceedings of IMECE2008, 67462, 2008 ASME International Mechanical Engineering Congress and Exposition, Boston, Massachusetts, USA, Oct. 31-Nov. 6, 2008.
20. **Xue Y**, Wang K, Micromechanical Simulations on Hygro-Mechanical Properties of Bio-Fiber Composites, MRS 2008 Spring Meeting. Proceeding 1097-GG-4-20, San Francisco, CA, Mar. 24-28, 2008.
19. Bouvard J-L, **Xue Y**, Taylor P, Horstemeyer MF, Oglesby D, Multistage Fatigue Model on Viscoelastic Materials at Elevated Temperatures, MTDM Conference 08, Monterey CA, Mar. 30 – April 4, 2008.
18. **Xue Y**, Du Y, Elder S, Shame D, Horstemeyer MF, Zhang J, Statistical Tensile Properties of Kenaf Fibers and Composites, 9th International Conference on Wood & Biofiber Plastic Composites, ISBN 1-892529-50-5, Publisher: Forest Products Society 2007, pp 161-198.
17. Wang K, **Xue Y**, Zhang H, Horstemeyer MF, Micromechanical Simulation on Hygro-Mechanical Properties of Woodfiber-Reinforced Plastic Composites, 9th International Conference on Wood & Biofiber Plastic Composites, ISBN 1-892529-50-5, Publisher: Forest Products Society, 2007, pp 339-346.
16. Pittman CP, Jr., Shi JL, Zhang J, Toghiani H, **Xue Y**, Flexural Moduli of Vapor-Grown Carbon Nanofiber/Wood Flour/Polypropylene Composites, 9th International Conference on Wood & Biofiber Plastic Composites, ISBN 1-892529-50-5, Publisher: Forest Products Society, 2007, pp 95-105.
15. **Xue Y**, Wright A, Solanki K, Horstemeyer MF, McDowell DL, Micromechanical simulation of cyclic plasticity at inclusion particles with pre-over straining, 48th AIAA Structural Dynamics and Materials Conference, Waikiki, Hawaii, April 23-26 2007.
14. **Xue Y**, Solanki K, Steele G, Horstemeyer MF, Newman J, Jr., Reliability of mechanistic multistage fatigue model for damage and life estimations, 9th AIAA Non-deterministic Approaches Conference, Waikiki Hawaii, April 23-26 2007.
13. Zhang Y, Pittman CP Jr., Toghiani H, **Xue Y**, Modification of wood flour surfaces by esterification with acid chlorides: use in HDPE/wood flour composites, 233rd ACS National Meeting, Chicago IL, March 25-29 2007.

12. Jordon JB, Newman JC Jr., **Xue Y**, Horstemeyer MF, Near Threshold Fatigue Crack Growth in 7075-T651 Aluminum Alloy, SEM Annual Conference, St. Louis, MO, June 2006.
11. **Xue Y**, El Kadiri H, Horstemeyer MF, Fan J, McDowell DL, Fatigue and Fracture Mechanism of Cast AE44 Magnesium Alloys, SEM Annual Conference, St. Louis, MO, June 2006.
10. **Xue Y**, Burton, CL, Horstemeyer, MF, McDowell, DL, Multistage Fatigue Modeling of Cast A356-T6 and A380-F Aluminum Alloys, Simulation of Aluminum Shape Casting Processing, Edited by Q.G. Wang, M.J.M. Krane and P.D. Lee, TMS (The Minerals, Metals & Materials Society), TMS Annual Meeting, San Antonio, TX, March 2006.
9. **Xue Y**, Jordon B, Horstemeyer S, Horstemeyer MF, Fatigue Experiments, Damage Evaluation and Multiscale Modeling for AA 7075-T651, Proceedings of the 2005 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, Portland Or, June 4-8, 2005, p 1443-1450.
8. **Xue Y**, Jordon B, Horstemeyer MF. Multiscale Fatigue Modeling and Life Prediction for 7075-T651 Aluminum Alloy. TMS (The Minerals, Metals & Materials Society). Larsen JM, Christodoulou L, Calcaterra JR, Dent ML, Derriso MM, Hardman WJ, Hoffman P, Jones JW, Russ SM, editors., 2004, p 129-133.
7. **Xue, Y**, Hillman, K, and Veazie, D, Thermal-Mechanical Evaluation of Plated Electro-Magnetic NiFe for MEMS Generators, Mat. Res. Soc. Symp. Proc., Vol. 795, U11.35.1, Boston, Ma, November 2003.
6. **Xue Y**, Veazie D, and Rowell R, Micromechanical Modeling the Elastic Properties of Agro-Based Composites, Proceeding of the Annual Conference for the American Society of Composites, Gainesville, Florida, October 2003.
5. **Xue Y**, Veazie D, Glinsey C, Wright M, Rowell R, Mechanical Properties of Wood Fiber Composites Under the Influences of Temperature and Humidity, Proceeding of the 7th International Conference on Woodfiber Plastic Composites. Madison, Wisconsin, May 19-20, 2003, pp. 339-343.
4. Veazie D, **Xue Y**, Glinsey C, Wright M, Rowell R, Studies on Effects of Humidity and Temperature on AspenFiber/Polypropylene Composites, Proceeding of the Annual Conference of the Society of Experimental Engineering, Charlotte, North Carolina, June 2003.
3. **Xue Y, et al**, Development of High Mechanical and Dielectric Strength Ceramic Insulators for Superconducting Wires, Proceeding of IEEE 8th International Advanced Packaging Materials Symposium, pp. 178-183, 2002.
2. White M, et al. and **Xue Y**, High-Temperature Superconducting Tapes Deposited by the Non-Vacuum, Low-Cost combustion Chemical Vapor Deposition Technique, Mat. Res. Soc. Sympo. Proc. Vol. 649, 2001.
1. Qu J and **Xue Y**, "Three-Dimensional Interface Cracks in Anisotropic Bimaterials", Proceeding of the 6th Annual International Conference on Composite Engineering, pp. 671-672, Orlando, FL., June 24 – July 3, 1999.

Peer-Reviewed Conference Abstracts

16. **Y. Xue**, H. El Kadiri, M. F. Horstemeyer, M. Lugo, A. Pasco, Cyclic Plasticity, Fatigue Mechanism, and Multistage Fatigue Modeling for Wrought Mg-3Al-1Zn, 2009 ASME International Mechanical Engineering Congress and Exposition, *Lake Buena Vista, Florida, November 13-19, 2009*
15. **Y Xue**, T. Li, M. Horstemeyer, Micromechanical simulations on cyclic plasticity and fatigue damage formation of powder metallurgy-processed steel with microporosity, 2009 ASME International Mechanical Engineering Congress and Exposition, *Lake Buena Vista, Florida, November 13-19, 2009*
14. Z. Zhang, D. Ward, **Y. Xue**, H. Zhang, M. Horstemeyer, Molecular dynamic simulations for effect of polymer chain morphology on mechanical properties of carbon nanotube-polymer composites. TMS (The Minerals, Metals & Materials Society) 2009, San Francisco, CA, Feb. 2009.
13. (Invited) MF Horstemeyer, H. El Kadiri, **Y. Xue**, Microstructurally small crack fatigue in lightweight engineering alloys: modeling and experiments. TMS (The Minerals, Metals & Materials Society) 2009, San Francisco, CA, Feb. 2009.

12. Y. Zhang, H. Toghiani, C. U. Pittman Jr., and **Y. Xue**, Surface Modification of Wood Flour by Acid Chloride Esterification: Characterization and Performance of High Density Polyethylene/ Wood Flour Composites, The 2008 AICHE Annual Meeting, Philadelphia, PA, Nov. 15-21, 2008.
11. Z. Zhang, D. Ward, **Y. Xue**, Interface characteristics of polyethylene-carbon nanotube using molecular dynamics simulations, the Micro/Nano Technology Society-Wide Forum at the 2008 ASME International Mechanical Engineering Congress and Exposition, Boston, Massachusetts, USA, Oct. 31-Nov. 6, 2008.
10. A. Pascu, **Y. Xue**, N. Smelser, L. Wang, P. Wang, M. F. Horstemeyer, Cyclic-hardening and fatigue behavior of LENS processed metal, 2008 ASME International Mechanical Engineering Congress and Exposition, Boston, Massachusetts, USA, Oct. 31-Nov. 6, 2008.
9. **Y Xue**, B Jordon, M Horstemeyer, D L McDowell, J. Newman, Jr. Multistage Fatigue Model for Structural Health Prognosis, International Conference on Fatigue and Damage VII, Hyannis MA, Sept. 14-19, 2008.
9. Y Zhang, J Zhang, J Shi, H Toghiani, **Y Xue**, C U Pittman, Jr. Flexural Properties and Micromorphologies of Wood Flour/Carbon Nanofiber/Maleated Polypropylene/ Polypropylene Composites, 2008 International Conference on Nanotechnology for the Forest Products Industry, St. Louis, MO, June 25-27, 2008.
8. P Wang, S Felicelli, M Horstemeyer, L Wang, **Y Xue**, H El Kadiri, G Potirniche, Simulation-Based Integration of Rapid Solidification to Fatigue Prognostic Predictions Using Laser-Deposited High Strength Materials as an Example, , TMS Annual Conference, New Orleans, LA, March 9-13, 2008.
7. **Y Xue**, M Lugo, M Horstemeyer, J Newman, Jr., Multistage Fatigue Model for an Extruded AZ31 Mg alloy, TMS Annual Conference, New Orleans, LA, March 9-13, 2008.
6. **Y Xue**, M Hall-Dale, M Horstemeyer, D McDowell, Micromechanics Modeling on Fatigue Damage Incubation Life for Aluminum Alloy and 7075-T651, 7th World Congress on Computational Mechanics, Los Angeles, CA, July 2006.
5. **Y Xue**, B Jordon, M Horstemeyer, Multistage Fatigue Modeling of 7075-T651Al alloy Under Variable Amplitude Loading, Fatigue 2006, Atlanta, GA, May 8-12, 2006.
3. **Y Xue**, J Herdorn, M Horstemeyer, Atomistic Simulation Probe for Yield Surface of Single Crystal Cu, World Congress in Computational Mechanics VI, Beijing, China, Sept. 6-10, 2004.
2. **Y Xue**, J Qu, Three-dimensional Interface Cracks in Anisotropic Bimaterials, ASME Mechanics & Materials Conference, Blacksburg, VA, June 27-30, 1999.
1. **Y Xue**, J Qu, Penny-Shaped Cracks on the Interface of Anisotropic Bimaterials, 13th National Congress of Applied Mechanics, Gainesville, Florida, June 1998.

Technical Reports

- “Natural Fiber Composites for Structural Component Design,” S. Q. Shi, J. Zhang, **Y. Xue**, and L. C. Brinson, MSU.CAVS.CMD.2008-R0031, Jan. 2009.
- “Progress Report: Natural Fiber Composites for Structural Components”, **Y. Xue**, S. Q. Shi, S. Lee, Y. Du, S. Elder, M. Horstemeyer, J. Zhang, P. Wang, MSU.CAVS.CMD.2007-R0019, Oct. 2007.
- “From Atoms to Autos: Designing a Mg Alloy Corvette Cradle by Employing Hierarchical Multiscale Microstructure-Property Models for Monotonic and Cyclic Loads”, M.F. Horstemeyer, D. Oglesby, J. Fan, H. El Kadiri, **Y. Xue**, C. Burton, P.M. Gullett, B. Jelinek, M.K. Jones, A. Oppedal, S.G. Kim, E.B. Marin, D.L. McDowell, K. Gall, N. Yang, July 2006.
- “Microstructural-Based MultiStage Fatigue (MSF) Model for Metals (Theory Manual)”, **Y Xue**, MF Horstemeyer, DL McDowell, MSU.CAVS.CMD.2006-R0010, June 2006.

Special Presentations

17. (Invited) “Multistage Fatigue Modeling”, University of Central Florida, Orlando, FL. Nov. 2009.

16. "SFFP Project Report: a) Multistage Fatigue Modeling of Three Wrought Al Alloys, b) Modeling Cyclic Small-Crack Growth with Confidence", Air Force Research Laboratory, Wright-Patterson Air Force Base, OH, August, 2009.
15. "High Fidelity Micromechanism-Based Multistage Fatigue Modeling, Process-Structure-Properties Relations", Air Force Research Laboratory, Wright-Patterson Air Force Base, OH, June, 2009.
14. "Basics of Crystal Plasticity" – 6 hours, Kassel Universität, Kassel, Germany, May 2009.
13. (Invited) "High Fidelity Micromechanism-Based Multistage Fatigue Modeling", Kassel Universität, Kassel, Germany, May 18th, 2009.
12. (Invited) "Multistage Fatigue Modeling for Wrought Mg-3Al-1Zn (AZ31 Mg Alloy)", Brigham Young University, Provo, UT, April 21, 2009.
11. "Micromechanical Simulations on Hygro-mechanical Behaviors of Natural Fiber- Reinforced Plastic Composites," University of Idaho, Moscow, ID, Dec. 9th, 2008.
10. "Micromechanism-based Multistage Fatigue Modeling", Washington State University, Pullman WA, Dec. 8th, 2008.
9. (Invited) "Progressive Damage in Heterogeneous Materials", ATK, Brigham City, UT, Dec. 2nd, 2008.
8. (Invited) "Mechanistic Multistage Fatigue Modeling for Various Metals", Welding Research Council Workshop, Logan, UT, Oct. 15th, 2008.
7. "Multistage Fatigue Modeling for Various Metals", Graduate Seminar, Mechanical & Aerospace Engineering, Utah State University, Logan UT, Oct. 13th, 2008.
6. "Progress report on fatigue model on extruded Mg alloys – USA", Magnesium Front End Research and Development (MFERD), A Canada-China-USA Joint Research & Development Project, 2008 Annual Working Meeting, Hangzhou, China, April 2-4, 2008.
5. "Fatigue Performance of Lightweight Materials", Project Annual Meeting with Dr. Joe Carpenter, DOE/USCAR, Southfield MI, Oct. 23~24, 2007.
4. (Invited) "High Mechanical and Dielectric Strength Insulators for Nb₃Sn wires and Bi-2212 Tapes," Low Temperature Super-conductivity Workshop, Santa Rosa, California, November 2001.
3. "Alternative Thin Film Insulators for Internal-Tin Cu wires and Bi-2212 Tapes," Low Temperature Super-conductivity Workshop, Santa Rosa, California, November 2000.
2. (Invited Presentation) "Design and Analysis of the Flexible Circuits", Ford Motor Company, Detroit, Michigan, June 1999.
1. "Theoretical Analysis of a Three-Dimensional Interface crack in an Anisotropic Bimedia", ASTM, Student Presentation, Saint Louise, Mo, May 1995.

AWARDED RESEARCH PROJECTS

- Statistical, Mechanistic Multistage Fatigue Model for Metallic Alloys under Variable/Spectrum Loading, Wright Patterson Air Force Research Laboratory, Summer Faculty Fellowship Program, Wright Patterson, Ohio, ~ \$20K, Summer 2010 (8 Weeks).
- Faculty development program to re-establish nuclear engineering emphasis at Utah State University, (PI: B. Wood and R. Spall), NEUP/DOE, 4.5 summer months, July 1, 2009-June 30, 2012.
- Crystallographic Texture-Induced Uncertainty in Structural Prognosis of Aging Aircrafts. Utah State University, Vice President Research, \$20,000, July 1, 2009 - June 30, 2010.
- Framework for Uncertainty and Reliability of Micromechanism-Based Fatigue Modeling, Wright Patterson Air Force Research Laboratory, Summer Faculty Fellowship Program, Wright Patterson, Ohio, ~ \$13.4K, Summer 2009 (8 Weeks).
- Holographic Interferometric Instrument for Threshold Stress Intensity -- Innovative Concepts for Rapid and Inexpensive Testing for Threshold Stress Intensity under Stress Corrosion Cracking Conditions of Aluminum Alloys, SBIR Phase I sponsored by the Office of the Secretary of Defense, consulting for Luminit, LLC.
- Fatigue Crack Initiations of a Two-Phase Steel using in Crystal Plasticity Simulations, German Research Foundation (DFG) & Kassel Universität, Kassel, Germany, 7000€ Summer 2009 (6 weeks).

Framework for Uncertainty Analysis of Physics-Based Material Damage Model, Utah State University, Vice President Research, \$5000, Jan. 1, - Dec. 31, 2009

Mississippi State University:

Center for Virtual Design and Manufacturing, \$4M, Feb. 2007 ~ Feb. 2009, Federal Initiatives, DOE/Oak Ridge National Laboratory. (Co-PI on Natural Fiber Composites for Structural Components Design, ~ \$460K)

Southern Center for Lightweight Innovative Design, \$8M, Sept. 2006 ~ Sept. 2010, Federal Initiatives, DOE. (Co-PI on Fatigue of Lightweight Automotive Materials, ~ \$970K)

Development of Natural Fiber-Reinforced Plastic Composites for Automobile Exterior Components -- *a hybrid composite for a hybrid car*, CAVS's initiatives, \$95K, July 2006—June 2007. (PI)

Mechanical Property Enhancement of Wood-Plastic Composites Using Carbon Nanotubes and Ceramic Nanoparticles -- USDA Wood Reutilization Research, \$85K, Jan. 2006 - July 2008. (Co-PI)

Residual Stress Evaluation for Al 7075 using Neutron Diffraction, Canadian National Research Council, Chalk River National Laboratory, \$40K equivalent, June ~ August, 2005. (PI)

MicroCoating Technologies, Inc.

Thin Alternatives to Braided Glass Insulation for Low-Temperature Superconducting Wire – SBIR Phase I US Department of Energy (DOE), \$100K, 09/ 2000 ~ 03/2001. (PI)

Thin Alternatives to Braided Glass Insulation for Low-Temperature Superconducting Wire -- SBIR Phase II, DOE, \$650K, 06/2001 ~ 06/2003. (PI)

MicroTesting System for Thermal-Mechanical Properties and Interfacial Strength of Micron-Plus Scale Components in Infrared Devices -- SBIR Phase I, US Department of Defense (Army), \$70K, 02/2002 ~ 08/2002. (PI)

MicroTesting System for Thermal-Mechanical Properties and Interfacial Strength of Micron-Plus Scale Components in Infrared Devices -- SBIR Phase II (and Phase I options), US Department of Defense (Army), \$770K, 11/2002 ~ 03/2005. (PI)

A Novel Transition Edge High Tc Superconducting Bolometer Using CCVD thin films – SBIR Phase I, US National Aeronautics and Space Administration (NASA), \$70K, 02/2003~07/2003. (PI)

RESEARCH PROJECTS PARTICIPATED

Run-flat Modeling and Simulations, \$750K, July 2007 ~ June 2008, DOD

NSF Research Experiences for Undergraduate (REU): Multiscale High Rate Phenomena, May 2007~ Aug. 2010. (High-rate experiments on woods and woodfiber composites)

Prognosis for Structural Health – Phase II, \$600K, January 2006 ~ August 2008, DARPA BAA.

Prognosis for Structural Health – Phase I, \$900K, October 2003 ~ December 2005, DARPA BAA. (Project Manager)

PATENTS

“Continuous Feed Coator”, J.D. Huggins, D. E. Bane, I. H., Campbell, W. D. Danielson, E. J. Reardon, A. T. Hunt, T.J. Hwang, W. Heilson, Y. Xue, M. Oljaca, CA2357324, 2001.

“Continuous Coating Apparatus”, A. T. Hunt, W. Neilson, M. Oljaca, E. J. Reardon, T. J. Hwang, W. D. Danielson, Jr., J. D. Huggins, D. E. Bane, I. H. Campbell, Y. Xue, European Patent EP 1209252, 2002

“Continuous Feed Coator”, D. E. Bane, I. H., Campbell, W. D. Danielson, J. D. Huggins, A. T. Hunt, T. J. Hwang, W. Neilson, M. Oljaca, E. J. Reardon, Y. Xue, KR20020021619, 2002

“Continuous feed coator”, A. T. Hunt, W. Neilson, M. Oljaca, E. J. Reardon, T. J. Hwang, W. D. Danielson, Jr., J. D. Huggins, D. E. Bane, I. H. Campbell, Y. Xue, US 6869484, 2005

COURSES TAUGHT

- Continuum Theory of Plasticity and Fatigue of Metals (MAE 6930, Spring 2010)
- Continuum Mechanics and Elasticity (MAE 6040, Fall 2009)
- Machine Design (MAE 4300, Spring - 2009, 2010)
- Advanced Mechanics of Materials (ME6213/4213, MSU, Fall 2005)
- Statistics, Optimization, and Systems Engineering (DUFE)

SUPERVISED STUDENTS

- Chong Teng, PhD (Projected graduation May 2012)
Study of fatigue damage initiation mechanism and small-crack growth using crystal plasticity simulation
- Tong Li, MSME (Projected graduation May 2011)
Microstructure-fatigue incubation property relations in metals

Mississippi State University (students were primarily or partially supervised by me, with my position and their major adviser shown in the parenthesis)

Yichen Du, PhD Forestry, Fall 2009 (Co-advisor, Jilei Zhang)
Yongcheng Zhang, PhD Chemistry, Spring 2009 (Supervisor, Charles Pittman)
Marcos Lugo, PhD ME, ? (supervisor, Steve Daniewicz)
Paul Taylor, MSME, Fall 2008, (supervisor, Mark Horstemeyer)
Brian Jordon, MSME, Spring 2006 (supervisor, Mark Horstemeyer)
Amanda Wright, BSME, Spring 2007 (Supervisor)
Mary-Hall Dale, BSME, Spring 2005 (Supervisor)

HONORS AND AWARDS

- Research Staff of the Year: 2007-2008, Center for Advanced Vehicular Systems, Mississippi State University
- Award for Special Contribution on Fatigue, Dec. 2007, Computational Manufacture and Design, Center for Advanced Vehicular Systems, Mississippi State University
- Who's Who in America, 2007
- NSF Fellowship for the Summer Workshop on Nanomaterials and Nanomechanics (2007)
- Strathmore's Who's Who list (2002-2003)
- Special awards for the highest score in Ph.D. Comprehensive Qualification Exams, Georgia Tech, Fall, 1993

PROFESSIONAL SERVICES

Reviewer for

ASME J. of Electronic Packaging
ASME J. of Engineering Materials and Technologies
Composites Part B: Engineering
Fatigue and Fracture of Engineering Materials and Structures
Int. J. for Multiscale Computational Engineering
Int. J. of Fatigue

Consulting --

Luminit, LLC

Committee and Organizer --

ASME annual conference 2009, track 12-section 32: Advances in Fatigue and Fracture (32 presenters)

AFFILIATIONS

ASME (since 1994), ASTM (since 2000), TMS (since 2007), MRS (2001~05), SEM (2003~06),
Society of Women Engineers (SWE, 1996~98)