

Mark F. Horstemeyer, Ph.D.
Dean of School of Engineering
DeMoss Bldg., 3rd Floor, Liberty University
662.617.2760 Cell
mhorstemeyer@liberty.edu

Research Expertise

Integrated Computational Materials Engineering (ICME), multiscale materials modeling, microstructure-property constitutive modeling, finite deformation inelasticity, damage evolution, fracture, fatigue, penetration and impact mechanics; atomistic simulations, finite element analysis, crashworthiness, high-rate deformation, biomechanics, geomechanics, cosmology, and bio-inspired design optimization.

Education

PhD	1995	Georgia Institute of Technology, Mechanical Engineering, G.P.A. 4.0/4.0 Advisor: David L. McDowell
MS	1987	Ohio State University, Engineering Mechanics, G.P.A. 3.6/4.0
BS	1985	West Virginia University, Mechanical Engineering, G.P.A. 3.7/4.0, <i>Magna Cum Laude</i>

Employment

2019	Dean of School of Engineering, Liberty University
2017-present	Founder, President, and CEO of <i>Yobel Technologies, LLC</i>
2015-2018	Adjunct Professor of Physics, MSU
2013-2018	Adjunct Professor of Materials Science and Engineering Dept, Tuskegee Univ.
2010-2018	Honorary Professor of Mechanical Engineering, Xihua University, Chengdu, China
2010-2018	Adjunct Professor of Agricultural and Biological Engineering, MSU
2009-2018	Chief Technical Officer, CAVS/MSU
2007-present	Founder, President, and CEO of <i>Predictive Design Technologies, LLC</i> .
2006-2012	Founder and Director of the DOE Southern Regional Center for Lightweight Designs (SRCLID)
2006-2012	Senior Scientist of DoD Simulation Based Reliability and Safety Center (SimBRS)
2004-present	Professor in Computational Engineering, Mississippi State University
2002-present	Chair Professor, Mechanical Engineering, Mississippi State University
2002-2008	Sr. Manager, Computational Manufacturing and Design, Center for Advanced Vehicular Systems, Mississippi State University
2002	Manager of Fluid/Thermal Modeling Dept., Sandia National Laboratories, Livermore, CA (15 PhD staff members)
2001-2002	Manager of Chemistry and Materials Process Modeling Dept., Sandia National Laboratories, Livermore, CA (12 PhD staff members)
1999-2001	Principal Member of Technical Staff, Sandia National Laboratories, Livermore, CA
1989-1999	Senior Member of Technical Staff, Sandia National Laboratories, Livermore, CA
1987-1989	Member of Technical Staff, Sandia National Laboratories, Livermore, CA
1986-1987	Engineering Intern, Owens Corning Fiberglas, Granville, OH
1984-1985	Engineering Intern, DOE-METC, Morgantown, WV
1983-1984	Engineering Intern, WV Dept of Highways, Weirton, WV

Honors/Awards:

Mechanical Engineering at Mississippi State University Senior Research Award (2018)
European Union Academy of Sciences (2017)
Southeastern Universities Research Association (SURA) Scientist of the Year Award-MSU Nominee (2015)
SouthEastern Conference University (SECU) Faculty of the Year Award-MSU Nominee (2015)
American Association for the Advancement of Science (AAAS) Fellow (2013)
Society of Automotive Engineering (SAE) Fellow (2012)
West Virginia University Distinguished Alumni Award (2012)

Giles Professor (Highest Honor at the University), Mississippi State University (2011)
 Plasticity Research Award for Young Investigator, International Conference on Plasticity,
 Puerto Vallarta, Mexico (2011)
 Honorary Professor at Xihua University, Sichuan Province, Chengdu, China (2010)
 American Society of Metals (ASM) Fellow (2010)
 Thomas French Alumni Achievement Award, Ohio State University (2009)
 Ralph Powe Award Mississippi State University (highest university research award) (2008)
 ASME Materials Division Chair (2007)
 Society of Automotive Engineering (SAE) Teeter Award (2007)
 National Leadership Entrepreneurial Award (2007)
 American Society of Mechanical Engineering (ASME) Fellow (2006)
 Baseball Hall of Fame Physics of Baseball Panel (2004)
 Appointed to ASME Materials Executive Board (2004)
 Columbia Accident Investigation Board Consultant (2003)
 American Foundry Society “Best Paper Award” (2003)
 Chair Faculty position MSU (2002)
 DOE Recognition Award (2000) USCAR work
 R&D100 Award (2000) microstructure-property modeling
 American Foundrymen’s Society Award (2000) casting modeling
 Society of Automotive Engineers (SAE) (1996) technical recognition award
 Sandia Doctoral Study Program (1993-1995) internal state variable plasticity
 Sandia Award For Excellence (1992) finite element lethality studies
 Sandia Award For Excellence (1990) weapons experiments
 Sandia Award For Excellence (1989) weapons design

Program Development (\$44.0 M)

80. DOE BES: Understanding Multiscale Defect Formation Process and Phase-Switching Behavior in Shape Memory Functional Oxides, 2018-2021, \$190K
79. ERDC/TARDEC, Advanced Modeling and Simulation of Multi-Physics Material Response in Geoenvironments- Topic 2, 2017-2020, \$356K
78. ERDC/TARDEC Advanced Modeling and Simulation of Multi-Physics Material Response in Blast Environments-Topic 4, 2017-2020, \$276.6K
77. NASA Numerical Coupling of Eulerian and Lagrangian Finite Element Code, 2017, \$100K, with Youssef Hammi and Rick Weed
76. NSF Solidification Modeling, 2017-2020 \$386,689 with Lei Chen and Yucheng Liu
75. DoD ERDC \$600K Multiscale Damage and Fragmentation Modeling Ultra High Strength Concrete 2016-2017
74. DoD ARL \$400K ICME Metals Modeling 2015-16
73. DoD ERDC \$482K SimBRS Multiscale Cement Fracture Modeling 2015-16
72. DoD ERDC \$98K CEED Multiscale Fracture Modeling 2015-16
71. DoD ERDC \$191K CEED Multiscale Cement Modeling 2015-16
70. DoD ERDC \$184K CEED Multiscale Polymer Modeling 2015-16
69. NSF \$1000K Collaborative Research: Fundamental Investigation of Zinc-Coating of Advanced High Strength Steels Directed by Multiscale Modeling and Experiments with Bin Li and Mohsen Zaeem (MFH: \$289) 2015-18
68. DoD ERDC \$233K CEED Multiscale Fracture Modeling 2014-15
67. DoD ERDC \$415K CEED Multiscale Cement Modeling 2014-15
66. DoD ERDC \$309K CEED Multiscale Polymer Modeling 2014-16
65. DOE Lightweight Metals \$312K Multiscale Modeling of Corrosion, 2013-15
64. DoD ERDC \$176K CRES Multiscale Modeling 2013-15 with Youssef Hammi
63. DoD SimBRS \$250K Weld Joint Fatigue of RHA Steel 2013-14 with Hongjoo Rhee
62. DoD SimBRS \$200K High Strain Rate Modeling and Testing 2013-14 with Hongjoo Rhee
61. DOE INL \$297 MOOSE Modeling 2012-2014

60. DoD ONR \$197K Plasticity/Damage Modeling 2011-2014 with Bin Li
59. DoD ERDC \$118K Structure-Property Quantification of a Paddlefish 2011
58. DoD ERDC \$230K High Rate Damage Modeling of Bridge Steels 2011
57. PNNL \$70K Radiation Damage MD Simulations 2011
56. DoD ERDC \$207K High Rate Response of Steel Alloys 2010
55. DoD TARDEC \$500K SimBRS Multiscale Modeling 2009-2012
54. DOE Idaho National Lab \$75K for Radiation Damage Modeling 2010
53. DOE Southern Regional Center for Lightweight Innovative Designs (SRCLID) (\$3960K) with multiple co-PIs (Phase 3) 2009-2011
52. DoD Metal Reliability (\$1.2M) 2008-2010
51. DOE Southern Regional Center for Lightweight Innovative Designs (SRCLID) (\$3960K) with multiple co-PIs (Phase 2) 2008-9
50. PNNL Multiscale Modeling of Radiation Damage (\$210K: 100%) 2009
49. NSF Creating a Green Composite by Modeling, (\$230K: 50%) with S. Shi 2009
48. DoD An Integrated Approach to Develop Cyberinfrastructure Technology (\$418K: 50%) with Tomasz Haupt 2008
47. Miltech, Fracture Mechanics (\$105K: 100%) 2007-8
46. DoD Composite Feasibility Study (\$146K: 100%) 2007-8
45. CAE Solutions: Composite Fabrics (\$51K :100%) 2007-8
44. DOE Southern Regional Center for Lightweight Innovative Designs (SRCLID) (\$4000K) with multiple co-PIs (Phase 1) 2006-7
43. ORNL Center for Manufacturing and Design (\$3960K) with multiple co-PIs 2007-8
42. DoD Polymer Modeling (\$660K:50%) with Esteban Marin 2007-8
41. NSF Virtual Organization for Cyber Design (CBET0742730-08010004) (\$140K: 50%) with Tomasz Haupt 2007-10
40. DoD Run Flat Tires (\$700K: 100%) 2007-8
39. DoD Bio-Inspired Design (\$420K: 50%) with Lakiesha Williams 2007-8
38. DoD High Rate Phenomena (\$700K: 50%) with Phil Gullett 2007-8
37. DoD TARDEC Development of PM Alloys Model, (\$750K: 50%) with Sergio Felicelli 2007-8
36. CAE Solutions SBIR: Modeling Improvements for Warhead Designs (\$130K: 50%) with Gabriel Potirniche 2006
35. General Dynamics: Robotics Lightweight Design (\$400K: 100%) 2007
34. NSF REU High Rate Phenomena (EEC0647924)(\$300K: 10%) PI:Gullett, Co-PI:Horstemeyer 2007
33. MS Community Action Team (\$50K: 100%) K-PhD program development 2007
32. NAC/DoD Physics Based Reliability Model (\$750K: 100%) 2006-07
31. Halter Marine Design (\$200K:100%) 2006-07
30. Drive Dynamics Modeling of Viscoelastic Behavior (\$700K: 100%) 2006-07
29. NAC/DoD Modeling High Rate Phenomena (\$500K: 50%) with Phil Gullett 2006-07
28. NAC/DoD Lens Prognostic Modeling (\$600K: 50%) with Sergio Felicelli 2006-07
27. CAE Solutions SBIR: Experimental Validation of Composites Failure (\$100K: 50%) with Gabriel Potirniche 2006
26. Miltech: Materials Modeling and Airborne Validation Support (\$255K: 100%) 2006
25. Wade Services: crash modeling (\$50K: 100%) truck crash scenario 2005
24. NAC/DoD: high rate modeling (\$240K: 50%) multiscale modeling 2005-06
23. Viking Range (\$10K: 100%) finite element simulations 2005
22. Mueller Copper Fittings (\$50K: 100%) hydroforming modeling 2005
21. Sandia Grant (\$110K:100%) magnesium modeling 2005-2006
20. DoD DURIP In-Situ Fatigue Scanning Electron Microscope (\$337K: 33%) 2005
19. NAC/DoD: Cyclic Modeling for Laser Engineered Net Shaping (LENS) (\$960K: 100%) 2005-06
18. Chalk River National Laboratory of Canada (\$20K:100%) Stress Evaluations for Al 7075 using Neutron Diffraction (with Y. Xue and C. Burton) 2004
17. MilTech Fatigue (\$80K:100%) History and optimization modeling of forgings 2004

16. MilTech Forging (\$105K: 100%) History and optimization modeling of forgings 2004
15. NAC/DoD: Internal State Variable Model for Powdered Metal (PM) / Laser Engineered Net Shaping (LENS) Components (\$600K:100%) 2004-05
14. USCAR/USAMP Lightweight Metals Group (\$540K:100%): modeling of Powder Metallurgy Process 2004
13. GM-DOE Challenge X Grant (\$50K:50%) with Marshall Molen Crossover Redesign of a GM Equinox 2004
12. AISI (Ford) Grant (\$25K:50%) Optimization of Steel Structures in Design 2003
11. DARPA Grant (\$1600K: 30%) with Jim Newman, Steve Daniewicz, Development of Tools for Prognosis of Aircraft Metals 2003
10. NASA Grant (\$36K: 100%) Columbia Accident Investigation Board (CAIB) external review panel 2003
9. Sandia Grant (\$280K: 100%) magnesium modeling 2003-2006
8. LIGA/MEMS (\$1500K: 20%) process-structure microcasting modeling 2001-2004
7. Sandia LDRD (\$450K: 50%): Atomistic modeling for multi-scale damage analysis 2000-2001
6. USCAR/USAMP Lightweight Metals Group (\$875K: 100%): microstructure-property modeling of a cast AM60B magnesium alloy 2000-2005
5. Sandia ASCI Materials, Physics, and Mechanics (\$800K: 33%): friction modeling of small scale MEMS devices 1999-2004
4. DoD/DOE MOU for Material Modeling (\$1400K: 50%): plasticity and damage modeling 1997-2002
3. Sandia LDRD (\$800K): Atomistic modeling for multi-scale plasticity analysis 1997-2000
2. USCAR/USAMP Lightweight Metals Group (\$1200K: 100%): microstructure-property modeling of a cast A356 aluminum alloy 1995-1999
1. Naval Surface Warfare Center (\$600K: 33%): analysis to evaluate failure in hull welds and implementation of state-of-the-art constitutive models 1995-2000

Teaching Experience:

Taught “Mechanical Engineering Seminar for Graduate Students” Fall 2013, 2014, 2015, 2016
 Taught “Continuum Mechanics” Fall 2014 (Evaluation 4.5/5.0)
 Introduced/taught “Integrated Computational Materials Engineering (ICME)” Fall 2012 (Evaluation 4.8/5.0), Fall 2013 (Evaluation 4.9/5.0), Spring 2015 (Evaluation 4.8/5.0), Spring 2017 (Evaluation 4.2/5.0)
 Initiated Distance Learning Graduate Degrees for Mechanics and Materials for BCOE 2011
 Taught “Finite Element Analysis” Spring 2012 (Evaluation 4.2/5.0), Fall 2015 (Evaluation 4.3/5.0), Fall 2018 (Evaluation: 4.1/5.0)
 Introduced “Automotive Certificate” with Molen, Jones, Steele, George, Bowden Fall 2007
 Introduced “Automotive Engineering Course” with Molen, Jones, Steele, George, Bowden Spring 2008
 Introduced and taught “Inelasticity” Course MSU Spring 2005 (Evaluation: 4.4/5.0), Fall 2006 (Evaluation: 4.5/5.0), Spring 2014 (Evaluation: 4.6/5.0), Spring 2016 (Evaluation: 4.8/5.0)
 Coordinated Mechanics Courses with Working Group in ME, ASE, CE 2004-present
 Taught “Advanced Mechanics of Materials” Course MSU Spring 2004 (Evaluation: 4.1/5.0), Spring 2013 (Evaluation 4.3/5.0)
 Introduced and taught “Failure of Engineering Materials” Course at MSU 2003 (Evaluation: 4.42/5.0, 2005 (Evaluation: 4.42/5.0), 2007 (Evaluation: 4.42/5.0), 2008 (Evaluation: 4.4/5.0), 2009 (Evaluation: 4.5/5.0), 2010 (Evaluation: 4.4/5.0), 2011 (Evaluation: 4.4/5.0), 2016 (none), 2017
 Restructured graduate course curriculum at MSU for solid mechanics in ASE, ME, and CE 2003
 Taught graduate level continuum mechanics course at GT 1995
 Taught strength of materials course at OSU 1986-87
 Taught instrumentation course at WVU 1985

Mentoring MSU students (32 Post Docs: 58 PhD: 60 MS; 42 UG: 192 total)
Primary Advisor Undergraduates (40 total)

1. Drew Stahr (2003) "New Design of Harley Davidson Engine"
2. Jeremy Mowry (AFS award and 2nd in ASME Southeast Region Website Design) (2004) "Comparison of LS-Dyna simulations with Analytical Wave Equation"
3. Justin Crapps (4th place in ASME SouthEast Region Technical Presentation) (2004) "Dodge Neon Side Impact Simulations"
4. Lindsay Assumption (2004) "Powertrain Design of GM Equinox"
5. Matthew Tucker (2004) "Ballistic Impact Simulations using CTH"
6. Alex Howard (2004) "Atomistic Simulations of Void Growth"
7. Jesse Hearndon (2004) "Crystal Plasticity Simulations of Various Grain Misorientations with Void Growth"
8. Enrique Escobar (2004) "Crash Simulations for Head-on Dodge Neon"
9. Justin Green (2004) "Development of Crash Test Kits for K-12 Grades"
10. Tommy Thompson (2004) "High Speed Machining using an Internal State Variable Model"
11. Laura Arias (2004) "Brake Drum Analysis"
12. Shad Haynes (2004) "Atomistic Simulations Showing Subgrain Cell Formation"
13. Christopher Witt (2004) "Analysis of Multi-Objective Optimization Methods"
14. Marvin Haynes (2004) "Multiaxial Fatigue of 7075 al alloy"
15. Jesse Hearndon (2004) Senior Design Projects on Challenge X Hybrid Vehicle Competition
16. Justin Crapps (2004-5) Senior Design Projects on Challenge X Hybrid Vehicle Competition
17. Bo Murphy (2004-6) "Machining and Surface Roughness"
18. Arthur Marble (2004-6) "Employing Optical Imaging for A Dodge Neon"
19. Mary Hall Dale (2005) "Micromechanical Finite Element Simulations in Fatigue of 7075 Al Alloy"
20. Kyle Thompson (2005) "Copper Hydroforming"
21. Jamala Rule (2005) "Crashworthiness K-12 Kit Development"
22. Dion Sanders (2005) "SEM analysis of 7075 Al alloy"
23. Doug Ansel (2005-6) "SEM Analysis of 7075 al alloy in fatigue"
24. Josh Van Landingham (2005-6) "Uniaxial Tension Tests of OFE Cu"
25. Cory Lee (2005) "Solid Modeling of Challenge X Equinox structural support"
26. John Gibson (2005) "Optimization Modeling of Cu Hydroformed T Sections"
27. Isha Carresquel (2005) "Structure-Property Quantification of Automotive Components"
28. Luke Cantrell (2005) "Finite Element Analysis of EA6B Jet Wing"
29. Cassie Bennett (2014) "High Entropy Alloy Development"
30. Taylor Thoms (2014) "Football Helmet Liner Study"
31. Ben Jamerson (2014) "Molecular Dynamics of Polymers"
32. Jeremy Young (2015) "Helmet Foam Compression Testing"
33. Morgan Green (2015) "Dodge Neon Crash Simulations"
34. George Stubblefield (2015) "Heterogeneous Microstructure Crash Simulations"
35. Richie Brown (2016) "Study of Stainless Steel Football Facemask"
36. Jacob Moore (2015-17) "Football Helmet CAD Design"
37. George Stubblefield (2016-17) "Car Crash Simulations with a Human THUMS Model: Dyna"
38. Megan Thornton (2016-17) "Car Crash Simulations: ABAQUS"
39. Caleb Gwaltney (2016-2017) "Recrystallization Experiments"
40. Armin Yazdanshanez (2016-2017) "Post Processing Scripting of Codes of TERRA3D"
41. Zhen Liu (2016-2017) "Bio-Inspired Design Examining Sutures in Animals"
42. Jordan Hoyer (2018) "Football Helmet Drop Tower Experiments"

MS Students (grad date)(60 total)

Primary Advisor (graduation date) (44 total)

1. Matthew Jones (Spring 2005) "Micromechanical Simulations of Coalescence of Voids"
2. Andrew Oppedal (Fall 2005)-Bagley Fellowship Award: "Temperature Dependence on Void Growth and Coalescence: An Experimental Study"
3. Tonya Stone (Spring 2006)-Bagley Fellowship Award, NSF Graduate Fellowship Award: "Multiple Sphere Interactions of Voids Using Atomistic Potentials"

4. Brian Jordon (Spring 2006)-CAVS Fellowship Award: “Modeling of a 7075 al alloy Employing an Internal State Variable Model”
5. David Oglesby (Fall 2007) “Design of Magnesium Corvette Cradle”
6. Christy Burton (Fall 2007) “History Effects of 6022 al alloy”
7. Matt Tucker (Fall 2006) “Hopkinson Bar work on Mag alloys”
8. Christopher Whitt (Spring 2007) “Engine Design”
9. Jesse Hearndon (Spring 2007) “Crack Growth Using a New Superelement”
10. Roxanna Alvarez (Spring 2007) “Experimental Corrosion Pitting Rate Study on Mg Alloys”
11. Rodolfo Gomez (Spring 2007) “LENS experimental microstructure-property relations”
12. Justin Crapps (Spring 2007) “Integration of Web Portals with Optimization and ISV modeling of Hydroformed T Section”
13. Jeremy Mowry (Spring 2007) “Impact Dynamics”
14. Osama AbuOmar (Spring 2007) “Application of Artificial Neural Networks (ANNS) in Modeling the Microstructure-Property Relationships of Materials”
15. Kenny Brister (Spring 2007) “Optimization of Control Arm”
16. Jesse Sherburn (Fall 2007) “Ice Flow Modeling”
17. Laura Tucker (Fall 2007) “Powder Metal Structure-Property Relations Throughout the Processing Steps”
18. Joel Stinson (Spring 2008) “Magnesium Twinning in Crystal Plasticity”
19. Isha Carresquel (Spring 2008) “Structure-Property Relation Effects within FEA of Crash Scenarios”
20. M. Wesley Trim (Spring 2008) “Turtle Shell Designed Armor”
21. Harpreet Grewal (Spring 2009) “Finite Element Simulations of the Powder Metal Process”
22. Paul Taylor (Spring 2010) “Polymer Structure-Property Relations”
23. John Gibson (Spring 2010) “Multiscale Modeling/Exps of Mg Alloys”
24. Jason Fountain (Fall 2010) “Multiscale modeling of Viscoelastic Fatigue: Polyurethane”
25. Jason Simmons (Spring 2011) “Recrystallization of Magnesium Related to Friction Stir Welding”
26. Abdul Parkar (Summer 2011) “Modeling of Extrusion”
27. Michael Kistler (Fall 2011) “Structure-Property Quantification of Mg Alloys”
28. Adam Mayatt (Spring 2012) “High Rate Behavior of an A36 Steel Alloy”
29. Brian Denton (Summer 2012) “Viscoelasticity in Polymers”
30. Matt Jones (Fall 2012) “Structure-Property Relations of High Strength Duplex Steels”
31. Nayeon Lee (Fall 2013) “Finite Element Analysis of Suture Lines and the Associated Shock Mitigation”
32. Matthew Doude (Fall 2013) “Eco-Car Design”
33. Tom Goddette (Fall 2013) “Eco-Car Structural Design”
34. Michael Barr (Fall 2014) “Eco-Car Energy Efficiency Design”
35. Matt Holmer (Fall 2015) “Shear Localization of Concrete Structures”
36. Dylan Scott (Fall 2017) “Structure-Property Quantification of Portland Cement Based Materials ”
37. Megan Burcham (Summer 2016) “Multiscale Modeling of Concrete”
38. Jacob Tobey (Fall 2016) “Innovative Design”
39. Michelle Price (Spring 2018) “Multi-Objective Design Optimization for a Subframe”
40. Lydia Jordan (Spring 2018) “Corrosion of a Titanium alloy and a 3rd Generation Steel”
41. Sakhare Pushkaraj (Spring 2018) “Automotive Design”
42. Gustavo Emmanuelli (Fall 2018) “Large Deformation High Rate Simulations in HPC Environments”
43. Nolan Hoffman (Fall 2018) “Structure-Property Relationships of an Aluminum Alloy for Aircraft Matting”
44. Katie Bryan (Spring 2019) “Multiscale Modeling of Cementitious Materials”
45. Brian Sprow (Spring 2020) “Stress Corrosion Cracking of High Hard Steel”
46. Sam Sprow (2020) “Intermediate Strain Rate Hopkinson Bar Data of Steel Alloys”

Co-Advisor (16 total)

1. Austin Leach (Spring 2004) “Fatigue Crack Growth in the Small”
2. Aaron Daniel (Spring 2004) “Crack Closure in 7075 Al Alloy: An Experimental Study”
3. Stephen Johnston (Fall 2005) “Using Crystal Plasticity to Analyze Misorientation Effects in Fatigue of a

7075 Al Alloy”

4. Joseph Querin (Fall 2005) “An Experimental Study of 6022 Al Alloy under Large Strain Behavior”
5. Alan Hammeck (Fall 2005) “Compression Preloading on Fatigue Crack Threshold Tests”
6. Jim Larue (Spring 2005) “Fatigue Cracks at the Threshold”
7. Bobby Williams (Fall 2005) “Microstructural Analysis of Cast Engine Parts”
8. Srinath Subramaniam (Summer 2005) “Tension, Compression, and Shear of Viscoelastic Tendons”
9. Enrique Escobar (Fall 2007) “Solidification Modeling of Powder Metals”
10. Philip Pratt (Fall 2008) “LENS Microstructure-Property Analysis”
11. Janit Kapil (Fall 2010) “Texture and Microstructural Analysis of an AZ61 Mg Alloy”
12. Nick Bratton (Fall 2011) “Texture and Microstructural Analysis of an AZ31 Mg Alloy”
13. Ken Sullivan (Spring 2014) “Plymouth Tube Microstructure-Property Analysis”
14. Zach McClelland (Spring 2015) “Magnesium Extrusion Structure-Property Quantification”
15. Reda Nacif El Alaoui (Summer 2016) “Varying Strain Rate Effects on Damage Progression on 4140 Steel”
16. John Wood (Fall 2017) “Analysis of a Shark’s Tooth”

PhD Students (grad date)(58 total)

Primary Advisor (38 total)

38. Caleb Younesah (Spring 2021) “Phase Field Modeling of Solidification Events”
37. Mounia Malki (Spring 2021) “Constitutive Modeling of Magnetism Using an Internal State Variable Model”
36. Tate Fonville (Spring 2021) “Robust Design and Multi-Objective Design Optimization for Topology, Geometry, and Materials”
35. Andrea (Karen) Persons (Spring 2020) “Fatigue of Bone Materials”
34. Brandon Everett (Fall 2019) “Concrete Process Modeling”
33. Jatón Wince (Fall 2019) “Failure of Composites Materials”
32. Jody Woods (Fall 2019) “History Modeling of Plasticity Followed by Fatigue”
31. Brad Huddleston (Summer 2019) “Multiscale Modeling of Fragmentation”
30. Andrew Bowman (Spring 2019) “Multiscale Modeling of Polymers”
29. Luke Peterson (Spring 2019) “High Rate Modeling of Damage and Fracture”
28. Heechen Cho (Spring 2019) “Geodynamics Modeling of Earth”
27. Imran Aslam (Fall 2018) “Zinc Coating of Steels”
26. Tichomir Tenev (Fall 2018) “General Theory of Relativity and Solid Mechanics”
25. Denver Seely (Spring 2018) “LENS Modeling/Experiments”
24. Ali “Allen” Bagheri (Fall 2017) “MultiStage Fatigue (MSF) Modeling of the Texture, Grain Size, and Misorientations,” Research Scientist at Arconics (Austin, TX)
23. Jeremiah Deang (Fall 2017) “Paddlefish Structure-Property Relationships,” Asst Prof at Bob Jones University
22. Shane Brauer (Fall 2016) “High Strain Rate Effects on Steel” presently Asst Professor at Mississippi State University at Gautier, MS
21. Justin Hughes (Fall 2016) “Multiscale Fatigue and Uncertainty” presently post-doc at Los Alamos National Laboratory
20. Alston Rush (Summer 2016) “Football Helmet Liner Study” presently Engineer at Navair
19. William Lawrimore (Summer 2016) “Multiscale Modeling of Fatigue” presently Research Engineer at the Army ERDC Laboratory
18. Kyle Johnson (Spring 2016) “Bio-Inspired Design of Helmets” presently Principal Engineer at Sandia National Laboratories
17. NaYeon Lee (Spring 2016) “Bio-Inspired Design: Woodpecker” presently post-doc at CAVS at Mississippi State University
16. Wilburn Whittington (Fall 2015) “Thermal Aspects of High Strain Rate Phenomena” presently Asst. Professor at Mississippi State University
15. WeiWei Song (Summer 2015) “Corrosion-Fatigue Modeling:” presently Research Engineer at Jhong Wang Incorporated (aluminum rolling)

14. Chris Walton (Fall 2013) “Multiscale Modeling of Chemomechanics:” presently Engineer at British Petroleum
13. David Francis (Spring 2013) “Multiscale High Rate Behavior of Polymers:” presently Research Engineer at CAVS at Mississippi State University
12. Jarius Bernard (Spring 2013) “Multiscale Modeling of Small Crack Fatigue:” presently Research Engineer at Eglin Air Force Base
11. Wesley Trim (Summer 2011) “Bio-inspired Design:” presently Research Engineer at the Army ERDC Laboratory
10. Raj Prabhu (Summer 2011) “Constitutive Modeling of the Brain:” presently Assistant Research Professor in the Agricultural and Biological Engineering Dept at MSU
9. Andrew Oppedal (Summer 2010) “Multiscale Modeling of Magnesium Alloys:” presently Research Faculty at CAVS at MSU
8. Jesse Sherburn (Spring 2010) “Development of Internal State Variable Modeling in Geophysics:” presently researcher at Army ERDC Laboratory
7. Paul Allison (Fall 2009) “Powder Metal Structure-Property Relations:” presently assistant Professor at the University of Alabama
6. Matthew Tucker (Spring 2009) “Multiscale Modeling of High Rate Phenomena”: Engineer at Los Alamos National Lab
5. Tonya Stone (Spring 2009) “Multiscale modeling of Powder Metals”: presently Assoc Prof Miss. State Univ
4. Lakiesha Williams (Fall 2008) “Stress State Dependence on Tendon,” presently Assoc Prof Miss. State Univ.
3. Kiran Solanki (Fall 2008) “Introduction of Uncertainty and Physically-Based Distribution Functions into a Continuum Damage Mechanics Formulation for Ductile Metals:” presently Assoc Prof Arizona. State Univ.
2. Brian Jordon (Fall 2008) “Multiscale Experiments on Fatigue:” presently Assoc Prof Univ. Alabama
1. Mei Chandler (Spring 2007) “Environmentally Induced Chemomechanics Modeling:” presently researcher at Army ERDC Laboratory

Co-Advisor and committee member (20 total)

20. Vahid Gahigh (Fall 2019) “Composite Experiments using Pistachios as fibers”
19. Ge He (Fall 2018) “Polymer Based Composites Modeling Using an Internal State Variable Model for Damage Rate Equations”
18. Suby Dou (Spring 2018) “Molecular Dynamics of High Rate Damage”
17. Nikolay Dimitrov (Fall 2018) “ISV Multiphysics Theory for Thermal-Mechanical-Chemical-Electrical-Magnetism”
16. Hamid Bakhtiary (Fall 2018) “ISV Modeling of the Brain”
15. Nitin Sukhija (Fall 2015) “ICME Cyberinfrastructure”
14. Vivek Dixit (Fall 2015) “Nanoscale Modeling of Phase Transformations”
13. James Crawford Baird (Fall 2012) “Mg Microstructure-Property Relations”
12. Laalitha Liyanage (Spring 2012) “Electronics-Atomistic Simulations of Iron-Carbon Systems”
11. Jinshu Shi (Summer 2011) “Kenaff Based Strengthening in Natural Fiber Composites”
10. Marta Guerra (Spring 2010) “Electronic Spins and Monte Carlo Methods”
9. Amitava Moitra (Spring 2010) “Atomistics of Carbon Alloys”
8. Neil Williams (Fall 2009) “Stereological Modeling Algorithms”
7. Marcos Lugo (Fall 2009) “Multiaxial Fatigue”
6. John Ehrigott (Fall 2009) “Structural Collapse” ERDEC
5. Jeff Houze (Fall 2009) “Atomistic Modeling of Plasticity Phenomena”
4. Dangale Robinson (Spring 2009) “Nano-composites studies” Tuskegee Univ.
3. Bohumir Jelinek (Fall 2008) “Bridging Scales from the Quantum to the Atomistic Level Employing Computational Methods”
2. Jeremy Yancey (Spring 2008) “Parallel Monte Carlo Simulations Employing Atomistics”
1. Rick Liu (Fall 2005) “Large Scale Crash Simulations of a Ford 8000 Series Truck into a Concrete

Post-Doctoral Fellows (32 total)

32. David Francis, Miss. State Univ., (2017-2018) “Modeling of Polymers”
31. Nayeon Lee, Miss. State Univ., (2016-2018) “Atomistic Modeling of Titanium”
30. Haley Doude, Miss. State Univ., (2014-2016) “Creation of New Steel Alloys”
29. Ted Dickel, Clemson, (2014-2018) “Multiscale Modeling of Fragmentation”
28. Sungkwang Mun, Miss. State Univ., (2014-2018) “Multiscale Modeling of Polymer Materials”
27. Bhasker Paliwal, Georgia Tech, (2014-2018) “Multiscale Microstructure-Based Modeling of Cementitious Materials”
26. Quancang Ma, Beijing Institute of Technology (2011-2014) “Magnesium Process-Structure-Property Relations”; presently Research Professor at University of Kentucky
25. Sasan Nouranian, Miss. State Univ., (2011-2014) “MEAM of Polymers”; presently Asst Prof at University of Mississippi
24. Marcos Lugo, Miss. State Univ. (2010-2015) “MultiStage Fatigue Modeling and NDE Methods”: presently Asst Prof at University of Texas at Permian-Basin
23. Max Mao, Georgia Tech (2010-2012) “Stereological Analysis of Imaging and Mesh Creation;” presently Research Engineer at Predictive Design Technologies
22. Holly Martin, Miss. State Univ. (2009-2013) “Corrosion of Magnesium;” presently Asst Professor at Youngstown State Univ, Oh
21. Tian Tang, Utah State Univ (2009-2013) “Multiscale Fatigue Modeling;” presently Asst Professor at Akron Univ, Oh
20. Mohsen, Zaeem Washington State University, (2010-2012) “Phase Field Modeling”; presently Assistant Prof at Missouri S&T
19. Amitava Moitra, Miss. State Univ (2010-2011) “Atomistic Magnesium Modeling”; presently post-doc at VIT-University, Vellore, Tamil Nadu, India
18. Jean Luc Bouvard, ONERA (2007-10) “Viscoelastic Fatigue”: presently Asst Prof at CEMEF (Sophea-Antopolis, Univ Mines Paris Tech, France)
17. Sebastien Groh, Brown Univ (2006-10) “Atomistic-Dislocation Dynamics Bridging”; presently Asst Prof at Univ Freiburg, Germany
16. Donald Ward, Brown Univ (2008-10) “Atomistic Modeling”; presently at Sandia National Labs
15. Hongjoo Rhee, Michigan State Univ (2006-09) “Bio-Inspired Armor Design”; presently research prof at MSU
14. Adrian Pascu, Sibiu Romania (2007-08) “Elastic-Plastic Fracture and Fatigue of LENS 316L Stainless Steel”; presently Professor at Sibiu University, Romania
13. Xuchun “Jack” Ren, Harbin Univ (2006-07) “Multi-Objective Optimization”: presently research prof. at North Dakota State Univ.
12. Reza Yasser, Washington State University (2005-07) “Internal State Variable Modeling of Recrystallization and Particle Growth”: presently Assoc. Prof at Michigan Tech
11. Haitham El Kadiri, University Ecole Des Mines Paris (Spring 2004-5) “In-Situ SEM Mechanical Property Analysis”: presently Assoc. Prof at Miss. State Univ.
10. Xianwu Ling, UNC Charlotte (2003-05) “Crystal Plasticity Formalisms”: presently at ABAQUS
9. Gabriel Potirniche, Mississippi State Univ (2003-05) “Atomistic Simulations”: presently Asst Professor at Idaho Univ.
8. Bin Zhang, University of Arizona (Fall 2002-Fall 2003) “Microstructure Evaluation of an A356 Al Alloy used in an Engine”; presently at Meridian, Canada
7. Phil Gullett, UC Davis (2001) “High Rate Finite Element Simulations”: presently Assoc. Professor in Civil Engineering at Mississippi State University
6. Youssef Hammi, Univ. Troy, France (2001) “Internal State Variable Damage Modeling”: presently Research Professor at Mississippi State University
5. Esteban Marin, Georgia Tech (2000) “Internal State Variable Modeling”: presently at Michelin Tire Corp., SC

4. Joel Philliber, UC Santa Barbara (2000) “Atomistic Simulations of Nickel”: presently at start-up company in San Jose, Ca
3. Ken Gall, Univ. Illinois (1999) “Multiscale Modeling of Fatigue”: presently Mechanical Engr Dept Head at Duke University
2. Ganesh Ramaswamy, Univ. Penn (1997-1998) “Damage Mechanics”: presently at GE Research and Development, Schenectady, NY
1. Ashish Kumar, Cornell (1996-1997) “Electromigration,” presently at investment firm in Chicago, IL

Research Professors (15 total)

Sara Adibi (2018-2018) Atomistic Modeling: presently Asst. Research Prof at Miss State Univ
 Min Liao (2012-2013) Atomistic Modeling: presently Assoc. Prof. at Xihua University, China
 Sam Wang (2011-2012) Phase Field Modeling of Mg: presently Assoc. Prof. at Xihua University, China
 Sheldon Deng (2011-2012) Structural Crashworthiness: presently Assoc. Prof. at Xihua University, China
 Bin Li, Johns Hopkins (2010-2014) Mg Structure-Property Quantification: presently Asst. Prof at University of Nevada at Reno.
 Jean Luc Bouvard, ONERA (2010-2012) multiscale modeling of polymers: presently Asst Prof at CEMEF (Sophea-Antopolis, Univ Mines ParisTech, France)
 Mark Tschopp, Georgia Tech (2009-2013) Grain Boundary Studies Employing MD: presently Researcher at Army Research Laboratory
 Ric Carino, (2008-present) Computer Science : presently Assoc. Research Prof at Miss State Univ
 Sungho Kim, MSU (2008-2012) Density Functional Theory: presently Asst. Research Prof at Mississippi State University
 Hongjoo Rhee, Michigan State Univ. (2007-present) Bio-Inspired materials characterization: presently Associate Director at CAVS at Mississippi State University
 Howie Fang, Purdue (Fall 2002-2005) Crashworthiness Optimization: presently Asst Professor at UNC Charlotte
 Anna Xue, Georgia Tech (Spring 2003-2008) Multistage Fatigue Modeling: presently Asst Prof at Utah State
 Gabriel Potirniche, MSU (2005-2008) Multiscale Modeling: presently Asst Professor at Idaho Univ.
 Youssef Hammi, University of de Troy Paris (Spring 2003-present) presently Asst Res Prof at Miss State Univ.
 Haitham El Kadiri, Ecole Des Mines (2005-2008) Materials Science: presently Asst Prof at Miss State Univ.

Sandia Students (21 total)

Undergraduate Summer Interns: Michele Matalanis (Cornell), Matt Botos (Cornell), Doug Bahr (Cornell), Brett Degner (UC Berkeley), Sam Vonderheide (Cornell), Kendyl Ann Paulus (Cornell), Mike Harbeck (Cornell)

Graduate Summer Interns: Dave Pattillo (Illinois), Matt Negrete (UC Davis), Brian Corff (Colorado), Brian Rasmussen (Alabama), Randy Settgest (UC Davis)

PhD Advisor: Shichen Yang (Georgia Tech), Manish Dighe (Georgia Tech)

Service

BCOE P&T committee 2015-6
 MSU Anti-Bullying Committee, 2015-2017
 Manufacturing and Materials Innovation Committee, TMS, 2015
 Mechanical Engineering Dept New Hire Committee 2014
 MSU Athletic Council (2013-2018)
 TMS ICME Chair of Publications Committee (2012-2015)
 Physics Dept (MSU) Review Panel member 2010-2011
 BCOE P&T committee 2010
 BCOE Committee on Professorships/Chair Positions 2009-2011
 State of Mississippi Nuclear Planning Committee 2009-2011
 Mechanical Engineering New Hire Committee 2008

Mechanical Engineering Graduate Committee 2007-2018
SAE Formula Race Team Advisor 2007-09
SAE Reliability Committee 2007-2016
TMS Computational Materials Science Committee 2007-2016
TMS Integrated Computational Materials Engineering (ICME) Technical Coordination Group 2006-2018
VP Research Faculty Advisory Committee 2006-09
Bagley College of Engineering SAE Advisor 2006-2018
Mechanical Engineering Dept PhD Qualification Exam Committee (Oversight of Mechanics) 2006-2018
Mechanical Engineering Dept PhD Qualification Exam Committee (Materials, Mechanics) 2005-2018
ASME: Henry Thurston Awards Committee 2005-2014
Mechanical Engineering Faculty Advisor to Challenge X Program 2004-2006
President Charles Lee Brainstorming Group 2003-2006
Mississippi State University advisory board for Physics Dept ABET Accreditation 2004
Mississippi State University Mechanical Engineering undergraduate committee 2003-2006
Mechanical Engineering Dept PhD Qualification Exam Committee (Oversight of Math) 2003-2006
ASME: AMD Materials Executive Committee 2003-2007
ASME: Constitutive Modeling Committee 1996-present
2004 ASME Winter Program Chair

Editorship

Editorial Board: International Journal of Theoretical and Applied Multiscale Mechanics (IJTAMM) 2009-2018
Associate Editor: ASME Journal of Engineering Materials and Technology 2003-12
Advisory Editorial Board: Metallurgical and Materials Transactions 2002-12
Journal Reviewer: JEMT, Acta Met, IJP, Applied Mech., MSMSE, Met Trans, IJSS, FFEMS
Editorial Board for Handbook of Materials Modeling, Springer, 2005
Review Committee: World Congress on Computational Congress (WCCM), "Multiscale Modeling", 2003

Societies (12 total)

American Association for the Advancement of Science (Fellow)
American Society of Mechanical Engineers (Fellow)
American Society of Metals (Fellow)
Society of Automotive Engineers (Fellow)
American Academy of Mechanics
Materials Research Society
European Society on Computational Science and Engineering
Minerals, Metals, and Materials Society (TMS)
National Science Teachers Association
Phi Kappa Phi
Pi Tau Sigma
Sigma Xi

Review Panels

Served on NSF CMMI Panel for Mechanics of Materials 2014
Served on Army ERDC Nanotechnology Research Planning Committee 2011
Served on AFOSR Multiscale Modeling Strategic Planning Committee 2009
Served on NSF STC Panel for Climate Modeling 2009
Served on NSF manufacturing review Panel Jan 2004
Served on internal MSU review panel for Physics Dept Accreditation Feb 2004
Served on Baseball Hall of Fame Physics of Baseball Panel for Electronic Communication Feb 2004
Served on Columbia Space Shuttle Accident Investigation Board External review panel 2003

Served on Technical review board for Air Force Office of Scientific Research – Multidisciplinary University

Research Initiative at Univ. of Minnesota 2002

Invited Lectures (159 total)

Earth Mantle Dynamics Modeling, American Geophysical Union, New Orleans, LA, Dec 2017

Overview of Chemistry-Process-Structure-Property-Performance Sequence, Los Alamos National Laboratory, Nov 2017

History Modeling of a Steel Tubing Process Using Internal State Variable Theory, Int Plasticity Conference, Puerto Vallarta, Mexico, Jan 2017

Past, Present, and Future of ICME, 70th Anniversary of India Institute of Metals (IIM) at IIT Kanpur Nov 2016

ICME Examples, Tata Consulting Services, Pune, India Nov 2016

ICME for Armor, Army Research Laboratory (ARL), Aberdeen, Md July 2016

ICME for Gears, Workshop on Creating Robust Designs for Complex Engineered Systems, Beijing Institute of Technology, Beijing, China, June 2016

Invited Lecture at the University of Oklahoma, Norman, OK April 2016

ICME modelling of History Effects in a 1010 Steel from a Plate to a Tube, Int J. Plasticity, Kona, Hawaii, 2016

Conducting Research for Graduate Students, Xihua University, Chengdu, China, June 2014

Integrated Computational Materials Engineering for the Classroom, Univ. Alabama, October 2012.

Integrated Computational Materials Engineering, Michigan State University, Lansing, MI May 2012

Creating a Stress-Strain Curve and Forming Limit Diagram Without an Experiment, MIT, Boston, MA April 2012

Interest is the Best Teacher....Einstein, Xihua University, Chengdu, China, March 2012

Bio-Inspired Design Creations, Army ERDC, Vicksburg, MS, Sept 2011

Crashworthiness and Multiscale Modeling, SKKU, Suwon, Korea, May 2011

Multiscale Modeling of Nuclear Materials, INL, Idaho Falls, ID, May 2011

MD Simulations of Magnesium Fracture, TMS, San Diego, Ca, March 2011

Multiscale Modeling of Biomaterials, Baylor University, Waco, Tx, March 2011

Defining the Bridge for Void Coalescence, Int. J. Plasticity Conf., Puerto Vallarta, Mexico, Jan 2011

Multiscale Modeling of Damage, Xihua University, Chengdu, China, Sept 2010

Multiscale Modeling of Radiation Damage, Idaho National Labs, Idaho Falls, ID, Aug 2010

Multiscale Modeling of Geomaterials, CAVS Extension, Jackson, MS May 25, 2010

Predictive Engineering and Design, Hyundai, Seoul, Korea, May 13, 2010

Multiscale Modeling of Steel, POSCO-GIFT, Pohang, Korea, May 12, 2010

Bio-Inspired Design: An Overview, Postech Univ, Pohang, Korea, May 11, 2010

The Next Generation Graduate Student, Handong Univ., Pohang, Korea, May 10, 2010

Investigation on the Compressive Behavior of Turtle's Shell: Experiment, Modeling, and Simulation, 2010 KSME, Jeju Korea, May 1, 2010

Multiscale Modeling of Powder Metals, Univ. Arkansas, April 5, 2010

Continuum Plasticity-Damage Modeling, Army TARDEC, March 3, 2010

Multiscale Modeling of Polymers, Composites Workshop, CAVS, Starkville, MS, Dec 8, 2009

Nanoscale Cyclic Plasticity, ASME Winter Meeting, Orlando, FL, Dec 7, 2009

Multiscale Modeling of Nuclear Radiation on Materials, Pacific Northwest National Laboratory, Aug 10, 2009.

Multiscale Modeling, Michigan Tech, April 8, 2009

From Atoms to Autos for Polymers, Miss. State Univ., Society of Plastics Meeting, March 12, 2009, Starkville, MS

From Atoms to Autos for Metals, Univ. North Texas, March 7, 2009, Denton, TX

On Computational Multiscale Modeling and Simulation, Notre Dame, South Bend, In, Jan 15, 2009

Multiscale Modeling of Magnesium Alloys (Plenary), Int. J. Plasticity Conf, St. Thomas, Virgin Islands, Jan 3-8, 2009

Applications of Multiscale Modeling, Workshop on Industry Needs, Univ North Texas, Denton, TX Dec 15-16, 2008

Atomistic Scale Study on the Effect of Crystalline Misalignment on Densification during Sintering of Nanoscale Tungsten Powder, Sintering 2008, LaJolla, Ca, Nov 16-20, 2008.

Materials, Mechanics, and a Marriage (plenary), Workshop on Multiscale Issues, Mississippi State University, MS, June 23-25, 2008

Bridging Atomistics and Continuum Mechanics and Associated Length Scale Issues (plenary), Horstemeyer, AAM, New Orleans, LA, June 17, 2008

Structural Health Prognosis Using Mechanistic Multistage Fatigue Model, Xue, Jordon, Horstemeyer, McDowell, Newman, International Conference on Fatigue Damage of Structural Materials VII, Sept. 14-19, 2008, Hyannis, MA

Pitting Corrosion Study in an AE44 Magnesium Alloy, Alvarez, Horstemeyer, and Ruiz, NACE 2008 Corrosion Conference, March 2008, New Orleans, LA.

A physically motivated uncertainty-based higher order plastically and damage model, Plasticity Conference, Alaska, June 2-6, 2007

Uncertainty-Based Internal State Variable Modeling of Structure-Property Relationships in Deformed Microstructures, Kiran Solanki and M.F. Horstemeyer, The 5th International Conference on Materials Processing Defects, Cornell Center for Materials Conference, July 2007.

Overview of Southern US Regional Automotive Corridor and Research Opportunities, Hyundai-Kia, Korea, May 2007

Bio-Inspired Design and an Overview of Graduate Research Hangyang University, Korea

SafeSim Research, SangKyunKwan University, Korea

Integrated Computational Materials Engineering (ICME), TMS, Orlando, FL 2007

Microstructure-Property History Modeling of 6022 Al, TMS, Orlando, FL, Feb 2007

Multistage Cyclic Plasticity, DARPA Workshop, Bethpage, NY Jan 2007

Parameter Identification in Fatigue, DARPA Fatigue Workshop, Cornell Univ., June 2006

NanoFatigue, Fatigue2006, Atlanta, GA, May 2006

Multistage Fatigue, TMS, San Antonio, TX April 2006

Polycrystalline Atomistic Fatigue, LSU, Summer ASME, June 2005

Anisotropic Damage and Uncertainty, LSU, Summer ASME, June 2005

Industry Simulation Workshop, Worcester Polytech Institute, May 2005

Powder Metals Workshop, Penn State Univ, April 2005

Powder Metal Pressing Modeling, SAE, Detroit, MI, April 2005

Multistage Fatigue and ISV modeling, DARPA, Sedona, AZ Feb 2005

Uncertainty and ISV modeling, Int. J. Plasticity, Hawaii, Jan 2005

Cradle Finite Element Simulations, USCAR/USAMP, Detroit, MI, March 2004

Multi-objective Crashworthiness, ASME Winter Meeting, Anaheim, CA Nov 2004

Fatigue and Fracture in the Small, ASME Winter Meeting, Anaheim, CA Nov 2004

Multi-objective crashworthiness optimization with radial basis functions, Proceedings of the 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Paper No. AIAA-2004-4487, Albany, NY, Aug. 30 - Sept. 1, 2004.

An integrated design optimization framework using object-oriented programming, Proceedings of the 10th Uncertainty with Internal State Variables, DARPA, New Orleans, LA Sept 2004

Multistage Fatigue for 7075 al alloy, TMS, New Orleans, LA Sept 2004.

A Non-iterative Hybrid-regularization Method for Inverse Heat Conduction Problems, Metal Forming Conference, Columbus, OH, June 2004

Multiscale Powder Metallurgy Modeling, Powder Metallurgy Conference, Chicago, IL June 2004

On Hydroforming Modeling, Mueller Copper Fittings, Memphis, TN May 2004

On the New C6 Corvette Cradle Design, USCAR/USAMP, Detroit, MI, March 2004

Chemomechanics, Northrop-Grumman, Bethpage, NY, Jan 2004.

Multiscale Fatigue of 7075 al alloy, Alcoa, Pittsburgh, Pa, Nov 2003.

Application of Multi-objective Stochastic Methods for Crashworthiness Evaluation of Side-Impact Finite Element Model, Pamcrash Conference 03, Detroit, MI, Oct 2003.

Prognosis using internal state variables, Northrop-Grumman, Bethpage, NY Oct 2003.

High Rate Compression Responses of Single Crystal Copper, ASME Summer Meeting, Phoenix, AZ June 2003

Integration of Microstructure-Property Modeling of Fatigue with Notch Root Radius Effects, USAMP Board, Detroit, MI June 2003

Optimization of High Rate Dynamic Impacts Related to Crash, USAMP Board, Detroit, MI June 2003

In-Situ SEM of a Cast Magnesium Alloy in Corrosive Environments, Freedom Car, Detroit, MI Mar 2003

Crashworthiness and Optimization, GM, Detroit, MI, March 2003

Overview of Reverse Engineered Materials Design Using Multiscale Perspective, National Automotive Center, TACOM, Detroit, MI, Feb 2003

Multiscale Impact, Naval Surface Warfare Center, Washington DC, Feb 2003

Crystal Plasticity and Fatigue, Alcoa, Pittsburgh, Pa Dec 2002

In-Situ SEM of a Cast Magnesium Alloy, Freedom Car, Detroit, MI Dec 2002

High Rate Mesoscale Finite Element Simulations, USCAR, Pittsburgh, PA Sep 2002.

Modeling Plasticity and Fracture of Ductile Metals, Nissan, Smyrna, TN Aug 2002.

Modeling Plasticity and Fracture of Ductile Metals, Mississippi State University, Starkville, MS July 2002.

Atoms to Continuum Modeling, Univ. Minnesota, Minneapolis, MN June 2002.

Overview of Sandia Computing Capabilities, General Motors, Warren, MI June 2002

Finite Element Simulations and Optimization of a Control Arm, American Foundry Society, Kansas City, MO May 2002

Microstructure-Based Modeling of Aluminum Alloys, Intermag, Toronto, Canada, March 2002.

Using Multiscale Analysis for Modeling of a Control Arm, Washington State University, Feb 2002.

Optimization Calculations for an Automotive Control Arm, Int. Conf. Plasticity, Aruba, Jan 2002.

Nanoscale Plasticity Using Atomistic Simulations, Int. Conf. Plasticity, Aruba, Jan 2002.

Fatigue of a Magnesium Cast Alloy, USCAR QRM, Detroit, MI Dec 2001.

Microstructure-Property Modeling Using Finite Element Models, ASM, Nov 2001.

Complex Damage Modeling on ASCI machines, DOE ASCI Validation Conference, Bodega Bay, Ca Oct 2001.

Notch Tensile Test Analysis of Aluminum and Magnesium Cast Alloys, USCAR/USAMP Quarterly Review Meeting, Pittsburgh, Pa Sept 2001.

Atomistic Simulations and Experiments of Large Deformation Processes, 6th US National Congress on Computational Mechanics, Detroit, MI, Aug 2001.

Nanoscale Evaluation of Stress States in the Presence of Defects, Int. Congress Engin. Sciences, Puerto Vallarta, Mexico, Aug 2001.

Multi-scale Material Modeling of Automotive Components, GM Technical Center, Warren, MI, July 2001.

Atomistic Damage Modeling, ASME Summer Meeting, San Diego, Ca, June 2001

Modeling of Magnesium, USCAR/USAMP Quarterly Review Meeting, Toronto, Canada, March 2001.

Microstructure-Property Modeling of a cast A356 Aluminum Alloy, University of Arizona, Tucson, AZ, Jan 2001.

Damage Modeling at the Atomic, Micron, and Macroscale, DoD/DOE MOU Task Coordinating Group, Sandia National Laboratories, Albuquerque, NM, Dec 2000.

Atomistic Modeling and Yielding of Small Specimens, MRS, Boston, MA, Dec 2000.

Monotonic and Cyclic Fatigue Modeling of Automotive Components, GM Technical Center, Warren, MI, Dec 2000.

Modeling of MEMS structures, Sandia National Laboratories, Livermore, Ca, Dec 2000.

Modeling of Cadmium-Zinc-Telluride X-ray Detectors, eV Products, Pittsburgh, PA, Dec 2000

Automotive Control Arm Optimization, USCAR/USAMP Quarterly Review Meeting, Placida, FL, Nov 2000.

Solid Mechanics Relation to LIGA Materials, DOE Complex, Nov 1990.

Computational Materials Science in Multi-Length Scale Analysis of Inelastic Dissipative Metals, Stanford University, Stanford, CA, Nov 2000.

Computational Multi-Length Scale Analysis for Plasticity and Damage,” University of Nevada, Reno, Oct 2000.

Physical Length Scale Observations Used for Nonlocal Modeling, Engineering Sciences Summer Institute, Sandia National Laboratories, Livermore, CA, Aug 2000.

Overview of Continuum Damage Mechanics, Engineering Sciences Summer Institute, Sandia National Laboratories, Livermore, CA, Aug 2000.

Mechanics in Design, UCLA, Army Research Office Future Research, Los Angeles, CA, June 2000.

Atomistic Simulations and Plasticity at the Nanoscale, MRS, San Francisco, CA, April 2000.

Final Modeling Review of Monotonic and Fatigue Models of Cast A356 Aluminum Alloy, USCAR/USAMP Quarterly Review Meeting, Peoria, IL, April 2000.

Damage Mechanics Modeling of a Cast A356 Aluminum Alloy, American Foundry Society, Pittsburgh, Pa, April 2000.

Multi-scale Modeling of Plasticity and Damage, Alcoa Technical Center, Pittsburgh, PA, April 2000.

Cyclic Fatigue of a Cast A356 Aluminum Alloy, American Foundrymen's Society, Pittsburgh, PA, April 2000.

Comparison of Control Arm Analyses and Tests, USCAR/USAMP Quarterly Review Meeting, Detroit, MI, Jan 2000.

Multiscale Modeling of Inelastic Dissipative Materials, Georgia Tech, Atlanta, Ga, Dec 1999

A Strain Tensor at the Atomic Scale, MRS, Boston, MA, Nov 1999.

Micromechanical Fatigue Modeling of crack incubation, USCAR/USAMP Quarterly Review Meeting, Detroit, MI, Nov 1999.

Microstructure-Property Modeling, ASM, Cincinnati, Oh, Nov 1999.

Multiscale Modeling of Inelastic Deformation, Johns Hopkins Univ., Baltimore, Md, Oct 1999.

Multiscale Modeling of Damage, University of Maryland-Baltimore County, Baltimore, Md, Oct 1999.

Multiscale Modeling of Inelastic Deformation and Damage, Army Research Lab, Aberdeen Proving Ground, Aberdeen, Md, Oct 1999.

Multiscale Modeling of Inelastic Dissipative Materials, Carnegie Mellon, Pittsburgh, Pa, Sept 1999.

Multiscale Modeling of Inelastic Dissipative Materials, University of Kentucky, Ky, Aug 1999.

Overview of Continuum Damage Mechanics, Engineering Sciences Summer Institute, Sandia National Laboratories, Livermore, CA, Aug 1999.

Atomistic simulations of aluminum-silicon interface, USCAR/USAMP Quarterly Review Meeting, Detroit, MI, Aug 1999.

Damage progression in 304L Stainless Steel, DOE/DoD MOU Task Coordinating Group, Eglin Air Force Base, June 1999.

Finite Element Analysis Modeling Using Internal State Variables, GM, Warren, MI, May 1999.

Length Scale Issues in Plasticity, MRS Special Conference, Argonne National Lab, April 1999.

Material Modeling and Optimization Schemes, USCAR/USAMP Quarterly Review Meeting, Placida, FL, March 1999.

Fatigue Modeling of a Cast A356 Aluminum Alloy, American Foundry Society Conference, Atlanta, Ga, March 1999.

Void Nucleation, Growth, and Coalescence Modeling, International Conference in Plasticity, Cancun, Mexico, Jan 1999.

Finite Deformation Atomistic Modeling, International Conference in Plasticity, Cancun, Mexico, Jan 1999.

Microstructure Evaluation of various cast aluminum alloys, USCAR/USAMP Quarterly Review Meeting, Detroit, MI, Dec 1998.

Notch test analysis: simulation and experiments, TMS, Chicago, IL, Oct 1998.

Simple Shear simulations using atomistic methods, Summer ASME Meeting, Gainesville, FL, June, 1998.

Incubation modeling of fatigue, USCAR/USAMP Quarterly Review Meeting, Detroit, MI, June 1998.

Internal State Variable Modeling of a Cast A356 Aluminum Alloy, American Foundry Society Conference, Atlanta, Ga, May 1998.

Computational Modeling and Simulation at Sandia National Laboratories, Ford Motor Company, Dearborn, MI, April 1998,

Computational Modeling and Simulation at Sandia National Laboratories, Chrysler Corporation, Auburn Hills, MI, April 1998,

Computational Modeling at Different Size Scales, Cal Tech, Pasadena, Ca, Feb 1998.

Void Stress Parametric Study, Stanford Univ, Stanford, Ca, March 1997.
 Plasticity in Process and In-Service Modeling of Metal Parts, Naval Surface Warfare Center, Dahlgreen, MD, 1996.
 Plasticity and Damage in HY100 Steel, Naval Research Laboratory, MD, 1996.
 Various Navy Hull Simulations Using an Internal State Variable Model, Dunfermline, Scotland, 1996.
 Finite Element Simulations of Fracture of the B83 Weapons Carrier, ISATA Conference, Florence, Italy, 1996.
 Parametric Studies of Electromigration and Void Stress Analysis, Stanford University, 1996.
 Stress History Dependent Localization and Failure Using Continuum Damage Mechanics Concepts, ASTM Conference, Orlando, FL, 1996.

Conferences/Seminars/Workshops Organized (15 total)

Multiscale Models for Manufacturing and Properties, TMS, Phoenix, AZ 2018
 Manufacturing Summit, Manufacturing and Materials Innovation, TMS, Pittsburgh, Pa 2015.
 International Conference on Creationism, Pittsburgh, Pa Aug 4-9, 2013
 3rd Bi-ennial MSU Workshop on Predictive Science and Engineering, Starkville, MS June 26-28, 2012
 2nd Bi-ennial MSU Workshop on Predictive Science and Engineering, Starkville, MS June 22-25, 2010
 Workshop of “Waste Repositories of Nuclear Materials: The Usage of Salt”, CAVS Ext., Jackson, MS May 2010
 Symposium on “Multiscale Fatigue,” ASME Winter meeting, Orlando, FL November 2009
 Symposium on “Plasticity, Damage, and Fracture,” in honor of Dr. David McDowell, Int. J. Plasticity Conf., St. Thomas, VI Jan 3-8, 2009.
 MSU Workshop on Materials and Mechanics, Starkville, MS June 23-25, 2008
 American Academy of Mechanics Symposium on “Multiscale Modeling for Plasticity and Damage,” New Orleans, LA June 17, 2008
 CAVS/CMD Industry Day, Starkville, MS April 2007
 K-6 Regional Crash Test Competition, CAVS, MS Nov 2006
 Mentoring the Next-Generation Faculty, Starkville, MS July 2006
 Computational Multiscale Modeling, 10th US National Congress on Computational Mechanics, Anaheim, CA July 2006
 American Society of Metals, Symposium on Engineering and Design of Alloys, Cincinnati, OH June 2006
 Materials Research Society, AA-Micro and Nanomechanics of Structural Materials, Boston, MA Nov 2005
 Computational Micro and Nanotechnology, 9th US National Congress on Computational Mechanics, Austin, Texas July 2005
 Multiscale Modeling and Experiments, Plasticity Conference, Hawaii Jan 2005
 ASME Winter Meeting Materials Symposia Chair, Anaheim, CA Nov 2004
 Computational Micro and Nanotechnology, 8th US National Congress on Computational Mechanics, Beijing, China Sept 2004
 Predictive Material Modeling and Computational Strategy for Creep and Fatigue Damage, Winter ASME meeting, Nov 2003
 Computational Micro and Nanotechnology, 7th US National Congress on Computational Mechanics, Albuquerque, NM July 2003
 Rapid Solidification Symposium, Society of Engineering Sciences Conference, Penn State University, Oct 2002.
 MesoScale Conference, Denmark, 2002
 Engineering Application of Complex Constitutive Models, Plasticity Conference, Aruba, Jan 2002
 Computational Micro and Nanotechnology, 6th US National Congress on Computational Mechanics, Detroit, MI, Aug 2001
 Nonlocal Plasticity Workshop, July 2001, Sandia National Laboratories, Livermore, Ca.
 Nonlocal Plasticity Workshop, Aug 2000, Sandia National Laboratories, Livermore, Ca.
 Sandia Engineering Sciences Summer Institute, Summer 2000, Sandia National Laboratories, Livermore, Ca.
 Nonlocal Plasticity Workshop, Aug 1999, Sandia National Laboratories, Livermore, Ca.

Sandia Engineering Sciences Summer Institute, Summer 1999, Sandia National Laboratories, Livermore, Ca.

Nonlocal Plasticity Workshop, Aug 1998, Sandia National Laboratories, Livermore, Ca.

Sandia Engineering Sciences Summer Institute, Summer 1998, Sandia National Laboratories, Livermore, Ca.

Multiscale Plasticity and Damage Analysis, McNu, ASME Summer Meeting, July 1997, Chicago, IL.

Sandia Academic Related Activities

- 2002 DOE program, *Advanced Computing Research Institute*: graduate students from 5 universities.
Recruitment for Sandia new hires
- 2001 DOE program, *Engineering Sciences Summer Institute*: graduate students from 20 universities.
DOE program, *Advanced Computing Research Institute*: graduate students from 4 universities.
Recruitment for Sandia new hires
- 2000 DOE program, *Engineering Sciences Summer Institute*: graduate students from 10 universities
Recruitment for Sandia new hires
- 1999 DOE program, *Engineering Sciences Summer Institute*: graduate students from 6 universities
Recruitment for Sandia new hires
- 1998 Developed DOE program, *Engineering Sciences Summer Institute*: graduate students from 4 universities
Recruitment for Sandia new hires

Publications by Mark F. Horstemeyer (479 total, citation h-factor=62)

Ordered By dates

Books/Encyclopedias (11 total)

11. Horstemeyer, M.F., *Integrated Computational Materials Engineering (ICME) for Metals: Concepts and Case Studies*, Wiley Press, 2018.
10. Carino, R.L. and Horstemeyer, M.F., “Case Studies using MATLAB to Build Model Calibration Tools for Multiscale Modeling,” INTECH, OpenScience/OpenMinds, Chapter 6, pp. 139-157; <http://dx.doi.org/10.5772/62348>; <http://www.intechopen.com/articles/show/title/case-studies-in-using-matlab-to-build-model-calibration-tools-for-multiscale-modeling>, 2016.
9. Jordon, J.B., Grantham, J., and Horstemeyer, M.F., “Monotonic and Fatigue Behavior of Mg Alloy Friction Stir Spot Welds,” An International Benchmark Test in the “Magnesium Front End Research and Development,” Ch. 89, eds. S.N. Mathaudhu, A.L. Luo, N.R. Neelameggham, E.A. Nyberg, and W.H. Sillekens, TMS, DOI: 10.1002/9781118859803.ch89, 2014.
8. Horstemeyer, M.F., “Materials of the Future: From Business Suits to Space Suits,” Data-Intensive Science, ed. T. Critchlow and K. Kleese van Dam, Chapman and Hall/CRC, Computational Science Series, Ch. 5, pp. 103-120, 2013
7. Horstemeyer, M.F., *Integrated Computational Materials Engineering (ICME) for Metals: Reinvigorating Engineering Design with Science*, Wiley Press, 2012.
6. Moitra, A., Kim, S., Kim, S.G., Park, S.J., German, R., and Horstemeyer, M.F., “Atomistic Scale Study on Effect of Crystalline Misalignment on Densification During Sintering Nano Scale Tungsten Powder,” *Advances in Sintering Science and Technology*, Ed. R. K. Bordia and E. A. Olevsky, The American Ceramic Society, 2010.
5. Horstemeyer, M.F., “Multiscale Modeling: A Review,” *Practical Aspects of Computational Chemistry*, ed. J. Leszczynski and M.K. Shukla, Springer Science+Business Media, Dordrecht Netherlands, pp. 87-135, 2009.
4. Horstemeyer, M.F., Potirniche, G., Marin, E.B., Chapter 3. Mesoscale-Macroscale Continuum Modeling: Crystal Plasticity, *Handbook for Materials Modeling*, ed. S. Yip, Springer, 3300 AA Dordrecht, The Netherlands, 2005.
3. Horstemeyer, M.F. Chapter 3. Mesoscale-Macroscale Continuum Modeling: Introduction, *Handbook for Materials Modeling*, ed. S. Yip, Springer, 3300 AA Dordrecht, The Netherlands, 2005.
2. Horstemeyer, M.F., *Path Crossings*, Minerva Press, 2000.

1. Bammann, D. J., Chiesa, M. L., Horstemeyer, M. F., Weingarten, L. I., "Failure in Ductile Materials Using Finite Element Methods," *Structural Crashworthiness and Failure*, eds. T. Wierzbicki and N. Jones, Elsevier Applied Science, The Universities Press (Belfast) Ltd, 1993.

Review/Invited Articles (9)

9. Horstemeyer, M.F., Tang, T., Kim, S., Potirniche, G., and Farkas, D., "Nanostructurally Small Cracks (NSC): A Review of Atomistic Modeling of Fatigue," *Int. J. Fatigue*, Vol. 32, Issue 9, pp. 1473-1502, 2010.
8. Horstemeyer, M.F. and Bammann, D.J., "A Historical Review of Internal State Variable Theory for Inelasticity," *Int. J. Plasticity*, Vol. 26, No. 9, pp. 1310-1334, 2010.
7. McKittrick, J., Chen, PY, Tomolato, L, Novitskaya, EE, Trim, MW, Hirata, GA, Olevsky, EA, Horstemeyer, MF, and Meyers, MA, "Energy Absorbent Natural Materials and Bioinspired Design Strategies: A Review," *Materials Science Eng. C*, Vol. 30, pp. 331-342, 2010.
6. Kim, SG, Horstemeyer, MF, Baskes, MI, Rais-Rohani, M, Kim, S, Jelinek, B, Houze, J, Moitra, A, and Liyanage, L, "Semi-Empirical Potential Methods for Atomistic Simulations of Metals and Their Construction Procedures," *J. Eng. Mater. Technol.* 131, 041210 (2009)
5. Bouvard, JL, Ward, D., Hossain, E., Nouranian, S., Marin, E.B., and Horstemeyer, MF, "Review of Hierarchical Multiscale Modeling to Describe the Mechanical Behavior of Amorphous Polymers," *JEMT*, Vol. 131., No. 4, 2009.
4. Horstemeyer, M.F., Wang, P., "Cradle-to-Grave Simulation-Based Design Incorporating Multiscale Microstructure-Property Modeling: Reinvigorating Design with Science," *J. Computer-Aided Materials Design*, Vol. 10, pp. 13-34, 2003.
3. Horstemeyer, M.F. "Mapping Failure by Microstructure-Property Modeling," *Journal of Metals*, ed. J.J. Hoyt, 2001.
2. Horstemeyer, M.F., Baskes, M.I., and Plimpton, S.J., "Computational Nanoscale Plasticity Simulations Using Embedded Atom Potentials," *Prospects in Mesomechanics*, ed. George Sih, Theoretical and Applied Fracture Mechanics, Vol. 37, No. 1-3, pp. 49-98, 2001.
1. Horstemeyer, M. F., Revelli, V, "Stress History Dependent Localization and Failure Using Continuum Damage Mechanics Concepts," ASTM, *Application of Continuum Damage Mechanics to Fatigue and Fracture*, ed. D. L. McDowell, STP1315, 1996.

Published Journal Articles (275 total)

275. Liu, P., Wang, Z., Xiao, Y., Horstemeyer, M.F., Cui, X. and Chen, L., 2018. Insight into the mechanisms of columnar to equiaxed grain transition during metallic additive manufacturing. *Additive Manufacturing*.
274. Brauer, S. A., W. R. Whittington, H. Rhee, P. G. Allison, D. E. Dickel, C. K. Crane, and M. F. Horstemeyer. "Stress-State, Temperature, and Strain Rate Dependence of Vintage ASTM A7 Steel." *Journal of Engineering Materials and Technology* 141, no. 2 (2019): 021002.
273. Cho, H.E., Hammi, Y., Bowman, A.L., Karato, S.I., Baumgardner, J.R. and Horstemeyer, M.F., "A unified static and dynamic recrystallization Internal State Variable (ISV) constitutive model coupled with grain size evolution for metals and mineral aggregates," *International Journal of Plasticity*, 112, 123-157, 2019.
272. Jordan, Lydia A., M. A. Tschopp, Todd E. Mlsna, David Wipf, and M. F. Horstemeyer. "Modeling and experimental calibration of the corrosion of RHA steel in immersion and salt-fog environments." *Corrosion Engineering, Science and Technology* (2018): 1-8.
271. Dickel, Doyle, Steven R. Gwaltney, Sungkwang Mun, Michael I. Baskes, and Mark F. Horstemeyer. "A Dispersion-Corrected Modified Embedded-Atom Method Bond Order Interatomic Potential for Sulfur." *The journal of physical chemistry A* (2018).
270. Wang, X., Liu, P.W., Ji, Y., Liu, Y., Horstemeyer, M.H. and Chen, L., Investigation on Microsegregation of IN718 Alloy During Additive Manufacturing via Integrated Phase-Field and Finite-Element Modeling. *Journal of Materials Engineering and Performance*, pp.1-9.

269. Bertucci, R., Prabhu, R., Horstemeyer, M.F., Mao, Y., Gilbrecht, R., Sheng, J., Williams, L.N. and Liao, J., "An Anatomically Relevant Computational Model for Primary Blast Effects on the Human Lower Extremity," *Journal of Mechanics in Medicine and Biology*, p.1850057, 2018.
268. Murphy, M.A., Mun, S., Horstemeyer, M.F., Baskes, M.I., Bakhtiary, A., LaPlaca, M.C., Gwaltney, S.R., Williams, L.N. and Prabhu, R.K., 2018. Molecular dynamics simulations showing 1-palmitoyl-2-oleoyl-phosphatidylcholine (POPC) membrane mechanoporation damage under different strain paths. *Journal of Biomolecular Structure and Dynamics*, pp.1-14.
267. Chen, J., Brazile, B., Prabhu, R., Patnaik, S.S., Bertucci, R., Rhee, H., Horstemeyer, M.F., Hong, Y., Williams, L.N. and Liao, J., 2018. Quantitative Analysis of Tissue Damage Evolution in Porcine Liver With Interrupted Mechanical Testing Under Tension, Compression, and Shear. *Journal of biomechanical engineering*, 140(7), p.071010.
266. Dickel, D., Barrett, C.D., Carino, R.L., Baskes, M.I. and Horstemeyer, M.F., 2018. Mechanical Instabilities in the Modeling of Phase Transitions of Titanium. *Modelling and Simulation in Materials Science and Engineering*.
265. Deang, J. F., Persons, A. K., Oppedal, A. L., Rhee, H., Moser, R. D., & Horstemeyer, M. F. (2018). Structure, property, and function of sheephead (*Archosargus probatocephalus*) teeth. *Archives of Oral Biology*, 89, 1-8.
264. Tenev, T.G. and Horstemeyer, M.F., 2018. Mechanics of spacetime—A Solid Mechanics perspective on the theory of General Relativity. *International Journal of Modern Physics D*, 27(08), p.1850083.263.
263. Nayeon Lee, Lakiesha N Williams, Sungkwang Mun, Hongjoo Rhee, R Prabhu, Kabindra R Bhattarai, MF Horstemeyer, "Stress wave mitigation at suture interfaces," *Biomedical Physics & Engineering Express*, Vol. 3, Issue 3, 2017.
262. Tschopp, M.A., Rinderspacher, B.C., Nouranian, S., Baskes, M.I., Gwaltney, S.R. and Horstemeyer, M.F., 2018. Quantifying Parameter Sensitivity and Uncertainty for Interatomic Potential Design: Application to Saturated Hydrocarbons. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*, 4(1), p.011004.
261. Y Hammi, TW Stone, B Paliwal, MF Horstemeyer, PG Allison, "Smooth Yield Surface Constitutive Modeling for Granular Materials," *Journal of Engineering Materials and Technology* 139 (1), 011010, 2017.
260. BD Huddleston, DE Dickel, MF Horstemeyer, N Williams, K Danielson, "Damage Progression and Fragmentation in Atomistic, Single Crystal Copper at High Strain Rates," *Solid State Phenomena* 258, 49-52, 2017.
259. SA Brauer, WR Whittington, KL Johnson, B Li, H Rhee, PG Allison, MF Horstemeyer, "Strain Rate and Stress-State Dependence of Gray Cast Iron," *Journal of Engineering Materials and Technology* 139 (2), 021013, 2017.
258. JM Hughes, M Lugo, JL Bouvard, T McIntyre, MF Horstemeyer, "Cyclic behavior and modeling of small fatigue cracks of a polycarbonate polymer," *International Journal of Fatigue* 99, 78-86, 2017.
257. GA Rush, GA Rush, N Sbravati, R Prabhu, LN Williams, JL DuBien, MF Horstemeyer, "Comparison of shell-facemask responses in American football helmets during NOCSAE drop tests," *Sports Engineering* 20 (3), 199-211, 2017.
256. Sungkwang Mun, Andrew L Bowman, Sasan Nouranian, Steven R Gwaltney, Michael I Baskes, Mark F Horstemeyer, "An Interatomic Potential for Hydrocarbons Based on the Modified Embedded-Atom Method with Bond Order (MEAM-BO)," *The Journal of Physical Chemistry A*, ACS, 2017.
255. Bhasker Paliwal, William B Lawrimore, Mei Q Chandler, M. F Horstemeyer, "Nanomechanical modeling of interfaces of polyvinyl alcohol (PVA)/clay nanocomposite," *Phil. Mag.*, pp. 1-30, 2017.
254. Deang, J.F, Paul G Allison, Raj Prabhu, Lakiesha N Williams, Hongjoo Rhee, Wilburn R Whittington, Edward J Perkins, Stephen M Bruce, M. F Horstemeyer, "Constitutive Behavior of Paddlefish (Polyodon Spathula) Cartilage," *Bioinspired, Biomimetic, and Nanobiomaterials*, <http://dx.doi.org/10.1680/jbibn.16.00046>, pp. 1-8, 2017
253. Rush, G.A., Prabhu, R., Rush III, G.A., Williams, L.N., Horstemeyer, M.F. Modified Drop Tower Impact Tests for American Football Helmets. *J. Vis. Exp.* (120), e53929, doi:10.3791/53929, 2017.

252. Paliwal, B., Y. Hammi, R. D. Moser, and M. F. Horstemeyer. "A three-invariant cap-plasticity damage model for cementitious materials." *International Journal of Solids and Structures*, 108, pp. 186-202, 2017.
251. Johnson, K. L., M. W. Trim, D. K. Francis, W. R. Whittington, J. A. Miller, C. E. Bennett, and M. F. Horstemeyer. "Moisture, anisotropy, stress state, and strain rate effects on bighorn sheep horn keratin mechanical properties." *Acta Biomaterialia*, 48, pp. 300-308, 2017.
250. Johnson, K. L., S. Chowdhury, W. B. Lawrimore, Y. Mao, A. Mehmani, R. Prabhu, G. A. Rush, and M. F. Horstemeyer. "Constrained topological optimization of a football helmet facemask based on brain response." *Materials & Design* 111, 108-118, 2016.
249. Dickel, D., T. G. Tenev, P. Gullett, and M. F. Horstemeyer. "The notion of a plastic material spin in atomistic simulations." *Modelling and Simulation in Materials Science and Engineering* 24, no. 8: 085010, 2016.
248. Lee, Nayeon, M. F. Horstemeyer, R. Prabhu, Jun Liao, Hongjoo Rhee, Youssef Hammi, Robert D. Moser, and Lakiesha N. Williams. "The geometric effects of a woodpecker's hyoid apparatus for stress wave mitigation." *Bioinspiration & Biomimetics* 11, no. 6 (2016): 066004, 2016.
247. Z McClelland, B Li, SJ Horstemeyer, MF Horstemeyer, AL Oppedal, "Effects of Homogenization on Microstructure and Mechanical Properties of AZE20 Alloy processed by Indirect Extrusion," *Magnesium Technology*, 141, 2016.
246. WB Lawrimore, B Paliwal, MQ Chandler, KL Johnson, MF Horstemeyer, "Hierarchical Multiscale modeling of Polyvinyl Alcohol/Montmorillonite Nanocomposites," *Polymer*, Vol. 99, 386-398, 2016.
245. S Nouranian, SR Gwaltney, MI Baskes, MA Tschopp, MF Horstemeyer, "On Stress-Strain Responses and Young's Moduli of Single Alkane Molecules, A Molecular Mechanics Study Using the Modified Embedded-Atom Method," arXiv preprint arXiv:1605.01896.
244. MA Murphy, MF Horstemeyer, SR Gwaltney, T Stone, M LaPlaca, J Liao, "Nanomechanics of phospholipid bilayer failure under strip biaxial stretching using molecular dynamics," *Modelling and Simulation in Materials Science and Engineering* 24 (5), p. 055008, 2016.
243. Aslam, Imran, Bin Li, Rich Martens, Johnny Goodwin, Hongjoo Rhee, Mark Horstemeyer, and Frank Goodwin. "Site-Specific Studies on the Interfacial Structures of Galvanized Dual Phase Steels." *Characterization of Minerals, Metals, and Materials 2016*: 183-192.
242. Bouvard, Jean-Luc, Brian Denton, Lionel Freire, and M. F. Horstemeyer. "Modeling the mechanical behavior and impact properties of polypropylene and copolymer polypropylene." *Journal of Polymer Research* 23, no. 4: 1-19, 2016.
241. Yadollahi, Aref, Nima Shamsaei, Youssef Hammi, and Mark F. Horstemeyer. "Quantification of tensile damage evolution in additive Manufactured austenitic stainless steels." *Materials Science and Engineering: A*, 2016.
240. Whittington, W. R., A. L. Oppedal, D. K. Francis, and M. F. Horstemeyer. "Robust Intermediate Strain Rate Experimentation Using the Serpentine Transmitted Bar." In *Residual Stress, Thermomechanics & Infrared Imaging, Hybrid Techniques and Inverse Problems, Volume 9*, pp. 167-173. Springer International Publishing, 2016.
239. Lawrimore II, W. B., David K. Francis, Jean-Luc Bouvard, Yousef Hammi, and Mark F. Horstemeyer. "A mesomechanics parametric finite element study of damage growth and coalescence in polymers using an Elastoviscoelastic-Viscoplastic internal state variable model." *Mechanics of Materials* 96 (2016): 83-95, 2016.
238. Clemmer, J., Prabhu, R., Chen, J., Colebeck, E., Priddy, L.B., McCollum, M., Brazile, B., Whittington, W., Wardlaw, J.L., Rhee, H., Horstemeyer, M.F., Williams, L.N., and Liao, J., "Experimental Observation of High Strain Rate Responses of Porcine Brain, Liver, and Tendon," *Journal of Mechanics in Medicine and Biology*, 1650032, Vol 16, Issue 3, 2016.
237. Z McClelland, B Li, SJ Horstemeyer, S Brauer, AA Adedoyin, LG Hector, and MF Horstemeyer, "Geometrically necessary twins in bending of a magnesium alloy," *Materials Science and Engineering: A* 645, 298-305, 2015.
236. S. Nouranian, S. R. Gwaltney, M. I. Baskes, M. A. Tschopp, and M. F. Horstemeyer, "Simulations of Tensile Bond Rupture in Single Alkane Molecules Using Reactive Interatomic Potentials," *Chemical Physics Letters*, vol. 635, pp. 278-284, 2015.

235. Prabhu, R, Whittington, WR, Patnaik, SS, Mao, Y, Begonia, MT, Williams, LN, Liao, J, and Horstemeyer, MF, "A Coupled Experiment-finite Element Modeling Methodology for Assessing High Strain Rate Mechanical Response of Soft Biomaterials," *JoVE (Journal of Visualized Experiments)*, e51545-e51545, 2015.
234. Li, B, McClelland, Z, Horstemeyer, SJ, Aslam, I, Wang, PT, Horstemeyer, MF, "Time Dependent Springback of a Magnesium Alloy," *Materials & Design*, 66, 575-580, 2015.
233. Horstemeyer, MF, Hughes, JM, Sukhija, N, Lawrimore II, WB, Kim, S., Carino, R., and Baskes, MI "Hierarchical Bridging Between Ab Initio and Atomistic Level Computations: Calibrating the Modified Embedded Atom Method (MEAM) Potential (Part A)," *JOM* 67 (1), 143-147, 2015.
232. Hughes, JM, Horstemeyer, MF, Carino, R, Sukhija, N, Lawrimore II, WB, Kim, S, and Baskes, MI, "Hierarchical Bridging Between Ab Initio and Atomistic Level Computations: Sensitivity and Uncertainty Analysis for the Modified Embedded-Atom Method (MEAM) Potential (Part B)," *JOM* 67 (1), 148-153, 2015
231. Whittington, W.R., Oppedal, A.L., Francis, D.K., Horstemeyer, M.F., "A novel intermediate strain rate testing device: The serpentine transmitted bar," *Int. Journal of Impact Engineering*, Vol. 81, pp. 1-7, 2015.
230. Allison, P.G., Deang, J.F., Diaz, A.J., Poda, A.R., Hoover, J.J., Horstemeyer, M.F., and Perkins, E.J., "Characterization of Paddlefish (*Polyodon Spathula*) Rostrum Stellate Bones," *Bioinspired, Biomimetic, and Nanobiomaterials*, Vol. 3, Issue 1, pp. 63-68, 2014.
229. Rhee, H., Tucker, M.T., Whittington, W.R., Horstemeyer, M.F., and Lim, H., "Structure-Property Responses of Bio-Inspired Synthetic Foams at Low and High Strain Rates," *Science and Engineering of Composite Materials*, ISSN (Online) 2191-0359, ISSN (Print) 0792-1233, DOI: 10.1515/secm-2013-0238, March 2014.
228. Deng, X., Chen, S.A., Jiang, Y., Prabhu, R., Mao, Y., and Horstemeyer, M.F., "Finite Element Analysis of the Human Head under Side Car Crash Impacts at Different Speeds," *J. Mechanics in Medicine and Biology*, Vol. 14, No. 6., p. 1440002, 2014.
227. Moitra, A., Kim, S.G., and Horstemeyer, M.F., "Solute Effect on Basal and Prismatic Slip Systems in Mg," *J. Phys. Condens.*, Vol. 26, No. 44, 2014.
226. Lee, N., Horstemeyer, M.F., Rhee, H., Nabors, B., Liao, J., and Williams, L.N., "Hierarchical Multiscale Structure-Property Relationships of the Red-Bellied Woodpecker (*Melanerpes carolinus*) Beak," *Interface, J. Royal Society*, Vol. 11, No. 96, 2014.
225. Laalitha S. I. Liyanage, Seong-Gon Kim, Jeff Houze, Sungho Kim, Mark A. Tschopp, M. I. Baskes, and M. F. Horstemeyer, "Structural, elastic, and thermal properties of cementite (Fe₃C) calculated using a modified embedded atom method," *Phys. Rev. B* 89, 2014.
224. Francis, D.K., Bouvard, J.L., Hammi, Y., Horstemeyer, M.F., "Formulation of a damage internal state variable model for amorphous glassy polymers," *Int Journal of Solids and Structures*, Vol. 51, Issue 15-16, pp. 2765-2776, 2014.
223. Moitra, A., Kim, S.G., and Horstemeyer, M.F., "Solute Effect on the <a+c> Dislocation Nucleation Mechanism in Magnesium," *Acta Materialia*, Vol. 75, pp. 106-112, 2014.
222. Lugo, M., Fountain, J.E., Hughes, J.M., Bouvard, J.L., and Horstemeyer, M.F., "Microstructure Based Fatigue Modeling of an acrylonitrile butadiene styrene (ABS) copolymer," *J. Applied Polymer Science*, Vol. 131, Issue 20, 2014.
221. Nouranian, S., Tschopp, M.A., Gwaltney, S.R., Baskes, M.I., Horstemeyer, M.F., "An interatomic potential for saturated hydrocarbons based on the modified embedded-atom method," *Phys. Chemistry Chemical Physics*, Vol. 16, Issue 13, 7, pp. 6233-6249, 2014.
220. Liao, M., Li, B., Horstemeyer, M.F., "Interaction Between Basal Slip and a Mg₁₇Al₁₂ Precipitate in Magnesium," *Metal. Materials Trans. A*, 2014.
219. Jordon, J.B. and Horstemeyer, M.F., "Microstructure-sensitive fatigue modeling of AISI 4140 steel," *J. Eng. Matls. Tech.*, Transactions of the ASME Vol. 136, Issue 2, Article number 021004, 2014.

218. Ma, Q., Li, B., Whittington, W.R., Oppedal, A.L., Wang, P.T., Horstemeyer, M.F. "Texture evolution during dynamic recrystallization in a magnesium alloy at 450° C," *Acta Materialia*, Vol. 67, pp. 102-115, 2014.
217. Walton, C.A. , Horstemeyer, M.F., Martin, H.J., Francis, D.K., " Formulation of a macroscale corrosion damage internal state variable model," *Int. Journal of Solids and Structures*, Vol. 51, Issue 6, 15, pp. 1235-1245, 2014.
216. Walton, C.A. , Martin, H.J., Horstemeyer, M.F., Whittington, W.R., Horstemeyer, C.J., Wang, P.T., "Corrosion stress relaxation and tensile strength effects in an extruded AZ31 magnesium alloy," *Corrosion Science*, Vol. 80, pp. 503-510, 2014.
215. Johnson, K.L., Trim, M.W., Horstemeyer, M.F., Lee, N., Williams, L.N., Liao, J., Rhee, H., Prabhu, R., "Geometric effects on stress wave propagation," *J. Biomechanical Engineering*, Vol. 136, Issue 2, Article number 021023, 2014.
214. Whittington, W.R., Oppedal, A.L., Turnage, S., Hammi, Y., Rhee, H., Allison, P.G., Crane, C.K., Horstemeyer, M.F., "Capturing the effect of temperature, strain rate, and stress state on the plasticity and fracture of rolled homogeneous armor (RHA) steel," *Materials Science and Engineering A*, Vol. 594, 31, Pp. 82-88, 2014.
213. Aslam, I. , Li, B., McClelland, Z., Horstemeyer, S.J., Ma, Q., Wang, P.T., Horstemeyer, M.F., "Three-point bending behavior of a ZEK100 Mg alloy at room temperature," *Materials Science and Engineering A*, Vol. 590, 10, Pp. 168-173, 2014.
212. Song, W. , Martin, H.J., Hicks, A., Seely, D., Walton, C.A., Lawrimore II, W.B., Wang, P.T., Horstemeyer, M.F., "Corrosion behaviour of extruded AM30 magnesium alloy under salt-spray and immersion environments," *Corrosion Science*, Vol. 78, Pages 353-368, 2014.
211. Sukhija, N., Haupt, T., & Horstemeyer, M.F. "Unifying Integrated Computational Materials Engineering Research and Education through Cyberinfrastructure," *Journal of Materials Education (JOM)*. Denton, TX: The International Council on Materials Education. 35(1-2), 21-48, 2013.
210. Deng, X., Wang, J., Horstemeyer, M.F., "Modification design method for an enveloping hourglass worm gear with consideration of machining and misalignment errors," Vol 26, Issue 5, Pages 948-956, 2013.
209. Oppedal, A.L. , El Kadiri, H., Tomé, C.N., Vogel, S.C., Horstemeyer, M.F., "Anisotropy in hexagonal close-packed structures: Improvements to crystal plasticity approaches applied to magnesium alloy," *Phil Magazine A*, 2013.
208. Allison, P.G., Grewal, H., Hammi, Y., Brown, H.R., Whittington, W.R., Horstemeyer, M.F., "Plasticity and fracture modeling/experimental study of a porous metal under various strain rates, temperatures, and stress states," *J Eng Mater Tech, Trans ASME*, Vol. 135, Issue 4, 2013.
207. Chandler, M.Q. , Bammann, D.J., Horstemeyer, M.F., "A continuum model for hydrogen-assisted void nucleation in ductile materials," *Modelling and Simulation in Materials Science and Engineering* Volume 21, Issue 5, 2013.
206. Liao, M., Li, B., Horstemeyer, M.F., "Interaction between prismatic slip and a Mg₁₇Al₁₂ precipitate in magnesium," *Computational Materials Science*, Volume 79, Pages 534-539, 2013.
205. Arockiasamy, A., Toghiani, H., Oglesby, D., Horstemeyer, M.F., Bouvard, J.L., and King, R.L., "TG-DSC-FTIR-MS study of gaseous compounds evolved during thermal decomposition of styrene-butadiene rubber," *Journal Thermal Analysis and Calorimetry* 111 (1) , pp. 535-542, 2013.
204. Ma, Q., Li, B., Oppedal, A.L., Whittington, W.R., Horstemeyer, S.J., Marin, E.B., Wang, P.T., and Horstemeyer, M.F., "Strain rate dependence of twinning at 450°C and its effect on microstructure of an extruded magnesium alloy," *Materials Science and Engineering A*, 559 , pp. 314-318, 2013.
203. Bouvard, J.L., Francis, D.K., Tschopp, M.A., Marin, E.B., Bammann, D.J., and Horstemeyer, M.F., "An internal state variable material model for predicting the time, thermomechanical, and stress state dependence of amorphous glassy polymers under large deformation," *Int. Journal of Plasticity* 42 , pp. 168-193, 2013.
202. Lugo, M., Jordon, J.B., Solanki, K.N., Hector Jr., L.G., Bernard, J.D., Luo, A.A., and Horstemeyer, M.F., "Role of different material processing methods on the fatigue behavior of an AZ31 magnesium alloy," *Int Journal of Fatigue* , 2013.

201. Bernard, J.D., Jordon, J.B., Lugo, M., Hughes, J.M., Rayborn, D.C., and Horstemeyer, M.F., "Observations and modeling of the small fatigue crack behavior of an extruded AZ61 magnesium alloy," *Int Journal of Fatigue*, 52 , pp. 20-29, 2013.
200. Zhang, X., Tschopp, M.A., Horstemeyer, M.F., Shi, S.Q., and Cao, J., "Mechanical properties of amorphous cellulose using molecular dynamics simulations with a reactive force field," *Int. Journal of Modelling, Identification and Control* 18 (3) , pp. 211-217, 2013.
199. Li, B., Horstemeyer, S.J., Oppedal, A.L., Wang, P.T., and Horstemeyer, M.F., "Inverse strain rate sensitivity of bendability of an AZ31 sheet in three-point bending," *Magnesium Technology* , pp. 127-131, 2013.
198. Ma, Q., Horstemeyer, S.J., Li, B., McClelland, Z., Wang, P.T., and Horstemeyer, M.F. "Microstructure and texture evolution in a magnesium alloy during extrusion at various extrusion speeds," *Magnesium Technology* , pp. 95-99, 2013.
197. Deng, X., Potula, S., Grewal, H., Solanki, K.N., Tschopp, and M.A., Horstemeyer, M.F., "Finite element analysis of occupant head injuries: Parametric effects of the side curtain airbag deployment interaction with a dummy head in a side impact crash," *Accident Analysis and Prevention* 55 , pp. 232-241, 2013.
196. Liao, M., Li, B., and Horstemeyer, M.F., "Unstable dissociation of a prismatic dislocation in magnesium," *Scripta Materialia* , 2013.
195. Ma, Q., Mao, W., Li, B., Wang, P.T., and Horstemeyer, M.F., "Substructure and Texture Evolution in an Annealed Aluminum Alloy at Medium Strains," *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science* , pp. 1-12 , 2013.
194. Deng, X., Wang, J., Horstemeyer, M.F., Solanki, K.N., Zhang, J. , Parametric study of meshing characteristics with respect to different meshing rollers of the antibacklash double-roller enveloping worm gear, *Journal of Mechanical Design, Transactions of the ASME* 134 (8) , art. no. 081004, 2012.
193. Stone, T.W and Horstemeyer, M.F., "Length scale effects of friction in particle compaction using atomistic simulations and a friction scaling model," *Journal of Nanoparticle Research* 14 (9) , art. no. 1121, 2012.
192. Wang, S., Asle Zaeem, M., Horstemeyer, M.F., Wang, P.T., "Investigating thermal effects on morphological evolution during crystallisation of hcp metals: Three-dimensional phase field study," *Materials Technology* 27 (5) , pp. 355-363, 2012.
191. X.Y. Zhang, B. Li, X.L. Wu, Y.T. Zhu, Q. Ma, Q. Liu, P.T. Wang, M.F. Horstemeyer , "Twin boundaries showing very large deviations from the twinning plane," *Scripta Materialia*, Volume 67, Issue 10, Pages 862-865, 2012.
190. D.K. Francis, J. Deang, R.S. Florea, D.R. Gaston, N. Lee, S. Nouranian, C.J. Permann, J. Rudd, D. Seely, W.R. Whittington, M.F. Horstemeyer, "Characterization and failure analysis of a polymeric clamp hanger component," *Engineering Failure Analysis*, Volume 26, Pages 230-239, 2012.
189. Baird, J.C., Li, B., Yazdan Parast, S., Horstemeyer, S.J., Hector Jr., L.G., Wang, P.T., and Horstemeyer, M.F., "Localized twin bands in sheet bending of a magnesium alloy," *Scripta Materialia*, Volume 67, Issue 5, Pages 471-474, 2012.
188. Damiens, R., Rhee, H., Hwang, Y., Park, S.J., Hammi, Y., Lim, H., Horstemeyer, M.F., "Compressive behavior of a turtle's shell: Experiment, modeling, and simulation," *Journal of the Mechanical Behavior of Biomedical Materials*, Volume 6, pp. 106-112, 2012.
187. H.J. Martin, R.B. Alvarez, J. Danzy, M.F. Horstemeyer, and P.T. Wang, "Quantification of Corrosion Pitting Under Immersion and Salt Spray Environments on an As-Cast AM60 Magnesium Alloy," *Corrosion*, Vol. 68, No. 6, pp. 571-585, 2012.
186. Luke H. Rettberg, J. Brian Jordon, M.F. Horstemeyer and J. Wayne Jones, "Low-Cycle Fatigue Behavior of Die-Cast Mg Alloys AZ91 and AM60," *Metal. and Materials Transactions A*, Volume 43, Number 7 (2012), 2260-2274, DOI: 10.1007/s11661-012-1114-8.
185. B. Jelinek, S. Groh, M. F. Horstemeyer, J. Houze S. G. Kim, G. J. Wagner A. Moitra and M. I. Baskes, "Modified embedded atom method potential for Al, Si, Mg, Cu, and Fe alloys," *Phys. Rev. B*, Vol. 85, 245102, 2012.
184. Tang, T., Horstemeyer, M.F., Wang, P., "Micromechanical analysis of thermoelastoplastic behavior of metal matrix composites," *International Journal of Engineering Science*, Volume 51, Pages 161-167, 2012.

183. Tschopp, M.A., Solanki, K.N., Gao, F., Sun, X., Khaleel, M.A., Horstemeyer, M.F., "Probing grain boundary sink strength at the nanoscale: Energetics and length scales of vacancy and interstitial absorption by grain boundaries in α -Fe," *Physical Review B - Condensed Matter and Materials Physics*, Volume 85, Issue 6, Article number 064108, 2012.
182. Walton, C.A. , Martin, H.J., Horstemeyer, M.F., Wang, P.T., "Quantification of corrosion mechanisms under immersion and salt-spray environments on an extruded AZ31 magnesium alloy," *Corrosion Science*, Volume 56, Pages 194-208, 2012.
181. Li, B., El Kadiri, H., Horstemeyer, M.F., "Extended zonal dislocations mediating $\{1122\}\langle 1123 \rangle$ twinning in titanium," *Philosophical Magazine*, Volume 92, Issue 8, Pages 1006-1022, 2012.
180. Weed, B.C., Borazjani, A., Patnaik, S.S., Prabhu, R., Horstemeyer, M.F., Ryan, P.L., Franz, T., Williams, L.N., Liao, J., "Stress State and Strain Rate Dependence of the Human Placenta," *Annals of Biomedical Engineering*, Pages 1-11, 2012.
179. Tang, T. , Hammi, Y., Horstemeyer, M.F., Wang, P., "Finite element micromechanical analysis of the deformation and stress state dependent damage evolution in fiber reinforced metal matrix composites," *Computational Materials Science*, Volume 59, Pages 165-173, 2012.
178. Tschopp, M.A., Solanki, K.N., Baskes, M.I., Gao, F., Sun, X., Horstemeyer, M.F., "Generalized framework for interatomic potential design: Application to Fe-He system," *Journal of Nuclear Materials*, Volume 425, Issue 1-3, Pages 22-32, 2012.
177. Q. Ma, H. El Kadiri, A.L. Oppedal, J.C. Baird, B. Li, M.F. Horstemeyer, S.C. Vogel, Twinning Effects in a Rod-Textured AM30 Magnesium Alloy, *International Journal of Plasticity* 29, 2012:60-76, 2012.
176. Liao, J, Joyce, EM, Merryman, WD, Jones, HI, Tahai, M, Horstemeyer, MF, Williams, LN, Hopkins, RA, and Sacks, MS, The Intrinsic Fatigue Mechanism of the Porcine Aortic Valve Extracellular Matrix, *Cardiovascular Engineering and Technology*, DOI: 10.1007/s13239-011-0080-4, 2012.
175. Asle Zaeem, M., El Kadiri, H., Horstemeyer, M.F., Khafizov, M., and Utegulov, Z, "Effects of internal stresses and intermediate phases on the coarsening of coherent precipitates: A phase-field study," *Current Applied Physics*, Vol. 12, No. 2, pp. 570-580, 2012.
174. Oppedal, A., El Kadiri, H., Tome, C., Kaschner, G.C., Vogel, S.C., Baird, J.C., and Horstemeyer, M.F., "Effect of Dislocation Transmutation on Modeling Hardening Mechanisms by Twinning in Magnesium," *Int. J. Plasticity*, Volume 30-31, Pages 41-61, 2012.
173. Zaeem, M.A., El Kadiri, H., Horstemeyer, M.F., Wang, P.T., and Cherkaoui, M., "The Role of Compositional Strain in the Instability of Solid-Fluid Thin Film Interfaces," *Modern Physics Letter B*, Volume: 25, Issue: 19(2011) pp. 1591-1601. DOI: 10.1142/S0217984911026450
172. Moitra, A., Kim, S., Park, S.J., Kim, S.G., and Horstemeyer, M.F., "The Effect of Vanadium-Carbon Monolayer on the Adsorption of Tungsten and Carbon Atoms on Tungsten-Carbide (0001) Surface," *Science of Sintering*, Vol. 43, No. 2, pp. 153-159, 2011.
171. Sherburn, J.A., Horstemeyer, M.F., Bammann, D.J., and Baumgardner, J.R., "Two Dimensional Mantle Convection Simulations Using an Internal State Variable Model: The Role of a History Dependent Rheology on Mantle Convection," *Geophysical Journal Int.*, Vol. 186, No. 3, pp. 945-962, 2011.
170. Tschopp, M.A., Solanki, K.N., Baskes, M.I., Gao, F., Sun, X., and Horstemeyer, M.F., "Generalized Framework for Interatomic Potential Design: Application to Fe-He System," *J. Nuclear Matls.*, 2011.
169. Potirniche, G.P., Pascu, A., Shoemaker, N., Wang, P.T., Horstemeyer, M.F., Stillman, D., Lin, T.L., "A Visco-Hyperelastic Model for the Thermomechanical Behavior of Polymer Fibers," *Int. J. Damage Mech.*, Vol. 20, No. 7, pp. 1002-1020, 2011.
168. Allison, P.G., Horstemeyer, M.F., Hammi, Y., Brown, H.R., Tucker, M.T., and Hwang, Y.K., "Microstructure-Property relations of a steel powder metal under varying temperatures, strain rates, and stress states," *Matls. Sci. Eng. A*, Vo. 529, No. 1., pp. 335-344, 2011.
167. Arockiasamy, A., German, R. M., Heaney, D.F.; Wang, P.T.; Horstemeyer, M.F.; King, R.L.; Adcock, B., "Effect of additives on sintering response of titanium by powder injection moulding," *Powder Metallurgy*, v 54, n 3, p 420-426, July 2011.
166. Allison, P.G., Horstemeyer, M.F.; Brown, H.R., "Modulus Dependence on Large Scale Porosity of Powder Metallurgy Steel," *Journal of Materials Engineering and Performance*, p 1-4, 2011.

165. Lugo, Marcos, Jordon, J.B.; Horstemeyer, M.F.; Tschopp, M.A.; Harris, J.; Gokhale, A.M., "Quantification of damage evolution in a 7075 aluminum alloy using an acoustic emission technique," *Materials Science and Engineering A*, v 528, n 22-23, p 6708-6714, August 25, 2011.
164. Jordon, J.B., Gibson, J.B.; Horstemeyer, M.F.; Kadiri, H. El; Baird, J.C.; Luo, A.A., "Effect of twinning, slip, and inclusions on the fatigue anisotropy of extrusion-textured AZ61 magnesium alloy," *Materials Science and Engineering A*, v 528, n 22-23, p 6860-6871, August 25, 2011.
163. A. Antonyraj, R. M. German, P. T. Wang, M. F. Horstemeyer, W. Morgan, S. J. Park, and I. Otsuka, "Sintering behaviour of Al-6061 powder produced by rapid solidification process," Volume 54, No 3, pp. 354-359, *Powder Metallurgy*, July 2011.
162. Tang, T., Kim, S., Jordon, J.B., Horstemeyer, M.F., Wang, Paul T., "Atomistic simulations of fatigue crack growth and the associated fatigue crack tip stress evolution in magnesium single crystals," *Computational Materials Science*, 2011
161. Asle Zaeem, Mohsen, El Kadiri, H, Mesarovic, Sinisa D., Horstemeyer, M, F., Wang, Paul T., "Effect of the Compositional Strain on the Diffusive Interface Thickness and on the Phase Transformation in a Phase-Field Model for Binary Alloys," *Journal of Phase Equilibria and Diffusion*, p 1-7, 2011.
160. Asle Zaeem, M., El Kadiri, H., Wang, P.T., Horstemeyer, M.F., "Investigating the effects of grain boundary energy anisotropy and second-phase particles on grain growth using a phase-field model," *Computational Materials Science*, v 50, n 8, p 2488-2492, 2011.
159. Ma, Q., El Kadiri, H., Oppedal, A.L., Baird, J.C., Horstemeyer, M.F., Cherkaoui, M., "Twinning and double twinning upon compression of prismatic textures in an AM30 magnesium alloy," *Scripta Materialia*, v 64, n 9, p 813-816, 2011.
158. Lugo, M., Tschopp, M.A., Jordon, J.B., Horstemeyer, M.F., "Microstructure and damage evolution during tensile loading in a wrought magnesium alloy," *Scripta Materialia*, v 64, n 9, p 912-915, 2011.
157. Moitra, Amitava, Kim, Seong-Gon, Horstemeyer, M.F., "Structural and thermal properties of calcium using an MEAM potential," *Calphad: Computer Coupling of Phase Diagrams and Thermochemistry*, 2011.
156. Sherburn, J.A., Horstemeyer, M.F., Bammann, D.J., Baumgardner, J.R., "Application of the Bammann inelasticity internal state variable constitutive model to geological materials," *Geophysical Journal International*, v 184, n 3, p 1023-1036 2011.
155. Prabhu, R., Horstemeyer, M.F., Tucker, M.T., Marin, E.B., Bouvard, J.L., Sherburn, J.A., Liao, J., Williams, L.N., "Coupled experiment/finite element analysis on the mechanical response of porcine brain under high strain rates," *Journal of the Mechanical Behavior of Biomedical Materials* (2011), doi:10.1016/j.jmbbm.2011.03.015
154. Tschopp, M.A., Horstemeyer, M.F.; Gao, F., Sun, X. Khaleel, M., "Energetic driving force for preferential binding of self-interstitial atoms to Fe grain boundaries over vacancies," *Scripta Materialia*, v 64, n 9, p 908-911, 2011.
153. Martin, H.J., Horstemeyer, M.F., Wang, P.T., "Structure-Property Quantification of Corrosion pitting under immersion and salt-spray environments on an extruded AZ61 magnesium alloy," *Corrosion Science*, v 53, n 4, p 1348-1361, 2011.
152. Tang, T., Kim, Sungho, Horstemeyer, M.F.; Wang, Paul, "Atomistic modeling of crack growth in magnesium single crystals," *Engineering Fracture Mechanics*, v 78, n 1, p 191-201, 2011.
151. Rhee, H., Horstemeyer, M.F., Ramsay, A. , "A study on the structure and mechanical behavior of the Dasyatis novemcinctus shell," *Materials Science and Engineering C*, v 31, n 2, p 363-369, 2011.
150. Moitra, Amitava, Solanki, Kiran N., Horstemeyer, M.F., "The location of atomic hydrogen in NiTi alloy: A first principles study," *Computational Materials Science*, v 50, n 3, p 820-823, 2011.
149. Trim, M.W., M.F. Horstemeyer, Hongjoo Rhee, Haitham El Kadiri, Lakiesha N. Williams, Jun Liao, Keisha B. Walters, Joanna McKittrick, and Seong-Jin Park, "The effects of water and microstructure on the mechanical properties of bighorn sheep (*Ovis canadensis*) horn keratin," *Acta Biomaterialia*, Volume 7, Issue 3, March 2011, Pages 1228-1240 doi:10.1016/j.actbio.2010.11.024, 2011.
148. Martin, H.J., Horstemeyer, M.F., and Wang, P.T., "Effects of Salt-Spray, Humidity, and Drying on an As-Cast AE Magnesium Alloy," *Int. J. Corrosion*, Vol. 10, p 1155, 2010.

147. Martin, H.J., Horstemeyer, M.F., and Wang, P.T., "Comparison of Corrosion Pitting Under Immersion and Salt-Spray Environments on an As-Cast AE44 Magnesium Alloy," *Corrosion Science*, Vol. 52, pp. 3624-3638, 2010.
146. Jordon, J.B., M.F. Horstemeyer, S.R. Daniewicz, H. Badarinarayan, and J. Grantham, "Material Characterization and Modeling of Friction Stir Spot Welds in a Magnesium AZ31 Alloy," *Journal of Engineering Materials and Technology*, 132, 4, <http://dx.doi.org/10.1115/1.4002330> (2010)
145. Moitra, Amitava, Kim, Sungho, Kim, Seong-Gon, Park, Seong Jin, German, Randall, and Horstemeyer, M.F., "Investigation on sintering mechanism of nanoscale tungsten powder based on atomistic simulation," *Acta Materialia* 58, 3939—3951 (2010).
144. Du, Y; Zhang, J; Wang, C; Lacy, TE; Xue, Y; Toghiani, H; Horstemeyer, MF; and Pittman Jr., CU, "Kenaf Bast Fiber Bundle-Reinforced Unsaturated Polyester Composites II: Water Resistance and Composite Mechanical Properties Improvement," *Forest Products Journal*, 60(4), 366-372, 2010.
143. Clemmer, J., Liao, J., Davis, D., Horstemeyer, M.F., Williams, L.N., "A Mechanistic Study for Strain Rate Sensitivity of Rabbit Patellar Tendon," *J. Biomechanics*, Vol. 43, pp. 2785-2791, 2010.
142. Bouvard, J.L., Ward, D.K., Hossain, D., Marin, E.B., Bammann, D.J., and Horstemeyer, M.F. , "A general inelastic internal state variable model for amorphous glassy polymers," *Acta Mechanica*, v 213, n 1-2, p 71-96, 2010.
141. Acar, E., Hammi, Y., Allison, P.G., Stone, T.W., and Horstemeyer, M.F., "Sensitivity and uncertainty analysis of microstructure-property relationships for compacted powder metals," *Powder Metallurgy*, v 53, n 2, p 141-145, June 2010.
140. Bernard, J.D., Jordon, J.B., Horstemeyer, M.F., El Kadiri, H., Baird, J., Lamb, David, and Luo, Alan A., "Structure-property relations of cyclic damage in a wrought magnesium alloy," *Scripta Materialia*, v 63, n 7, p 751-756, 2010.
139. Hossain, D., Tschopp, M.A., Ward, D.K., Bouvard, J.L., Wang, P.T., and Horstemeyer, M.F., "Molecular dynamics simulations of deformation mechanisms of amorphous polyethylene," *Polymer*, Vol. 51, pp. 6071-6083, 2010.
138. Du, Y, Zhang, J, Toghiani, H, Lacy, T, Xue, Y, Horstemeyer, MF, and Pittman, C, "Kenaff Bast Fiber Bundle-Reinforced Unsaturated Polyester Composites: I. Processing Technique for High Fiber Loading, *Forest Products Journal*, Vol. 60, No. 3, pp. 289-295, 2010.
137. Tucker, MT, Horstemeyer, MF, Whittington, WR, Solanki, KN, and Gullett, PM, "The Effect of Varying Strain Rates and Stress States on the Plasticity, Damage, and Fracture of Aluminum Alloys," *Mech. Materials*, Vol. 42, pp. 895-907, 2010.
136. Begonia, MT, Prabhu, R, Liao, J, Horstemeyer, MF, and Williams, LN, "The Influence of Strain Rate Dependency on the Structure-Property Relations of the Porcine Brain," *Annals of Biomedical Engineering*, Vol. 38, No. 10, 2010 (DOI: 10.1007/s10439-010-0072-9).
135. Crapps, J., Marin, EB, Horstemeyer, MF, Yassar, R, and Wang, PT, "Internal State Variable Plasticity-Damage Modeling of Copper Tee-Shaped Tube Hydroforming Process," *J. Matls. Proc. Tech, ASME*, 1726-1737, 2010.
134. Tang, T, Kim, S, Horstemeyer, M.F., "Molecular dynamics simulations of void growth and coalescence in single crystal magnesium," *Acta Materialia*, v 58, n 14, p 4742-4759, 2010.
133. Arockiasamy, A., German, R. M., Wang, P.T., Horstemeyer, M.F., Suri, P., Park, S.J., "DSC analysis of Al6061 aluminum alloy powder by rapid solidification: Effect of additives," *Journal of Thermal Analysis and Calorimetry*, v 100, n 1, p 361-366, 2010.
132. Xue, Y., Pascu, A., Horstemeyer, M.F., Wang, L., and Wang, P.T., "Microporosity effects on cyclic plasticity and fatigue of LENS-processed steel," *Acta Materialia*, Vol. 58, 4029-4038, 2010.
131. Tang, T., Kim, S., Horstemeyer, M.F., "Fatigue crack growth in magnesium single crystals under cyclic loading: Molecular dynamics simulation," *Computational Materials Science*, v 48, n 2, p 426-439, 2010.
130. Jordon, J.B., Horstemeyer, M.F., Yang, N., Major, J.F., Gall, K.A., Fan, J., McDowell, D.L. "Microstructural inclusion influence on fatigue of a cast A356 aluminum alloy," *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, v 41, n 2, p 356-363, 2010.
129. Alvarez, R. B., Martin, HJ, Horstemeyer, M.F., Chandler, M.Q., Williams, N, Wang, P.T., Ruiz, A., "Corrosion relationships as a function of time and surface roughness on a structural AE44 magnesium alloy," *Corrosion Science*, v 52, n 5, p 1635-1648, 2010.

128. Acar, E, Solanki, K.N., Rais-Rohani, M, Horstemeyer., M.F., "Stochastic uncertainty analysis of damage evolution computed through microstructure-property relations," *Probabilistic Engineering Mechanics*, v 25, n 2, p 198-205, 2010.
127. Yassar RS, AbuOmar, O., Hansen, E, Horstemeyer, MF, "On dislocation-based artificial neural network modeling of flow stress," *J Mater Design*, v 31, n 8, p 3683-3689, 2010.
126. Groh, S, Marin, EB, and Horstemeyer, MF, "Nanoscale Void Growth in Magnesium: A Molecular Dynamics Study," *Int. J. Applied Mechanics*, Vol. 2 , No. 1, pp. 1-15, 2010.
125. K.N. Solanki , M.F. Horstemeyer, W.G. Steele, Y. Hammi, J.B. Jordon, Calibration, validation, and verification including uncertainty of a physically motivated internal state variable plasticity and damage model," *International Journal of Solids and Structures*, Vol. 47, 186–203, 2010.
124. Sherburn, J and Horstemeyer, MF, Hydrodynamic Modeling of Impact Craters in Ice, *Int J. Impact Engineering*, Vol. 37, No.1 , pp. 37-46, 2010.
123. Xue, Y, Wright, AM, McDowell, DL, Horstemeyer, MF, Solanki, KN, Hammi, Y, "Micromechanics Study of Fatigue Damage Incubation Following an Initial Overstrain," *ASME JEMT*, 132, 1-8, 2010.
122. J.B. Jordon, M.F. Horstemeyer, J.D. Bernard, K N. Solanki, J.T. Berry, and T.N. Williams. Damage Characterization and Modeling of a 7075-T651 Aluminum Plate. *Mater. Sci. Eng. A* 527, 1-2, p. 169-178, 2009.
121. El Kadiri, Kh, Horstemeyer, M.F., El Kadiri, H., and Pessagno, E.A., "Jurassic radiolarite pulses from the Dorsale Calcaire (internal Rif, Morocco): A clue for correlating and interpreting the Tethyan radiolarites," *Stratigraphy*, Vol. 6, No. 4., pp. 277-312, 2009.
120. Rhee, H., Horstemeyer, M.F., Hwang, Y., Lim, H., El Kadiri, H., and Trim, W., "A study on the structure and mechanical behavior of the *Terrapene carolina* carapace: a pathway to design bio-inspired synthetic composites", *Materials Science and Engineering C* 29, 2333-2339, 2009.
119. Groh, S., Marin, E.B., Horstemeyer, M.F., Bammann, D.J., "Dislocation motion in magnesium: A study by molecular statics and molecular dynamics," *Modelling and Simulation in Materials Science and Engineering*, v 17, n 7, 2009.
118. Liu, Wing Kam, Siad, Larbi; Tian, Rong; Lee, Sanghoon; Lee, Dockjin; Yin, Xiaolei; Chen, Wei; Chan, Stephanie; Olson, Gregory B.; Lindgen, Lars-Erik; Horstemeyer, Mark F.; Chang, Yoon-Suk; Choi, Jae-Boong; Kim, Young Jin, "Complexity science of multiscale materials via stochastic computations," *International Journal for Numerical Methods in Engineering*, v 80, n 6-7, p 932-978, 2009.
117. Solanki, KN, Acar, E, Rais-Rohani, M., Horstemeyer, MF, and Steele, WG, "Product design optimization with microstructure-property modelling and associated uncertainties," *Int. J. Design Engineering*, Vol. 2, No. 1, 2009.
116. Groh, S. , Marin, E.B.; Horstemeyer, M.F., Zbib, HM, "Multiscale modeling of the plasticity in an aluminum single crystal," *International Journal of Plasticity*, v 25, n 8, p 1456-1473, August 2009
115. Wang, L., Pratt, P, Felicelli, S, El Kadiri, H, Berry, J., Wang, P, and Horstemeyer, MF, "Pore Formation in Laser-Assisted Powder Deposition Process," *J. Manuf. Sci. Eng.*, Volume 131, Issue 5, 051008, 2009
114. Lee, S.G. , Mao, Y., Gokhale, A.M., Harris, J., Horstemeyer, M.F., "Application of digital image processing for automatic detection and characterization of cracked constituent particles/inclusions in wrought aluminum alloys," *Materials Characterization*, v 60, n 9, p 964-970, 2009.
113. Yassar, R.S., Baird, J. C., Horstemeyer, M.F., "Evolution of in-grain orientation gradient in plastically strained particulate materials," *Materials Science and Engineering A*, v 517, n 1-2, p 286-292, August 20, 2009.
112. Anurag, S., Guo, Y.B., Horstemeyer, M.F., "The effect of materials testing modes on finite element simulation of hard machining via the use of internal state variable plasticity model coupled with experimental study," *Computers and Structures*, v 87, n 5-6, p 303-317, 2009.
111. Tucker, Matthew T. Horstemeyer, Mark F.; Gullett, Phillip M.; El Kadiri, Haitham; Whittington, Wilburn R., "Anisotropic effects on the strain rate dependence of a wrought magnesium alloy," *Scripta Materialia*, v 60, n 3, p 182-185, 2009.
110. Horstemeyer, M.F.; X. C. Ren; H. Fang; E. Acar; P. T. Wang, " A comparative study of design optimisation methodologies for side-impact crashworthiness, using injury-based versus energy-based criterion," *International Journal of Crashworthiness*, 1754-2111, Volume 14, Issue 2, Pages 125 – 138, 2009.

109. Wang, L., Daniewicz, S.R., Horstemeyer, M.F., Sintay, S., Rollett, A.D., "Three-dimensional finite element analysis using crystal plasticity for a parameter study of microstructurally small fatigue crack growth in a AA7075 aluminum alloy," *Int Journal of Fatigue*, Vol. 31, n 4, p 651-658, 2009.
108. Wang, L., Daniewicz, S.R., Horstemeyer, M.F., Sintay, S., and Rollett, A.D., "Three-dimensional finite element analysis using crystal plasticity for a parameter study of fatigue crack incubation in a 7075 aluminum alloy," *Int. J. Fatigue*, Vol. 31, pp. 659-667, 2009.
107. Subramanian, S., Elder, S.H., Horstemeyer, M.F., and Williams, L., "Experimental Investigations of Anisotropic Shear Properties of Rabbit Patellar Tendons," *Biological Engineering*, Vol. 1, 255-264, 2008.
106. Williams, L., Elder, S.H., Horstemeyer, M.F., and Harbarger, D., "Variation of diameter distribution, number density, and area fraction of fibrils within five areas of the rabbit patellar tendon," *Annals of Anatomy*, Vol. 190, pp.442-451, 2008.
105. El Kadiri, H., Horstemeyer, M.F., and Bammann, D.J., "A Theory for Stress-Driven Interfacial Damage upon Cationic-Selective Oxidation of Alloys," *J. Mech. Phys. Solids*, Vol. 56, N.12, pp. 3392-3415, 2008.
104. Potirniche, G.P., Hearndon, J., Daniewicz, S.R., Parker, D., Cuevas, P., Wang, P.T., and Horstemeyer, M.F., "A Two Dimensional Damaged Finite Element for Fracture Applications," *Eng. Fract. Mech.*, Vol. 75, N.13, pp. 3895-3908, 2008.
103. Williams, LN, Elder, SH, Bouvard, JL, and Horstemeyer, MF, "The Anisotropic Compressive Mechanical Properties of the Rabbit Patellar Tendon," *Biorheology*, Vol. 45, pp. 577-586, 2008.
102. Fang, H.Wang, Q., Tu, Y.T., and Horstemeyer, M.F., "An Efficient Non-Dominated Sorting Method for Evolutionary Algorithms," *Evolutionary Computation*, Vol. 16, No. 3, 355-384, 2008.
101. El Kadiri, H., Wang, L., Horstemeyer M.F., Yassar, R., Shahbazian, Y., Felicelli, S., Wang, P.T., "Phase Transformations in Low Alloy Steel Laser Deposits," *Materials Science and Engineering A*, Vol. 494, pp. 10-20, 2008.
100. Moitra, A., Kim, S., Houze, J., Jelinek, B., Kim, S.G., Park, S.J., German, R.M., and Horstemeyer, M.F., "Melting Tungsten Nanoparticles: A Molecular Dynamics Study," *J. Phys. D.*, Vol 41, 3727, 2008.
99. Stone, T.W., Horstemeyer, M.F., Hammi, Y. and Gullett, P.M., Contact and Friction of Single Crystal Nickel Nanoparticles Using Molecular Dynamics, *Acta Materialia*, Vol. 56, pp. 3577-3584, 2008.
98. Hearndon, J.L, Potirniche, G.P., Parker, D., Cuevas, P.M., Rinehard, H., Wang, P.T., and Horstemeyer, M.F., Monitoring Structural Damage of Components Using an Effective Modulus Approach, *Theoretical and Applied Mechanics*, Vol. 50, pp. 23-29, 2008.
97. Ingram, J., Zhou, Y., Jeelani, S., Lacy, T., and Horstemeyer, M.F., "Effect of Strain Rate on Tensile Behavior of Polypropylene and Carbon Nanofiber Filled Polypropylene," *Matls Sci Eng: A*, Vol. 489, issues 1-2, pp. 99-106, 2008.
96. Fuller, R. W., Ehr Gott, J. Q., Heard, W. F., Robert, S. D., Stinson, R. D., Solanki, K., and Horstemeyer, M.F., Failure Analysis of AISI 304 Stainless Steel Shaft. *Engineering Failure Analysis*, 15, 835–846, 2008.
95. Jeffery Houze , Sungho Kim , Seong-Jin Park , Randall German , Mark Horstemeyer, Seong-Gon Kim "The effect of Fe atoms on the adsorption of a W atom on W(100) surface," *Journal of Applied Physics* 103, 106103, 2008.
94. Yassar, R.S., Murphy, J., Burton, C., Horstemeyer, M.F., El Kadiri, H., Shokuhfar, T., "Microstructure History Effect During Sequential Thermomechanical Processing," *Matls. Sci., Eng. A*, Vol. 10, p. 1016, 2008.
93. Gullett, P.M., Horstemeyer, M.F., Baskes, M.I. and Fang, H., "Deformation gradient tensor and strain tensors for atomistic simulations," *MSMSE*, Vol.16, p. 1-17, 2008.
92. El Kadiri, H., Horstemeyer, M., Jordon, J., and Xue, Y. Fatigue Crack Growth Mechanisms in High Pressure Die-Cast Magnesium Alloys. *Metallurgical and Materials Transactions A* Springer Boston, 39(1), 190-205, 2008.
91. Chandler, Mei. Q., Horstemeyer, M. F., Baskes, M. I., Gullett, P. M., Wagner, G. J., Jelinek, B., Hydrogen Effects on Nanovoid Nucleation in FCC Single Crystals, *Acta Materialia* 56 (1), pp.95-104, 2008.

90. Chandler, Mei Q., Horstemeyer, M. F., Baskes, M. I., Wagner, G. J., Gullett, P. M., Jelinek, B., Hydrogen Effects on Nanovoid Nucleation at Nickel Grain Boundaries, *Acta Materialia* 56 (3), pp.619-631, 2008.
89. Wang, L., Felicelli, S., Gooroochurn, Y., Wang, P.T., Horstemeyer, M.F., "Optimization of the LENS Process for Steady Molten Pool Size," *Materials Science and Engineering A*, 474, 148-156, 2008.
88. Xue Y, McDowell DL, Horstemeyer MF, Dale MH, Jordon B, Microstructure-based multistage fatigue modeling of a 7075-T651 aluminum alloy, *Eng Fract Mechanics*, 74:2810-23, 2007.
87. 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*, Vol. 38B, 601-606, 2007.
86. Horstemeyer, M.F., Siervogel, J., Kwasniewski, L., Wekezer, J., Christian, B., Roufa, G., "Material and Structural Crashworthiness Characterization of Paratransit Buses," *Int. J. Crashworthiness*, 12:5, 509-520, 2007
85. Hammi, Y., Horstemeyer, M.F., "A Physically Motivated Anisotropic Tensorial Representation of Damage with Separate Functions for Void Nucleation, Growth, and Coalescence," *Int. J. Plast.*, Vol. 23, pp. 1641-1678, 2007.
84. Houze, J., Kim, S., Park, S.J., German, R., Horstemeyer, M.F., and Kim, S.G., "Atomistic Simulations of Activated Sintering of Tungsten by Additives," *Advances in Powder Metallurgy and Particulate Materials*, Part 1, 70-75, 2007.
83. Querin, J.A., Schneider, J.A., Horstemeyer, M.F., "Analysis of microvoid formation at grain boundary triple points in monotonically strained AA6022-T43 sheet metal," *Materials Science and Engineering A*, v 463, n 1-2, p 101-106, 2007.
82. Potirniche, G., Horstemeyer, M.F., Ling, X.W., "An internal state variable damage model in crystal plasticity," *Mechanics of Materials*, v 39, n 10, p 941-952, 2007.
81. B. Jelinek, J. Houze, Seong-Gon Kim, M.F. Horstemeyer, M. Baskes, Sungho Kim, "Modified embedded-atom method interatomic potentials for the Mg-Al alloy system," *Physical Review B* 75(5), pp. 054106, 2007.
80. Xue, Y., El Kadiri, H., Horstemeyer, M.F., & Weiland, H., "Micromechanisms of multistage fatigue crack growth in a high-strength aluminum alloy," *Acta Materialia* Elsevier Ltd, Oxford, OX5 1GB, United Kingdom, 55(6), 1975-1984, 2007.
79. Jordon, J.B., Horstemeyer, M.F., Solanki, K., Xue, Y., "Damage and stress state influence on the Bauschinger effect in aluminum alloys", *Mechanics of Material*, Vol. 39, pp. 920-931, 2007.
78. Jones, MK., Horstemeyer, MF., Belvin, AD, "A Multiscale Analysis of Void Coalescence in Nickel," *JEMT*, Vol. 129, pp. 94-104, 2007.
77. 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.
76. Xue, Y, Veazie, D.R., Glinsey, C., Horstemeyer, M.F., Rowell, R.M., "Environmental effects on the mechanical and thermomechanical properties of aspen fiber-polypropylene composites," *Composites Part B: Engineering*, v 38, n 2, p 152-158, March, 2007.
75. G. P. Potirniche, M. F. Horstemeyer, P. M. Gullett, B. Jelinek. Atomistic modeling of fatigue crack growth and dislocation structuring in FCC single crystals. *Proceedings of the Royal Society A*, London, Vol.462, pp.3707-3731, May 2006.
74. Fang, H., Horstemeyer, M.F., "A generic optimizer interface for programming-free optimization systems," *Advances in Engineering Software*, v 37, n 6, p 360-369, 2006.
73. Fang, H., Horstemeyer, M.F., "Global response approximation with radial basis functions," *Engineering Optimization*, v 38, n 4, Jun 1, p 407-424, 2006.
72. El Kadiri, H., Xue, Y., Horstemeyer, M.F., Jordon, J.B., Wang, P.T., "Identification and modeling of fatigue crack growth mechanisms in a die-cast AM50 magnesium alloy," *Acta Materialia*, v 54, n 19, p 5061-5076 November, 2006.
71. Johnston, S., Potirniche, G.P., Daniewicz, S.R., Horstemeyer, M.F., "Three-Dimensional Finite Element Simulations of Microstructurally Small Fatigue Crack Growth in 7075 aluminum alloy," *Fatigue Fract Engng Mater Struct*, Vol. 29, pp. 597-605, 2006.
70. Ling, X.W., H.P. Cherukuri, M.F. Horstemeyer, "A hybrid regularization method for inverse heat conduction problems," *Int. J. Num. Methods Engng*, Vol. 65, pp. 2246-2264, 2006.

69. Potirniche, G.P., J. L. Hearndon, M. F. Horstemeyer, X. W. Ling. Lattice orientation effects on void growth and coalescence in fcc single crystals. *International Journal of Plasticity*, Vol. 22, No. 5, May, 2006, pp. 921-942, May 2006.
68. Potirniche, G.P., M. F. Horstemeyer, G. J. Wagner, P. M. Gullett. A molecular dynamics study of void growth and void coalescence in single crystal nickel. *International Journal of Plasticity*, Vol. 22, No.2, pp. 257-278, Feb, 2006.
67. Potirniche, G.P., Horstemeyer, M.F., "On the Growth of Nanoscale Fatigue Cracks," *Phil. Mag. Letters*, Vol. 86, No. 3, pp. 185-193, 2006.
66. El Kadiri, H., Yves Bienvenu, Kiran Solanki, M.F. Horstemeyer, Paul Wang, "Creep and Tensile Behaviors of FeCrAl Foils and Laser MicroWelds at High Temperature," *Materials Science and Engineering A*, A421, pp. 168-181, 2006
65. Mulholland, M., Khraishi, T., Shen, Y.L., Horstemeyer, M.F., 2006, "Void growth and interaction experiments: Implications to the optimal straining rate in superplastic forming", *International Journal of Plasticity*, Vol. 22, Issue 9, pp. 1728-1744, 2006.
64. Querin, J., J. Schneider, and M. Horstemeyer, *Journal of Metals*, 56, 168-169, 2005.
63. Fang, H., Horstemeyer, M.F., "HIPPO: An Object Oriented Framework for General Purpose Design Optimization," *J. Aerospace Computing, Information, and Communication*, Vol. 2, p. 490, 2005.
62. El Kadiri, H., Molins, R., Bienvenu, Y., & Horstemeyer, M.F., "Abnormal high growth rates of metastable aluminas on FeCrAl alloys," *Oxidation of Metals* Springer Science and Business Media, 64(1), 63-97, 2005
61. El Kadiri, H., Molins, R., Bienvenu, Y., and Horstemeyer, M.F., "Influence of Laser Welding on the Alumina Growth on a Thin FeCrAl-RE Foil at High Temperature," *Oxidation of Metals*, Vol. 64, No. ½, p. 99, 2005.
60. G. P. Potirniche, M. F. Horstemeyer, B. Jelinek, G. J. Wagner, Fatigue damage in nickel and copper nanocrystals. *International Journal of Fatigue*, Vol.27, No. 10-12, pp. 1179-1185, 2005.
59. Y.B. Guo, Q. Wen, M.F. Horstemeyer, "An Internal State Variable Plasticity-Based Approach to Determine Dynamic Loading History Effects on Material Property in Manufacturing Processes," *Int. J. Mechanical Sciences*, vol. 47, pp. 1423-1441, 2005.
58. S.G. Lee, G.R. Patel, A.M. Gokhale, A. Sreeranganathan, M.F. Horstemeyer, "Variability in the Tensile Ductility of High Pressure Die Cast AM50 Mg Alloy," *Scripta Materialia*, Vol. 53, pp. 851-856, 2005
57. Fang, H., Rais-Rohani, M., Liu, Z., Horstemeyer, M.F., "A Comparative Study of Metamodeling Methods for Multiobjective Crashworthiness Optimization," *Computers and Structures*, Vol. 83/25-26, pp. 2121-2136, 2005.
56. H. Fang, K. Solanki, M.F. Horstemeyer, "Numerical simulations of multiple vehicle crashes and multidisciplinary crashworthiness optimization," *International Journal of Crashworthiness*, Vol. 10 (2), pp. 161-171, 2005.
55. X.W. Ling, M.F. Horstemeyer, "On numerical implementation of 3D rate-dependent single crystal plasticity," *International Journal of Numerical Methods for Engineering*, 63:548-568, 2005.
54. K. Solanki, M.F. Horstemeyer, M.I. Baskes, H. Fang, "Multiscale Study of Dynamic Void Collapse in Single Crystals," *Mechanics of Materials*, Vol. 37, pp. 317-330, 2005.
53. El Kadiri, H., Dahmen, M., Bienvenu, Y., Malot, T., and Horstemeyer, MF, "Laser Beam Welding of Metal-Supported Automotive Catalytic Converters," *Proc. 23rd Int Congress Applications of Lasers and Electro-Optics*, 2004, pp. 1-10.
52. El Kadiri, H., Molins, R., Bienvenu, Y., & Horstemeyer, M. (2004). "Phase transformation and growth of alumina on a thin FeCrAl-RE foil at around 900°C," *Materials Science Forum*, Les Embiez-France: Trans Tech Publications Ltd, Zurich-Ueticon, CH-8707, Switzerland, 461, 1107-1116.
51. El Kadiri, H., Molins, R., Bienvenu, Y., & Horstemeyer, M. (2004). "High-Temperature oxidation behavior of base material and laser-weld specimens of a thin FeCrAl-RE foil at around 900°C," *Materials Science Forum*, Les Embiez, France: Trans Tech Publications Ltd, Zurich-Ueticon, CH-8707, Switzerland, 461, 1157-1164.
50. Horstemeyer, M.F., Fang, H., and Solanki, K., "Energy-based crashworthiness optimization for multiple vehicle impacts," *Transportation 2004: Transportation and Environment*, 11-16, 2004.

49. K. Gall, G. Biallas, H. J. Maier, M. F. Horstemeyer, and D. L. McDowell, "Environmentally Influenced Microstructurally Small Fatigue Crack Growth in Cast Magnesium," *Materials Science and Engineering A*, 2004.
48. Hammi, Y., Bammann, D.J., Horstemeyer, M.F., "Modeling of Anisotropic Damage for Ductile Materials in Metal Forming Processes," *Int. J. Damage Mechanics*, Vol. 13, No. 2, April 2004, pp. 123-147.
47. Yan, L., Khraishi, T. A., Shen, Y.-L., Horstemeyer, M. F., 2004, "A Distributed-Dislocation Method for Treating Free-Surface Image Stresses in 3D Dislocation Dynamics Simulations," *Modelling and Simulation in Materials Science and Engineering*, Vol. 12, no. 4, pp. S289-S301.
46. K. Gall, G. Biallas, H. J. Maier, P. Gullett, M. F. Horstemeyer, and D. L. McDowell, "In-Situ Observations of Low-Cycle Fatigue Damage in Cast AM60B Magnesium in an Environmental Scanning Electron Microscope," *Metallurgical and Materials Transactions A*, vol. 35, no. 1, pp. 321-331, 2004.
45. Horstemeyer, M.F., Yang, N., Gall, K.A., McDowell, D.L., Fan, J., and Gullett, P., "High Cycle Fatigue on a Die Cast AZ91E-T4 Magnesium alloy," *Acta Materialia*, Vol. 52, pp. 1327-1336, 2004.
44. H. Fang, M.F. Horstemeyer, M.I. Baskes, K. Solanki, "Atomistic Simulations of Bauschinger Effects of Metals with High Angle and Low Angle Grain Boundaries," *Computational Methods in Applied Mechanics and Engineering*, Vol. 193, p. 1789-1802, 2004.
43. Liu, W., Gong, D., and Horstemeyer, M.F., "Preface," *Computational Methods in Applied Mechanics and Engineering*, Vol. 193, p. 3-5, 2004.
42. Ken Gall, Gerhard Biallas, Hans J. Maier, Phil Gullett, Mark F. Horstemeyer, David L. McDowell, and Jinghong Fan, "In-Situ Observations of High Cycle Fatigue Mechanisms in Cast AM60B Magnesium in Vacuum and Water Vapor Environments," *Int. J. Fatigue*, Vol. 26, No. 1, p 59-70. 2004.
41. Fan, J., McDowell, D.L., Horstemeyer, M.F., and Gall, K.A., Cyclic Plasticity in Pores and Inclusions in Cast Al-Si Alloys, *Engineering Fracture Mechanics*, vol. 70, no.10, p 1281-1302, 2003.
40. Hammi, Y., Horstemeyer, M.F., and Bammann, D.J., "An Anisotropic Damage Model for Ductile Metals," *International Journal of Damage Mechanics*, vol. 12, no. 3, p 245-262, 2003.
39. M. M. Mulholland, E. S. Ege, T. A. Khraishi, M. F. Horstemeyer and Y.-L. Shen, 2003, "Cavity Mediated Strain Localization and Overall Ductility in Eutectic Tin-Lead Alloy," *Materials Science and Engineering A*, 360, pp. 160-168.
38. A. K. Balasundaram, A.M. Gokhale, S. Graham, and M.F. Horstemeyer: "Three Dimensional Particle Cracking Damage Development in an Al-Mg Base Alloy", *Materials Science and Engineering*, Vol. 355, N. 1-2, pp. 368-383, 2003.
37. Horstemeyer, M.F., Gall, K.A., Dolan, K., Haskins, J., Gokhale, A.M., and Dighe, M.D., "Numerical, Experimental, and Image Analyses of Damage Progression in Cast A356 Aluminum Notch Tensile Bars," *Theoretical and Applied Fracture Mechanics*. v 39, n 1, p 23-45, 2003.
36. Horstemeyer, M.F., Negrete, M., and Ramaswamy, S., "Using a Micromechanical Finite Element Parametric Study to Motivate a Phenomenological Macroscale Model For Void/Crack Nucleation in Aluminum with a Hard Second Phase," *Mechanics of Materials*, Vol. 35, pp. 675-687, 2003.
35. Horstemeyer, M.F., Baskes, M.I., Prantil, V.C., Philliber, J., and Vonderheide, S., "A Multiscale Analysis of Fixed-End Simple Shear Using Molecular Dynamics, Crystal Plasticity, and a Macroscopic Internal State Variable Theory," *Modelling Simul. Mater. Sci. Eng.* Vol. 11, pp. 265-286, 2003.
34. Horstemeyer, M.F., Osborne, R., and Penrod, D., "Microstructure-Property Analysis and Optimization of a Control Arm," *American Foundry Society*, AFS Transactions, 02-036, pp. 297-314, 2002.
33. McDowell, D.L., Gall, K., Horstemeyer, M.F., and Fan, J., "Microstructure-Based Fatigue Modeling of Cast A356-T6 Alloy," *Engineering Fracture Mechanics*, Vol. 70, pp.49-80, 2003.
32. Agarwal, H., Gokhale, A.M., Graham, S., and Horstemeyer, M.F., "Void Growth in 6061 Al-Alloy under Triaxial Stress State", *Materials Science and Engineering*, Vol. 341 (no. 1-2), PP. 35-42, 2003.
31. Horstemeyer, M.F., Yang, N., Gall, K.A., McDowell, D.L., Fan, J., and Gullett, P., "High Cycle Fatigue Mechanisms in a Cast AM60B Magnesium Alloy," *Fatigue Fract Engng Mater Struct*, vol. 25, pp. 1045-1056, 2002.
30. Gerberich, W.W., Tymak, N.I., Grunlan, J.C., Horstemeyer, M.F., and Baskes, M.I., "Interpretations of Indentation Size Effects," *J. Applied Mechanics*, Vol. 69, No. 4, pp. 443-452, 2002

29. Horstemeyer, M.F., Lim, T.J., Lu, W.Y., Mosher, D.A., Baskes, M.I., Prantil, V.C., and Plimpton, S.J., "Torsion/simple shear of single crystal copper," *Journal of Engineering Materials and Technology*, Vol. 124, pp. 322-328, 2002.
28. Dighe, M.D., Gokhale, A.M., and Horstemeyer, M.F., "Effect of Loading Condition and Stress State on Damage Evolution of Silicon Particles in an Al-Si-Mg base Cast Alloy", *Metallurgical and Materials Transactions-A*, Vol. 33A, PP. 555-565, 2002.
27. Agarwal, H., Gokhale, A.M., Graham, S., Horstemeyer, M.F., and Bammann, D.J., "Rotations of Brittle Particles During Plastic Deformation of Ductile Alloys", *Materials Science and Engineering-A*, Vol. 328, PP. 310-316, 2002.
26. Agarwal, H., Gokhale, A.M., Graham, S., and Horstemeyer, M.F., "Quantitative Characterization of Three-Dimensional Damage Evolution in a Wrought Al-Alloy Under Tension and Compression", *Metallurgical and Materials Transactions*, Vol. 33A, PP. 2599-2606, 2002.
25. Agarwal, H., Gokhale, A.M., Graham, S., and Horstemeyer, M.F., "Anisotropy of Intermetallic Particle Cracking Damage Evolution in an Al-Si-Mg Base Wrought Aluminum Alloy Under Uniaxial Compression", *Metallurgical and Materials Transactions-A*, Vol. 33A, PP. 3443-3448, 2002.
24. Balasundaram, A., Shan, Z., Gokhale, A.M., Graham, S., and Horstemeyer, M.F., "Particle Rotations During Plastic Deformation of 5086 (O) Aluminum Alloy", *Materials Characterization*, Vol. 48 (no. 5), PP. 363-369, 2002.
23. Horstemeyer, M.F. Baskes, M.I., Hughes, D.A., and Godfrey, A. "Orientation Effects on the Stress State of Molecular Dynamics Large Deformation Simulations," *Int. J. Plasticity*, Vol. 18, pp. 203-209, 2002.
22. Horstemeyer, M.F., Plimpton, S.J., and Baskes, M.I., "Size Scale and Strain Rate Effects on Yield and Plasticity of Metals," *Acta Mater.*, Vol. 49, pp. 4363-4374, 2001.
21. Fan, J., McDowell, D.L., Horstemeyer, M.F., and Gall, K.A., "Computational Micromechanics Analysis of Cyclic Crack Tip Behavior for Microstructurally Small Cracks in Dual-Phase Al-Si Alloys," *Engineering Fracture Mechanics*, Vol. 68, No. 15, pp. 1687-1706, 2001.
20. Gall, K.A., Horstemeyer, M.F., Degner, B.W., McDowell, D.L., and Fan, J., "On the Driving Force for Fatigue Crack Formation from Inclusions and Voids," *International Journal of Fracture*, Vol. 198, No. 3, pp. 207-233, 2001.
19. Horstemeyer, M.F., Lathrop, J., Gokhale, A.M., and Dighe, M., "Modeling Stress State Dependent Damage Evolution in a Cast Al-Si-Mg Aluminum Alloy," *Theoretical and Applied Fracture Mechanics*, Vol. 33, pp. 31-47, 2000.
18. Gall, K.A., Horstemeyer, M.F., Van Schilfgaarde, M., and Baskes, M.I., "Atomistic Simulations on the Tensile Debonding of an Aluminum-Silicon Interface," *J. Mech. Phys. Solids*, Vol. 48, pp. 2183-2212, 2000.
17. Amy M. Waters, Harry E. Martz, Kenneth W. Dolan, Mark F. Horstemeyer, and Robert E. Green Jr. "Three-Dimensional Statistical Void Analysis of AM60B Magnesium using CT Imagery," *Journal for American Society for Nondestructive Testing: Materials Evaluation*, Vol. 58, No. 10, p. 1221, 2000.
16. Gall, K. and Horstemeyer, M.F., "Integration of Basic Materials research into the Design of Cast Components by a Multi-Scale Methodology," *JEMT*, Vol. 122, pp. 355-362, 2000.
15. Horstemeyer, M.F., Matalanis, M.M., Sieber, A.M., and Botos, M.L., "Micromechanical Finite Element Calculations of Temperature and Void Configuration Effects on Void Growth and Coalescence," *Int J. Plasticity*, Vol. 16, 2000.
14. Gall, K.A., Horstemeyer, M.F., McDowell, D.L., and Fan, J., "Finite element analysis of the stress distributions near damaged Si particle clusters in cast Al-Si alloys," *MECH MATER* 32: (5) 277-301, 2000.
13. Horstemeyer, M.F., "A Numerical Parametric Investigation of Localization and Forming Limits," *Int. J. Damage Mech*, Vol. 9, pp. 255-285, 2000.
12. Gall, K., Yang, N., Horstemeyer, M.F., McDowell, D.L., and Fan, J., "The Debonding and Fracture of Si Particles During the Fatigue of a Cast Al-Si Alloy," *Met. Trans A*, Vol. 30A, pp. 3079-3088, 1999.
11. Dighe, M.D., Gokhale, A.M., Horstemeyer, M.F., and Mosher, D.A., "Effect of Strain Rate Effect on Damage Evolution in a Cast Al-Si-Mg Base Alloy," *Met. Trans A*, Vol. 31A, pp. 1725-1731, 2000.

10. Gall, K., Yang, N., Horstemeyer, M.F., McDowell, D.L., and Fan, J., "The Influence of Modified Intermetallics and Si Particles on Fatigue Crack Paths in a Commercial Cast A356 Al Alloy," *Fatigue Frac. Eng. Mat. Struct.*, 23, pp. 159-172, 2000.
9. Horstemeyer, M.F., McDowell, D.L., and McGinty, R., "Design of Experiments for Constitutive Model Selection: Application to Polycrystal Elastoviscoplasticity," *Modelling and Simulation in Materials Science and Engineering*, Vol. 7, pp. 253-273, 1999.
8. Horstemeyer, M.F. and Baskes, M.I., "Atomistic Finite Deformation Simulations: A Discussion on Length Scale Effects in Relation to Mechanical Stresses," *J. Eng. Matls. Techn.* Trans. ASME, Vol. 121, pp. 114-119, 1999.
7. Horstemeyer, M.F., "Damage Influence on the Bauschinger Effect of a Cast A356 Aluminum Alloy," *Scripta Materialia*, Vol. 39, No. 11, pp. 1491-1495, 1998.
6. Horstemeyer, M.F. and Ramaswamy, S., "On Factors Affecting Localization and Void Growth in Ductile Metals: A Parametric Study," *Int. J. Damage Mech.*, Vol. 9, pp. 6-28, 2000.
5. Lu, W. Y., Horstemeyer, M. F., Korellis, J., Grishbar, R., and Mosher, D., "High Temperature Effects in 304L Stainless Steel Notch Tests," *Theoretical and Applied Fracture Mechanics*, Vol. 30, pp. 139-152, 1998.
4. Horstemeyer, M. F. and Gokhale, A.M., "A Void Nucleation Model for Ductile Materials," *International Journal of Solids and Structures*, Vol. 36, pp. 5029-5055, 1999.
3. Dighe, M.D., Gokhale, A.M., and Horstemeyer, M. F., "Effect of Temperature on Silicon Particle Damage in Cast Microstructure of A356 Alloy," *Metallurgical and Materials Transactions*, 1997, Vol 29a, pp. 905-908, 1998.
2. Horstemeyer, M. F., McDowell, D. L., "Modeling Effects of Dislocation Substructure in Polycrystal Elastoviscoplasticity," *Mech. Matls*, Vol. 27, pp. 145-163, 1998.
1. Horstemeyer, M. F., Staab, G., "Interface Debonding in Fatigue Cycling of Glass Reinforced Composites," *Journal of Reinforced Plastics and Composites*, vol.9, no.5, pp.446-455, 1990.

Refereed Conference Papers (131 total)

131. Lee, N., Mun, S., Horstemeyer, M., Horstemeyer, S.J. and Lang, D.J., 2018. A characterization of petrified and mummified wood from an Eocene deposit in Mississippi. In *The Proceedings of the International Conference on Creationism* (Vol. 8, No. 1, p. 33).
130. Seely, D.W., Bowman, A., Cho, H. and Horstemeyer, M., 2018. Finite element analysis of large body deformation induced by a catastrophic near impact event. In *The Proceedings of the International Conference on Creationism* (Vol. 8, No. 1, p. 12).
129. Cho, H., Horstemeyer, M., Baumgardner, J. and Sherburn, J., 2018. Strength-reducing mechanisms in mantle rock during the Genesis Flood. In *Proceedings of the Eighth International Conference on Creationism* (pp. 707-730).
128. Tenev, T.G., Baumgardner, J. and Horstemeyer, M., 2018. A solution for the distant starlight problem using creation time coordinates. In *The Proceedings of the International Conference on Creationism* (Vol. 8, No. 1, p. 39).
127. Bradley D Huddleston, Doyl E Dickel, Mark F Horstemeyer, Neil Williams, Kent Danielson, Youssef Hammi, "Damage Progression and Fragmentation in Atomistic, Single Crystal Copper at High Strain Rates," *Solid State Phenomena*, Vol. 258, pp. 49-52, 2017.
126. McClelland, Z., B. Li, S. J. Horstemeyer, M. F. Horstemeyer, and A. L. Oppedal. "Effects of Homogenization on Microstructure and Mechanical Properties of AZE20 Alloy Processed by Indirect Extrusion," *Magnesium Technology 2016* (2016): 141.
125. Cho, H, Horstemeyer, MF, Hammi, Y, and Francis, DK, "Finite Element Model for Plymouth Tub Processing Using Internal State Variables," *Proceedings of the 3rd World Congress on Integrated Computational Materials Engineering (ICME)*, Seven Springs, Pa, 2015.
124. Lugo, M., Jordon, J.B., Bernard, J.D., Horstemeyer, M.F., "Microstructure-sensitive fatigue modeling of an extruded AM30 magnesium alloy," Volume 2, *SAE 2013 World Congress and Exhibition*; Detroit, MI, 2013.
123. Ma, Q., Mao, W., Li, B., Wang, P.T., Horstemeyer, M.F., "Grain subdivision and its effect on texture evolution in an aluminum alloy under plane strain compression," *TMS Light Metals* , pp. 351-356, 2013.

122. Haupt, T., Sukhija, N., Horstemeyer, M.F. , “Cyberinfrastructure Support for Engineering Virtual Organization for CyberDesign,” *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* 7204 LNCS (PART 2) , pp. 161-170, 2012.
121. Baird, J.C., Li, B., Parast, S.Y., Horstemeyer, S.J., El Kadiri, H., Wang, P., Horstemeyer, M.F., “Anomalous twin bands in AZ31 magnesium sheet bending,” *Magnesium Technology*, Pages 87-92, TMS 2012 Annual Meeting and Exhibition; Orlando, FL, 2012.
120. Ma, Q., Li, B., Oppedal, A.L., Whittington, W., Horstemeyer, S.J., Marin, E.B., El Kadiri, H., Wang, P.T., Horstemeyer, M.F., “Effect of strain rate on dynamic recrystallization in a magnesium alloy under compression at high temperature,” *Magnesium Technology*, Pages 307-310, TMS 2012 Annual Meeting and Exhibition, Orlando, FL, 2012.
119. Tang, T., Horstemeyer, M.F., Wang, P., “Micromechanical analysis of influences of agglomerated carbon nanotube interphase on effective material properties of a three-phase piezoelectric nanocomposite,” *TMS Annual Meeting*, Volume 1, Pages 307-312, 141st Annual Meeting and Exhibition, TMS 2012; Orlando, FL, 2012.
118. Zaeem, Mohsen Asle, El Kadiri, Haitham; Mesarovic, Sinisa Dj.; Wang, Paul T.; Horstemeyer, Mark F., “A finite element-phase field study of solid state phase transformation: Coarsening of coherent precipitates and instability of multilayer thin films,” *TMS Annual Meeting*, v 3, p 341-348, 2011.
117. Tschopp, M.A., Bouvard, J.L.; Ward, D.K.; Horstemeyer, M.F., “Atomic scale deformation mechanisms of amorphous polyethylene under tensile loading,” *TMS Annual Meeting*, v 2, p 789-794, 2011.
116. Parkar, AbdulAfoo, Bouvard, C., Horstemeyer, S., Marin, E., Wang, P., Horstemeyer, M.F., “Comprehensive thermo-mechanical validation of extrusion simulation cycle for Al 1100 using HyperXtrude,” *TMS Annual Meeting*, v 2, p 229-236, 2011.
115. Haupt, T., Sukhija, N., Horstemeyer, M.F., “Cyberinfrastructure Support for Engineering Virtual Organization for CyberDesign”, 2nd Workshop on Scalable Computing in Distributed Systems (SCoDiS’11), Torun, Poland, September 11-14, 2011.
114. Jablonski, D, Grundy, D, Horstemeyer, MF, Sheiretov, Y, Solanki, K, Zilberstein, V, Goldfine, N., and Contag, G, “Detection, Monitoring, and Measurement of short surface fatigue cracks in AL7075 and Ti-6Al-4V and prediction using a microstructure-based multistage fatigue model,” *Int Conf. Fatigue*, Hyannis, MA Sept 2010.
113. Tang, T. Kim, S., Horstemeyer, M.F., “Atomistic simulations of fatigue crack growth and the influence of temperature on fatigue behavior in magnesium crystals,” *Magnesium Technology*, p 273-280, 2010, *Magnesium Technology 2010*
112. Xue, Y, Jordon, B, Horstemeyer, M, “Physics-based multistage fatigue model for fatigue in notched structures,” *TMS Annual Meeting*, v 3, p 745-752, 2010, *TMS 2010*.
111. Ma, Q., El Kadiri, H.; Horstemeyer, M.F.; Wang, P.T., “Plasticity in a rod-textured extruded Mg Am30 alloy,” *Magnesium Technology*, p 57-62, 2010, *Magnesium Technology 2010*
110. Bernard, J.D., Jordon, J.B., Horstemeyer, M.F., El Kadiri, H., “Structure-property evaluation of fatigue damage in a magnesium AM30 alloy,” *Magnesium Technology*, p 28, 1-286, 2010, *Magnesium Technology 2010*.
109. Jordon, JB, Horstemeyer, M.F.; Grantham, J.; Badarinarayan, H., “Fatigue evaluation of friction stir spot welds in magnesium sheets,” *Magnesium Technology*, p 267-271, 2010, *Magnesium Technology 2010*.
108. Moitra, A., Kim, S., Kim, S.G., Park, S.J., German, R.M., and Horstemeyer, M.F., “Investigation on Sintering Mechanisms of Nanoscale Tungsten Powder Based on Atomistic Simulations,” *NUMIFORM 2010*, Proc. 10th International Conf. on Numerical Methods in Industrial Forming Processes Dedicated to Professor OC Zienkiewicz, eds., Barlat, F., Moon, Y.H., and Lee, M.G., Pohang, Korea, June 2010.
107. Wang, L., Pratt, P., Felicelli, S.D., El Kadiri, H., Berry, J.T., Wang, P.T., Horstemeyer, M.F., “Experimental analysis of porosity formation in laser-assisted powder deposition process,” *TMS Annual Meeting*, v 1, p 389-396, 2009, TMS 2009.
106. Acar, E., Solanki, K., Rais-Rohani, M., Horstemeyer, M.F., “Uncertainty analysis of damage evolution computed through microstructure-property relations,” *2008 Proceedings of the ASME International Design Engineering Technical Conferences and Computers and Information in Engineering*

- Conference, DETC 2008, v 1, n PART B, p 1109-1122, 2009, 2008 Proceedings of the ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, DETC 2008*
105. Yin, X., Lee, S., Chen, W., Liu, W.K., Horstemeyer, M.F. "A multiscale design approach with random field representation of material uncertainty," *2008 Proceedings of the ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, DETC 2008, v 1, n PART A, p 113-122, 2009, 2008 Proceedings of the ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, DETC 2008.*
 104. Wang, L., Pratt, P., Felicelli, S.D., El Kadiri, H., Berry, J.T., Wang, P.T., and Horstemeyer, M.F., "Experimental Analysis of Porosity Formation in Laser-Assisted Powder Deposition Process," TMS Vol. 1: Fabrication, Materials Processing and Properties, pp. 389-396, 2009.
 103. Brister, K., Horstemeyer, M.F., Acar, E., and Solanki, K.N., "Multi-Objective Design Optimization Using a Damage Material Model Applied to Light Weighting a Formula SAE Car Suspension Component, SAE paper 2009-01-0348, April 2009.
 102. Jeffrey Houze, Bohumir Jelinek, Sungho Kim, Seong-Gon Kim, Mark Horstemeyer, "Verification and refinement of the Al-Mg-Zn Φ phase crystal structure model," APS 2009 March meeting, Pittsburgh, PA, Mar. 16-20, 2009.
 101. Laalitha Liyanage, Jeffrey Houze, Sungho Kim, Mark Horstemeyer, Seong-Gon Kim, "An ab initio study of the crystal structure of the Tau-phase in Al-Mg-Zn alloys," APS 2009 March meeting, Pittsburgh, PA, Mar. 16-20, 2009.
 100. Moitra, A, Kim, S, Kim, SG, Park, SJ, German, R, and Horstemeyer, MF, "Atomistic Scale Study on the Effect of Crystalline Misalignment on Densification during Sintering Nano Scale Tungsten Powder," Sintering 2008, La Jolla, CA, Nov 2008.
 99. Shaik, M.S., Zhou, Y., Lacy, T., and Horstemeyer, M.F., "Experimental Study on Strain Rate Sensitivity of Aligned Carbon Nanofiber Reinforced Polypropylene," Advances in Heterogeneous Material Mechanics, ICHMM, Memphis, TN, 2008
 98. Yin, X., Lee, S., Chen, W., Liu, W.K., Horstemeyer, M.F., "A Multiscale Design Approach with Random Field Representation of Material Uncertainty," ASME DETC08, New York, NY Aug 2008.
 97. Acar, E., Solanki, K., Rais-Rohani, M., Horstemeyer, M.F., "Uncertainty Analysis of Damage Evolution Computed through Microstructure-Property Relations," ASME IDETC/CIE DETC08-49168, New York, NY Aug 2008.
 96. Sealy, M.P., Guo, Y., and Horstemeyer, M.F., "Fabrication and Finite element Analysis of Micro Dents using μ -Laser Shock Peening," ASME MSEC2008-72231, Evanston, IL Oct 2008.
 95. Alvarez, R., Ruiz, A., Horstemeyer, M.F., "Pitting Corrosion Study in an AE44 Magnesium Alloy," NACE Corrosion 2008, NACE International Conference, New Orleans, LA, March 2008.
 94. Rhee, H., Horstemeyer, M., & Hwang, Y. Multiscale Structures and Mechanical Behavior of the Biological Composite Material: Terrapene Carolina (Box Turtle) Shell. US-KOREA Conference 2007, Washington, D.C., Aug 2007.
 93. Rhee, H., Tucker, M., Horstemeyer, M., & Hwang, Y., Structures and Mechanical Behavior of Lightweight Composite Foam Materials. Materials Science and Technology (MS&T) 2007 Conference and Exhibition, Detroit, Mi, Sept 2007.
 92. El Kadiri, K, Horstemeyer, M.F., Oloriz-Saez, F., El Kadiri, H., Limelahi, H, and Chalouan, A., "Jurassic Radiolarite Pulses from the Dorsale Calcaire (Internal Rif Belt, Northern Morocco): Lithostatigraphic and Biostatigraphic Review," The First MAPG International Convention, Conference and Exhibition, Marrakesh, Morocco, Oct. 28-31, 2007.
 91. Shi., S., Lee, Y., Horstemeyer, M.F., "Natural Fiber Retting and Inorganic Nanoparticle Impregnation Treatment for Natural Fiber/Polymer Composites," 22nd Annual American Society for Composites Technical Conference, University of Washington, Seattle, Washington, USA, Sept 2007.
 90. Anurag, S., Guo, Y., Horstemeyer, M.F., "The Effect of Materials Testing Mode on Dynamic Mechanical Behavior Modeling and Hard Machining Simulation," Proc. 2007 Int. Manufacturing Science and Engineering Conference, MSEC2007-31087, Oct 2007, Atlanta, GA.

89. Shi, S., Lee, S., Horstemeyer, M.F., "Kenaf Bast Fiber Retting and Inorganic Nanoparticle Impregnation Treatment for Natural Fiber/Polymer Composites," 22nd Annual American Society for Composite Technical Conference Sept. 17–19, 2007 University of Washington
88. Stone, T.W, Jelinek, B., Gullett, P.M., Kim, S.G., Horstemeyer, M.F., "Molecular Dynamics Simulations of the Compressive Behavior of α -Fe and Fe-Cu Nanocrystalline Materials," PowderMet Conference, Denver, Co, May 2007
87. Kadiri, H., Wang, L., Felicelli, S.D., Horstemeyer, M.F., Wang, P.T., "Transformations in Laser Multi-Deposited Medium Carbon Steel," TMS Annual Meeting & Exhibition, Symposium on Advances in Microstructure-Based Modeling and Characterization of Deformation Microstructures, Orlando, FL, Feb. 25 – Mar. 1, 2007
86. Wang, L., Felicelli, S.D., Craig, J.E., Wang, P.T., Horstemeyer, M.F., "Thermal Modeling and Experimental Validation in the LENSTM Process," Proceedings of The Eighteenth Solid Freeform Fabrication Symposium, Austin, TX, Aug. 6-8, 2007
85. E. Acar, K. Solanki, M. Rais-Rohani, and M.F. Horstemeyer, "Probabilistic Product-Process Design Optimization of Automotive Structures using Multiscale Material Models," The 14th Asia Pacific Automotive Engineering Conference, August 5-8, 2007.
84. Solanki, K, Horstemeyer, M.F., "A Physically Motivated Uncertainty-Based Higher Order Plasticity and Damage Model," MCMAT2007-30120, ASME Applied Mechanics and Materials Conference, University of Texas at Austin, June 3-7, 2007
83. Horstemeyer, M.F., Solanki, K., "Internal State Variable Modeling of Structure-Property Relationships in Deformed Microstructures," The Minerals, Metals, and Materials Society, 2007 TMS Annual Meeting & Exhibition, Orlando, Florida, 25 Feb – 1 March 2007.
82. J. Houze, Sungho Kim, Seong-Jin Park, Randall M. German, M. F. Horstemeyer, and Seong-Gon Kim, "Atomistic Simulation of Activated Sintering of Tungsten by Additives", *PowderMet 2007*, Denver, CO., May 2007.
81. Kungpeng Wang, Yibin Xue, Hongwu Zhang, Mark Horstemeyer, "Micromechanical Simulation on Hygro-Mechanical Properties of Woodfiber-Reinforced Plastic Composites" to 9th International Conference on Wood & Biofiber Plastic Composites, May 21-23, 2007, Madison WI.
80. Yibin Xue, Yicheng Du, Steve Elder, Devin Shame, Mark Horstemeyer, Jilei Zhang, "Statistical Tensile Properties of Kenaf Fibers and Composites", 9th International Conference on Wood & Biofiber Plastic Composites, May 21-23, 2007, Madison WI.
79. Solanki, K., Acar, E., Rais-Rohani, M., Eamon, C., and Horstemeyer, M.F., "Reliability-based Structural Optimization using a Multiscale Material Model," 48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Waikiki, Hawaii, April 2007.
78. Fang, Hongbing, Wang, Qian, Horstemeyer, M. F., Collection of Technical Papers - AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, v 4, Collection of Technical Papers - 47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference: 14th AIAA/ASME/AHS Adaptive Structures Conference, 8th AIAA Non-deterministic Ap, 2006, p 2653-2660
77. Yibin Xue, Kiran Solanki, Glenn W. Steele, M.F. Horstemeyer, Jim Newman, Jr., "Quantitative Uncertainty Analysis for a Mechanistic Multistage Fatigue Model", 48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Honolulu HA, April 23-26, 2007.
76. Yibin Xue, Amada M. Wright, Kiran Solanki, Mark F. Horstemeyer, David L. McDowell, "Micromechanical Simulation of Cyclic Plasticity at Inclusion Particles with Pre-Over Straining", , 48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Honolulu HA, April 23-26, 2007.
75. L. Wang, S. Felicelli, Y. Gooroochurn, P.T. Wang, M.F. Horstemeyer (2006), "Numerical simulation of the temperature distribution and solid-phase evolution in the LENS process", *Proceedings of SFF 2006 – 17th Solid Freeform Fabrication Symposium*, Austin, Texas (U.S.A.), August 2006, pp. 453-463.
74. G. P. Potirniche, M. F. Horstemeyer, P. M. Gullett. Fatigue crack growth simulations in nanocrystalline materials, 9th International Fatigue Congress, Atlanta, Georgia, May 14-19, 2006.

73. Hammi, Y., Stone, T.W., Horstemeyer, M.F., "Constitutive Modeling of Metal Powder Behavior", SAE 2005 Transactions Journal of Materials & Manufacturing, Published in March 2006.
72. Solanki, K., Acar, E., Rais-Rohani, M., Eamon, C., and Horstemeyer, M.F., "Reliability-based Structural Optimization using a Multiscale Material Model," 48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Waikiki, Hawaii, April 2007.
71. E. Acar, K. Solanki, M. Rais-Rohani, M.F. Horstemeyer, "Probabilistic Product-Process Design Optimization of Automotive Structures using Multiscale Material Models," 14th Asia Pacific Automotive Engineering Conference, Hollywood, Ca, Aug 5-8, 2007
70. Christina L. Burton, M. F. Horstemeyer, Paul T. Wang, Reza Yassar, and Haitham El Kadiri, "Rolling History Microstructure-Property Relations of 6022 Aluminum Sheet," TMS 2006 Annual Meeting, San Antonio, TX 12-16 March 2006.
69. Gullett, P., Horstemeyer, M., & Baskes, M. (2006). Discrete gradient operator for computation of local atomic strains. In Peter Gumbsch (Eds.), *Third International Conference on Multiscale Materials Modeling*, Freiburg, Germany, 170.
68. Crapps, J., Fang, H., Horstemeyer, M.F., "Numerical simulation and optimization of a tee shaped tube hydroforming process," *Proceedings of the International Conference on Manufacturing Science and Engineering*, v 2006, *Proceedings of the International Conference on Manufacturing Science and Engineering*, MSEC 2006, 8p, 2006.
67. Xue, R., El Kadiri, H., Horstemeyer, M.F., Fan, J., McDowell, D.L., "Fatigue and fracture mechanism of cast AE44 magnesium alloys," *Proceedings of the 2006 SEM Annual Conference and Exposition on Experimental and Applied Mechanics 2006*, v 4, *Proceedings of the 2006 SEM Annual Conference and Exposition on Experimental and Applied Mechanics 2006*, p 2191-2198, 2006.
66. Jordon, J.B., Newman, J.C., Xue, Y., Horstemeyer, M.F., "Near threshold fatigue crack growth in 7075-T651 aluminum alloy," *Proceedings of the 2006 SEM Annual Conference and Exposition on Experimental and Applied Mechanics 2006*, v 4, *Proceedings of the 2006 SEM Annual Conference and Exposition on Experimental and Applied Mechanics 2006*, p 1742-1750, 2006.
65. Yibin Xue¹, Steve Elder², Devin Shame¹, Mark Horstemeyer¹, Statistical Elastic and Creep Properties of Kenaf Fibers, 9th International Conference on Wood & Biofiber Plastic Composites, May 21-23, 2007, Madison WI
64. Querin, J., Schneider, J., Horstemeyer, M.F., "OIM Characterization of Banded Regions in a Friction Stir Weld," TMS Annual Mtg, Orlando, FL, Feb 2007
63. Stone, T., Arias-Meza, L., Hammi, Y., & Horstemeyer, M. (2006). Multiscale Modeling of Powder Metallurgy Process. *Advances in Powder Metallurgy & Particulate Materials*, San Diego, CA: MPIF, 1(1), 1-41 -1-54.
62. C.L. Burton, M.K. Jones, D.L. Oglesby, A.L. Oppedal, M.Q. Chandler, and M.F. Horstemeyer, "Failure Analysis of a Cast A380 Aluminum Alloy Casting Using a Microstructurally Based Fatigue Model," Paper 06-018, AFS Transactions, Vol. 114, 110th Metalcasting Congress, Columbus, OH, April 18-21, 2006.
61. Xue, C. L. Burton, M. F. Horstemeyer, D. L. McDowell, Multistage Fatigue Modeling Of Cast A356-T6 And A380-F Aluminum Alloys, TMS Annual Conference, 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), 2006
60. Hammi, Y., Stone, T., & Horstemeyer, M.F., Constitutive Modeling for Powder Compaction and Densification. *Advances in Powder Metallurgy & Particulate Materials*, Montreal, Canada: MPIF, 1(1), 1-38 -1-51, 2005.
59. Gullett, P.M., Horstemeyer, M.F., Waters, A.M., Frazier, K.F., "Simulated Void Growth and Failure in AM60B Magnesium Tension Specimens," VII Int. Conf. Computational Plasticity, COMPLAS VIII, Onate and Owen, CIMNE, Barcelona, Spain, 2005
58. Horstemeyer, M.F., Potirniche, G.P., Hearndon, J.L., Ling, X., "On the Void Growth in Single Crystals," Symposium: Dislocations, Plasticity, Damage, and Metal Forming: Material Response and Multiscale Modeling, Proc. Plasticity '05, 2005, pp. 628-630.
57. Horstemeyer, M.F., Solanki, K., and Steele, W.G. Uncertainty Methodologies to Characterize Damage Evolution Model, Plasticity 2005, Kauai (Hawaii), Jan 4-8, 2005.

56. Yibin Xue, Brian Jordon, Stephen Horstemeyer, Mark F. Horstemeyer, Fatigue Experiments, Damage Evaluation and Multiscale Modeling for AA 7075-T651, Society of Experimental Mechanics, July 2005
55. H. Fang, M.F. Horstemeyer, Metamodeling with radial basis functions, *Proceedings of the 1st AIAA Multidisciplinary Design Optimization Specialist Conference*, Paper No. AIAA-2005-2059, Austin, TX, April 18-21, 2005.
54. Fang, H., Solanki, K., Horstemeyer, M.F., "Energy Based Crashworthiness Optimization for Multiple Vehicle Impacts," Proc. ASME, No. IMECE2004-59123, Anaheim, CA, Nov 2004.
53. Fang, H., Solanki, K., Horstemeyer, M., & Rais-Rohani, M. (2004). Multi-impact Crashworthiness Optimization with Full-scale Finite Element Simulations. *Proceedings of the 6th World Congress on Computational Mechanics in Conjunction APCOM'04*, Beijing, China.
52. Solanki, K., Oglesby, D., Burton, C., Fang, H., & Horstemeyer, M. (2004). Crashworthiness Simulations Comparing PAM-CRASH and LS-DYNA. *The 2004 SAE World Congress, Paper No. 148*, Detroit, Michigan.
51. Horstemeyer, M.F., Potirniche, G.P., Hearndon, J.L., Ling, X., "On the Void Growth in Single Crystals," Dislocations, Plasticity, Damage, and Metal Forming: Material Response and Multiscale Modeling, Proc. Plasticity, Hawaii, pp. 628-630, 2005.
50. Querin, J., Schneider, J., Horstemeyer, M.F., "Use of EBSD to Quantify the microstructural damage in aluminum alloys under monotonic loading," TMS letters, 2005.
49. Solanki, K., Fang, H., & Horstemeyer, M. (2004). Comparisons of RBF and RSM for Crashworthiness. *Proceedings of AmeriPAM 2004 User Conference*, Troy, Michigan.
48. Solanki, K., Hammi, Y., Oglesby, D., & Horstemeyer, M. (2004). Implementation of Internal State Variable Material Model for Crashworthiness. *Proceedings of AmeriPAM 2004 User Conference*, Troy, Michigan.
47. Xue, A., Jordon, B., Horstemeyer, M.F., "Multiscale Fatigue Modeling and Life Prediction for 7075-T651 Aluminum Alloy," TMS Mtg, New Orleans, LA, 2004.
46. Guo, Y.B., Wen, Q., Horstemeyer, M.F., "Using Internal State Variable Plasticity to Determine Dynamic Loading History Effects in Manufacturing Processes," Winter ASME mtg., IMECE2004-60020, Nov 2004.
45. Solanki, K., Oglesby, D., Burton, C., Horstemeyer, M.F., and Fang, H., "Crashworthiness Simulations Comparing PAMCRASH and LS-DYNA," SAE, Detroit, MI March 2004.
44. Fang, H., Horstemeyer, M.F., "An Integrated Design Optimization Framework Using Object Oriented Programming," 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Albany, NY, Aug 2004.
43. Fang, H., Rais-Rohani, M., and Horstemeyer, M.F., "Multi-Objective Crashworthiness Optimization with Radial Basis Functions," 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Albany, NY, Aug 2004.
42. L. Yan, T.A. Khraishi, Y.-L. Shen, M.F. Horstemeyer, "A Numerical Method for the Treatment of Image Stresses in Dislocation Dynamics Simulations," Proceedings of the Second M.I.T. Conference on Computational Fluid and Solid Mechanics, 2004.
41. Fang, H., Liu, Z., Horstemeyer, M.F., "Reliability Based Finite Element Simulations for Performance Evaluation of Truck-Barrier Impacts," 8th Int. LS-DYNA Users Conference, 2004.
40. Fang, H., Horstemeyer, M.F., Liu, Z., "Multidisciplinary Crashworthiness Optimization by Unified Finite Element Model," 4th Int. Conf. on Engineering Computational Technology, Beijing, China, Sept 2004.
39. Gullett, P.M., Wagner, G.J., Horstemeyer, M.F., Potirniche, G.P., Baskes, M.I., "An Atomistic Study of Size Scale Effects on Void Growth in Single and Polycrystalline Nickel," 3rd Int. Conf. Computational Modeling and Simulation of Materials, Portugal, Spain, June 2004.
38. Solanki, K., Oglesby, D.L., Fang, H., and Horstemeyer, M.F., "Application of Multi-Objective Statistics-Based Methods for Crashworthiness Evaluation of Side-Impact Finite Element Model," Pamcrash Conference, Detroit, MI, Oct 2003.
37. Yan, L., Khraishi, T. A., Shen, Y.-L., Horstemeyer, M. F., "A Numerical Method for the Treatment of Image Stresses in Dislocation Dynamics Simulations," Proceedings of the *Second MIT Conference on Computational Fluid and Solid Mechanics*, K. J. Bathe (editor), pp. 776-779, 2003.

36. G. Potirniche, S. Daniewicz, M.F. Horstemeyer, Crystal Plasticity in Cyclic fatigue, Winter ASME meeting, Washington DC, Nov 2003.
35. G.P. Potirniche, J.J. Harris, M.F. Horstemeyer, S.R. Daniewicz, "Prediction of S/N Curves for Aluminum Alloy 2024 Using Fatigue Crack Growth Methodologies," ASM Annual Meeting, Oct 2003, Pittsburgh, Pa.
34. A. Balasundaram, A.M. Gokhale, Z. Shan, S. Graham, and M.F. Horstemeyer: "Effect of Stress and Strain on the Particle Cracking Damage in 5086 (O) Al-Alloy", *Aluminum 2002: Proceedings of TMS Symposium on Automotive Alloys 2002*, eds, Michael Skillinberg and Subodh Das, TMS, Warrendale, PP. 115-122, 2002.
33. A. Balasundaram, A.M. Gokhale, Z. Shan, S. Graham, and M.F. Horstemeyer: "Quantitative Characterization of Particle Rotations During Plastic Deformation of Aluminum Alloys", *Aluminum 2002: Proceedings of TMS Symposium on Automotive Alloys 2002*, eds, Michael Skillinberg and Subodh Das, TMS, Warrendale, PP. 115-122, 2002
32. Hammi, Y., Horstemeyer, M.F., and Bammann, D.J. "Modeling of Anisotropic Damage for Ductile Materials in Metal Forming Processes," Proceedings of ICEME'02, IMECE2002-32999, 2002 ASME Winter Meeting, New Orleans, LA, Nov 2002.
31. Hammi, Y., Horstemeyer, M.F., and Bammann, D.J. "Modeling of Anisotropic Damage for Ductile Metals," Proceedings of ICEME'02, IMECE2002-32887, 2002 ASME Winter Meeting, New Orleans, LA, Nov 2002.
30. Horstemeyer, M.F., Baskes, M.I., and Plimpton, S.J., "Nanoscale Plasticity Using Atomistic Simulations," *Proceedings of Plasticity, Damage, and Fracture at Macro, Micro, and Nano Scales*, eds. A.S. Khan and O. Lopez-Pamies, Aruba, Netherlands Anthilles, Jan 2002.
29. Horstemeyer, M.F., "Control Arm Simulations Using Void Nucleation, Growth, and Coalescence," *Proceedings of Plasticity, Damage, and Fracture at Macro, Micro, and Nano Scales*, eds. A.S. Khan and O. Lopez-Pamies, Aruba, Netherlands Anthilles, Jan 2002.
28. H. Agarewal, A.M. Gokhale, S. Graham, and M.F. Horstemeyer: "Quantitative Characterization of Three-Dimensional Damage as a Function of Compressive Strain in Al 6061", *Proceedings of Symposium on Automotive Alloys 2001*, 130th Annual Meeting of TMS, New Orleans, February 2001.
27. Horstemeyer, M.F., Gall, K., Dolan, K.W., Waters, A., Haskins, J.J., Perkins, D.E., Gokhale, A.M., and Dighe, M.D., "Microstructure-Property Damage Analysis of Notch Tensile Tests," ICF 2001, Hawaii.
26. Sett gast, R.R., Somerday, B.P., Horstemeyer, M.F., and Zimmerman, J.A., "Boundary Effects in Atomistic Modeling of Void Growth and Coalescence in Nickel," MRS 2001, Boston.
25. Baskes, M.I., Horstemeyer, M.F., and Plimpton, S.J., "Atomistic Simulations of Size Scale and Strain Rate Effects on Plasticity of Metals," Atomic and Molecular Scale Modeling of Materials, ICCN 2001 Special Session, Hilton Head, SC.
24. P.M. Gullett, M.F. Horstemeyer, D.J. Bammann, and M.I. Baskes, "A comparison of atomistic and elastic continuum based shear stress distributions near an edge dislocation", Proceedings of the International Conference on Computational Engineering and Science, August 19-25, 2001, Puerto Vallarta, Mexico.
23. Waters, A.M., Martz, H.E., Dolan, K.W., Horstemeyer, M.F., and Green, R.E., "Statistical Void Analysis from CT Imagery with Applications to Damage Evolution in an AM60B Magnesium Alloy," 15th World Conference on NonDestructive Testing, October 15-21, 2000, Rome, Italy.
22. Regueiro, R. and Horstemeyer, M.F., "Ta Analysis using BCJ modeling framework," Conf. for High Strain Rate Applications, ASME, Summer 2000.
21. Horstemeyer, M.F., Gall, K.A., and Degner, B.W., "Damage Design Maps for a Cast A356 Aluminum Alloy," planned for SAE 2001.
20. Horstemeyer, M.F. and Baskes, M.I., "Strain Tensors at the Atomic Scale," MRS Conference, Boston, 1999.
19. Somerday, B.P, Pattillo, P.D., Horstemeyer, M.F., and Baskes, M.I., "Atomistic Modeling of Void Growth and Coalescence in Ni+H," MRS Conference, Boston, 1999.
18. Waters, A., Martz, H., Dolan, K., Horstemeyer, M.F., Rikard, D., and Green, R., "Characterization of Damage Evolution in an AM60 Magnesium Alloy by Computed Tomography," Ninth International

Symposium on Nondestructive Characterization of Materials, Darling Harbours, Sydney, Australia, June 28 - July 2, 1999.

17. Horstemeyer, M.F. and Baskes, M.I., "High Strain Rate Single Crystal Atomistic Simulations," International Conf. On Plasticity, ed. A. Khan, Cancun, Mexico 1999.
16. Horstemeyer, M.F. and Mosher, D.A., "Damage Progression in Ductile Metals," International Conf. On Plasticity, ed. A. Khan, Cancun, Mexico 1999.
15. Horstemeyer, M.F., "Multi-Scale Analysis of Monotonically Loaded A356 Cast Aluminum Alloy," AFS, St. Louis, 1999.
14. Fan, J., McDowell, D.L., and Horstemeyer, M.F., "Multi-Scale Analysis of Cyclically Loaded A356 Cast Aluminum Alloy," AFS, St. Louis, 1999.
13. Fan, J., McDowell, D.L., and Horstemeyer, M.F., "Micromechanics of Fatigue of Cast AL Alloys," TMS, Rosemont, IL, 1998.
12. Horstemeyer, M.F. and Mosher, D.A., "High Strain Rate Effects on a Cast A356 Aluminum Alloy," TMS, Rosemont, IL, 1998.
11. Horstemeyer, M. F., "Mechanical Property Characterization of A356 Cast Aluminum Alloy Under Monotonic Loads," American Foundry Society, 5/1998.
10. Horstemeyer, M. F., Jin, P.S., "Damage Modeling of A356 Cast Aluminum," Proc. of ISATA Conference, ed. J. T. Solimon, 97PNM009 Florence, Italy, 1997.
9. Horstemeyer, M. F., Dike, J. J., Chiesa, M. L., Weingarten, L. I., Dawson, D., Bammann, D. J., Revelli, V. D., and Prantil, V., "Use of an Internal State Variable Model for Underwater Explosion Simulations," Symposium of Underwater Explosion Phenomena, Dunfermline, Scotland, 1997.
8. Horstemeyer, M. F., McDowell, D. L., Bammann, D. J., "Torsional Softening and the Forming Limit Diagram," SAE Tech. Ser. 960599, ed. K. Chen, Analysis of Autobody Stamping Technology, 1995.
7. Horstemeyer, M. F., McDowell, D. L., "Stress State and History Effects in Viscoplasticity at Finite Strain," Proc. ASME Matls. Div., Vol. 1, eds. R. C. Batra, T. W. Wright, MD-Vol. 69-1, pp. 519-544, 1995.
6. Horstemeyer, M. F., McDowell, D. L., "Double Slip Polycrystal Plasticity and Complex Loading of OFHC Copper," Proc. of 10th Conf. of Engr. Mech., Boulder, ASCE, ed. S. Sture, Vol. 2, pp. 1026-1029, 1995.
5. Horstemeyer, M. F., Chiesa, M. L., Bammann, D. J., "Predicting Forming Limit Diagrams with Explicit and Implicit Finite Element Codes," SAE Tech. Ser. 940749, ed. K. Chen, Analysis of Autobody Stamping Technology, pp. 11-25, 1994.
4. Horstemeyer, M. F., "Structural Analysis of a Submarine Using Statistical Design of Experiments," AMD-Vol. 171, Advances in Numerical Simulation Techniques for Penetration and Perforation of Solids, eds. E. P. Chen and V. K. Luk, ASME Winter Meeting, 1993.
3. Horstemeyer, M. F., Weingarten, L. I., Trento, W. P., "Modeling Underwater Explosions with an Eulerian Code," 63rd Shock and Vibration Symposium, 1992.
2. Horstemeyer, M. F., Weingarten, L. I., Dike, J. J., "Modeling Focused Blasts with a Hydrodynamic Code," 63rd Shock and Vibration Symposium, 1992.
1. Horstemeyer, M. F., "Damage of HY100 Steel Plates From Oblique Constrained Blast Waves," AMD-Vol. 137, Advances in Local Fracture/Damage Models for the Analysis of Engineering Problems, eds. J. H. Giovanola and A. J. Rosakis, Book No. H00741-1992.

Conference Paper/Poster (2 total)

Reza S. Yassar¹, Sinisa Dj. Mesarovic², David P. Field³, Mark Horstemeyer⁴, Paul Wang⁵, Micromechanics of hardening of precipitation hardening materials, SES, 2006

Lincan Yan, Tariq Khraishi, Yu-Lin Shen, Mark F. Horstemeyer, "A Distributed Dislocation Method for Treating Free Surface Effects in 3D Dislocation Dynamics", Poster, The Fourteenth Annual Rio Grande Regional Symposium on Advanced Materials, Albuquerque, NM, 10/21/02.

Technical Reports (44 total)

44. Kim, SG, Horstemeyer, MF, Rhee, H, Kim, S, Zhang, S, Olson, G, and Han, Q, Materials Design for Magnesium Alloys, CAVS Report, MSU.CAVS.CMD.2008-R0030, 2008.
43. Houze, J., Sungho Kim, Seong-Jin Park, Randall M. German, M. F. Horstemeyer, and Seong-Gon Kim, The effect of Fe atoms on the adsorption of a tungsten (W) atom on tungsten (100) surface, CAVS Report, MSU.CAVS.CMD.2007-R0036, 2008.
42. Solanki, S., M. Rais-Rohani, E. Acar, C. Eamon and M.F. Horstemeyer, Reliability-Based Design Optimization Using a Multiscale Material Model, MSU.CAVS.CMD.2007-R0023, 2008.
41. Xue, Y., Shi, S., Lee, S., Du, Y., Zhang, J., Elder, S., Barnes, M., Horstemeyer, M.F., "Progress Report: Natural Fiber Composites for Structural Components," CAVS Report, CAVS-CMD-2007-R0019.
40. Shi, S., Oppedal, A., Miller, G., Horstemeyer, M.F., Characterization of Engineering Wood Adhesive Behaviors at Elevated Temperatures by Nano-Indentation Method, CAVS Report, CAVS-CMD-2007-R0026.
39. Houze, J., Sungho Kim, Amitava Moitra, B. Jelinek, Sebastien Groh, M. F. Horstemeyer, Erdem Acar, Masoud Rais-Rohani, and Seong-Gon Kim, "A multi-objective optimization procedure to develop modified-embedded-atom-method potentials: an application to magnesium," CAVS Report, CAVS-CMD-2007-R0034.
38. Gullett, P.M., M.F. Horstemeyer, P.T. Wang, M.T. Tucker, E.B. Marin, J.L. Mowry, Ken Gall, B. Corff, M.W. Harbeck, "Modeling High Rate Materials Responses for Impact Applications," MSU.CAVS.CMD.2007-R0012, Center for Advanced Vehicular Systems, Mississippi State, MS, Oct 2007.
37. Oglesby, D., Marin, E.B., Horstemeyer, M.F., Ren, X. "Review of the Role of ABAQUS in CAVS Research, MSU.CAVS.CMD.2007-R0014, Center for Advanced Vehicular Systems, Mississippi State, MS, April 2007.
36. Gullett, P.M., M.F. Horstemeyer, P.T. Wang, M.T. Tucker, E.B. Marin, J.L. Mowry, Ken Gall, B. Corff, M.W. Harbeck, Modeling High Rate Materials Responses for Impact Applications: Progress Report, MSU.CAVS.CMD.2007-R0012, Center for Advanced Vehicular Systems, Mississippi State, MS, Sept, 2007.
35. Wang, L., Felicelli, S.D., Wang, P.T., Horstemeyer, M.F., "Thermal Modeling and Experimental Validation in the LENSTM Process," CAVS Report #MSU.CAVS.CMD.2007-R0021, Center for Advanced Vehicular Systems, Mississippi State, MS, June, 2007
34. M.F. Horstemeyer, D. Oglesby, J. Fan, P.M. Gullett, H. El Kadiri, Y. Xue, C. Burton, K. Gall, B. Jelinek, M.K. Jones, S. G. Kim, E.B. Marin, D.L. McDowell, A. Oppedal, N. Yang, "From Atoms to Autos: Designing a Mg Alloy Corvette Cradle by Employing Hierarchical Multiscale Microstructure-Property Models for Monotonic and Cyclic Loads," MSU.CAVS.CMD.2007-R0001
33. J.L.Hearndon, G.P.Potirniche, P.T.Wang, M.F.Horstemeyer, "Miltec II - Damage Analyses of Beams and Wing Spars for Monitoring Structural Health using Effective elastic Modulus Approach," MSU.CAVS.CMD.2006-R0006, 2006.
32. Horstemeyer, M.F., "USCAR-SCMD," MSU.CAVS.CMD.2006-R0021,2006.
31. J. L. Hearndon, G. P. Potirniche, P. Wang, M. F. Horstemeyer, "Monitoring structural health of beams and wing spars for monitoring structural health using effective elasticity modulus approach", MSU.CAVS.CMD.2006-R0013, pp. 40, November 2006
30. Jelinek, B., Houze, J., Kim, S., Horstemeyer, M.F., Baskes, M.I., Kim, SG., Modified embedded-atom method interatomic potentials for the Mg-Al alloy system., MSU.CAVS.CMD.2006-R0027, Center for Advanced Vehicular Systems/Mississippi State University Report,, December 2006
29. Potirniche, G.P., Middleton, J., Gomez, R., Bain, B., El Kadiri, H., Rhee, H., Williams, N., Wang, P., Horstemeyer, M.F., Characterization of mechanical properties of commercial and laser engineering net shaped 4140 steel, MSU.CAVS.CMD.2006-R0028, Center for Advanced Vehicular Systems/Mississippi State University Report, December 2006
28. Wang, L., Felicelli, S., Wang, P.T., Horstemeyer, M.F., Numerical Simulation of the Temperature Distribution and Microstructure Evolution in the LENSTM Process, MSU.CAVS.CMD.2006-R0014 NAC, Center for Advanced Vehicular Systems/Mississippi State University Report, July 2006

27. Wang, L., Felicelli, S., Wang, P.T., Horstemeyer, M.F., Study of Heat Transfer Mechanisms During The LensTM Process, MSU.CAVS.CMD.2006-R0009 NAC, Center for Advanced Vehicular Systems/Mississippi State University Report, March 2006
26. Xue, Y., Horstemeyer, M.F., McDowell, D.L., Microstructure-Based Multistage Fatigue (MSF) Model for Metals (Theory Manual), MSU.CAVS.CMD.2006-R0010, Center for Advanced Vehicular Systems/Mississippi State University Report, April 2006
25. Burton, C.L., Jones, M.K., Oglesby, D.L., Oppedal, A.L., Chandler, M.Q., Horstemeyer, M.F., Failure Analysis of a Cast A380 Aluminum Alloy Casting using a Microstructurally Based Fatigue Model., MSU.CAVS.CMD.2006-R0011, Center for Advanced Vehicular Systems/Mississippi State University Report, May 2006
24. Carrasquel, I., Burton, C., Horstemeyer, M.F., Solanki, K., Dodge Neon Microstructure-Property Characterization, MSU.CAVS.CMD.2006-R0002, Center for Advanced Vehicular Systems/Mississippi State University Report, October 2006
23. Potirniche, G.P., Hearndon, J.L., Wang, P.T., Horstemeyer, M.F., Stiffness Analysis of Cracked Cantilever Beams, MSU.CAVS.CMD.2003-R0003, Center for Advanced Vehicular Systems/Mississippi State University Report, April 2006
22. Hammi, Y., Stone, T.W., Arias, L.M., Horstemeyer, M.F., Wang, P., Powder Metal Performance Modeling of Automotive Parts, MSU.CAVS.CMD.2006-R0004, Center for Advanced Vehicular Systems/Mississippi State University Report, March 2006
21. Gall, K.A., Diao, J., Dunn, M., Gullett, P.M., Horstemeyer, M.F., Miller, D.C., McDowell, D.L., Spark, K., Talmage, M.J., West, N., and Zimmerman, J., Atomistic Modeling of Nanowires, Small Scale Fatigue Damage of Cast Magnesium, and Materials for MEMS, Sandia National Laboratories Report, SAND2006-6180, 2006.
20. Gullett, P.M., Wagner, G., Slepoy, A., Horstemeyer, M.F., Potirniche, G., and Baskes, M.I., Numerical Tools for Atomistic Simulation, Sandia National Laboratories Report, SAND2003-8782, 2003.
19. Penrod, D., Osborne, R., Horstemeyer, M.F., Dolan, K., Viswanathan, S., Fan, J., McDowell, D.L., Gokhale, A.M., and G. Boice, Design and Product Optimization for Cast Light Metals, USAMP-LMD 110 Project USAMP CRADA Agreement No. 94-MULT-AMP-0319, 2001.
18. Horstemeyer, M.F. "From Atoms to Autos: Part 1 Microstructure-Property Modeling," Sandia National Laboratories Report, SAND2001-8662, 2000.
17. Horstemeyer, M.F., Fan, J., and McDowell, D.L., "From Atoms to Autos: Part 2 Fatigue Modeling," Sandia National Laboratories Report, SAND2001-8661, 2000.
16. Horstemeyer, M.F. "Quantitative Microstructure-Property Modeling of a Cast A356 Aluminum Alloy: Part 1," USCAR CRADA report, American Foundrymen's Society.
15. Horstemeyer, M.F., Fan, J., and McDowell, D.L., "Quantitative Microstructure-Property Fatigue Modeling of a Cast A356 Aluminum Alloy: Part 2," USCAR CRADA report, American Foundrymen's Society.
14. Horstemeyer, M.F. Hamilton, J.C., Thompson, A., Baskes, M.I., Plimpton, S.J., Daruka, I., Sorenson, M.R., Voter, A.F., Ford, D.M., Rallabandi, P.S., Tunca, C., From Atom-Picoseconds to Centimeter-Years in Simulation and Experiment, Sandia National Laboratories Report, SAND2001-8111.
13. Horstemeyer, M.F., McDowell, D. L., *Using Statistical Design of Experiments for Parameter Study of Crystal Plasticity Modeling Features Under Different Strain Paths*, Sandia National Laboratories Report, SAND96-8683, 1997.
12. Horstemeyer, M.F., McDowell, D. L., *A Model for Dislocation Substructures in Crystal Plasticity*, Sandia National Laboratories Report, SAND96-8684, 1997.
11. Lee, K.L., Brandon, S.L., Horstemeyer, M.F., and Korellis, J.S., *An Experimental/Analytical Evaluation of Biaxial Sheet Failure*, SAND93-8226, 1993
10. Horstemeyer, M. F., W89/SRAM 2 Structural Dynamic Unit 2 (SDU-2): An Early-Development Shock and Vibration Testing of the W89 Warhead, Sandia National Laboratories Report, SAND92-8201, 1992.
9. Horstemeyer, M. F., Failure in Steel Plates Resulting From Angled Focused Blasts, Sandia National Laboratories Report, SAND92-8202, 1992.
8. Horstemeyer, M. F., W89/SRAM 2 Modal Testing, Sandia National Laboratories Report, SAND91-8224, 1991.

7. Horstemeyer, M. F., W89/SRAM 2 Thermal Test Unit 5 (TTU-5): An Empirical Study of the W89 Warhead and SRAM 2 Missile Interface in the Worst-Case Hot Stockpile-to-Target-Sequence (STS) Thermal Environments, Sandia National Laboratories Report, SAND90-8242, 1991.
6. Horstemeyer, M. F., W89/SRAM 2 Structural Dynamic Unit 6 (SDU-6): Early-Development Shock and Vibration Testing of the W89 DFTU/JTA , Sandia National Laboratories Report, SAND90-8243, 1991.
5. Horstemeyer, M. F., W89/SRAM 2 Thermal Test Unit 3 (TTU-3): An Early-Development Static Rocket Motor Firing, Sandia National Laboratories Report, SAND90-8007, 1990.
4. Horstemeyer, M. F., W89/SRAM 2 Thermal Test Unit 1 (TTU-1): A Stockpile-to-Target-Sequence (STS) Thermal Test to Calibrate the Thermal Analytical Model and to Determine Component Survivability, Sandia National Laboratories Report, SAND90-8006, 1990.
3. M. F. Horstemeyer, W89/SRAM 2 Shipping Container Compliance Test 1 (SCCT-1): A Series of Experiments to Evaluate the Reliability of the W89 Test Unit Shipping Container, Sandia National Laboratories Report, SAND90-8008, 1990.
2. Horstemeyer, M. F., W89/SRAM 2 Static Test Unit 2 (STU-2): An Early-Development Warhead Static Test, Sandia National Laboratories Report, SAND90-8005, 1990.
1. Horstemeyer, M. F., Lipkin, J., A Parametric Study of Above-Ground Oblique Impacts on Earth Penetrators, Sandia National Laboratories Report, SAND88-8244, 1988.

Theses (2 total)

2. Horstemeyer, M. F., Physically-Motivated Modeling of Deformation-Induced Anisotropy, Ph.D. thesis, Georgia Institute of Technology, 1995.
1. Horstemeyer, M. F., The Determination of Failure Mechanisms in the Fatiguing of Unidirectional Composites by Acoustic Emission, 1987, Master's Thesis.

Patents (6)

1. Horstemeyer, M.F., Mississippi State University, 2018. *Shock Mitigating Materials and Methods Utilizing Sutures*. U.S. Patent Application 15/670,879.
2. Horstemeyer, S.J., Wang, P.T., Horstemeyer, M.F., Malley, R., and Marin, E.B., "Methods and Systems for Extrusion," Patent No. US201/004705 A1, Feb 19, 2015.
3. R Prabhu, MF Horstemeyer, GA Rush, "Shock Wave Mitigating Helmets," US Patent 20.150.305.427, 2015.
4. Johnson, K.L., Horstemeyer, M.F., Chowdury, S., and Mao, Y., "Facemask and Helmet with Facemask/Design Optimization of Protective Lightweight Sports Facemask Based Upon Mechanical Brain Damage," Provisional 62/290,625; 2/3/16.
5. Horstemeyer, M.F., Mississippi State University, 2018. *Shock Mitigating Materials and Methods Utilizing Spiral Shaped Elements*. U.S. Patent Application 15/670,800.
6. Johnson, Kyle, Mark F. Horstemeyer, Souma Chowdhury, and Yuxiong Mao. "Facemask." U.S. Patent Application 29/592,988, filed October 23, 2018.

Court Cases (7)

1. Loyacono; Expert report prepared for Louis Bane, Oct 7, 2010. Topic: car impact into another car
2. Murray v. General Motors; Case No. 2010-0086; Expert report prepared for Carroll Rhodes, March 3, 2013. Topic: Fatigue striations on car part induced crash.
3. Peavey Electronics Corporation v. Music Group Services, Inc: Case 4:11-cv-00036-HTW-LRA; May 12, 2013; Topic: Patent violation.
4. Marcus Gholar v. A O Safety and 3M – Aearo Technologies, LLC; Case No. 1:12cv387-LG-JMR, Expert Report prepared for Bradley Arant Boult Cummings, March 3, 2014. Topic: Goggles analysis
5. Shane Allerman v. Gorilla, Inc; Civil Action No.3: 13-cv-614-HTW-LRA; Expert report prepared for Carroll Rhodes, Feb. 26, 2015; Deposition given Starkville, MS on March 5, 2015. Topic: deer stand broke and person fell from tree.

6. George Ratcliff v. Great Spirit Transportation, LLC and Lenzie Sibley A/K/A Glyn Sibley Civil Action No. 2014-17S: Expert report for Rob Mink, March 14, 2015. Topic: energy and momentum analyses of 18 wheeler cab left in ditch in which pick-up truck hit.
7. Ford vs Adams; Civil Action No. 4:15cv00182, Expert report prepared for Greg Copeland, September 9, 2016. Topic: Accident involving conveyer belt.
8. John Jeanes and Louise Jeans; Case No. 3007068246-1, Expert report prepared for Foremost Insurance, March 3, 2017. Topic: Fatality involving John Deere Tractor
9. Jeremy Brown; Case No. WCSO15016852. Expert report prepared for Brian Headley, October 4, 2017. Topic: Airbag did not deploy during accident.