



## Publications by Mark F. Horstemeyer

(505 total documents, citation h-factor=66)

*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 (301 total)

301. Daghighi, V., Lacy Jr, T.E., Daghighi, H., Gu, G., Baghaei, K.T., Horstemeyer, M.F. and Pittman Jr, C.U., 2020. Heat deflection temperatures of bio-nano-composites using experiments and machine learning predictions. *Materials Today Communications*, 22, p.100789.
300. Paliwal, B., Hammi, Y., Chandler, M., Moser, R.D. and Horstemeyer, M.F., 2020. A Dynamic Three Invariant Cap-Viscoplastic Damage Model for Ultrahigh-Performance Concrete. *Journal of Engineering Materials and Technology*, 142(1), p.011001.
299. Paliwal, B., Hammi, Y., Chandler, M., Moser, R.D. and Horstemeyer, M.F., 2020. A three-invariant cap-viscoplastic rate-dependent-damage model for cementitious materials with return mapping integration in Haigh-Westergaard coordinate space. *International Journal of Solids and Structures*, 182, pp.77-99.
298. Horstemeyer, M.F., Berthelson, P.R., Moore, J., Persons, A.K., Dobbins, A. and Prabhu, R.K., 2019. A mechanical brain damage framework used to model abnormal brain tau protein accumulations of National Football League players. *Annals of biomedical engineering*, 47(9), pp.1873-1888.
297. Cho, H.E., Baumgardner, J.R. and Horstemeyer, M.F., 2019, December. Influence of grain size and recrystallization dynamics on the convective stability of the Earth's mantle. In *AGU Fall Meeting 2019*. AGU.
296. Huddleston, B., Dickel, D., Williams, N., Danielson, K., Hammi, Y., Bowman, A., Baskes, M.I. and Horstemeyer, M., 2019. Correlating damage progression to fragmentation at high strain rates using molecular dynamics. *Modelling and Simulation in Materials Science and Engineering*.
295. Wang, Z., Liu, P., Ji, Y., Mahadevan, S., Horstemeyer, M.F., Hu, Z., Chen, L. and Chen, L.Q., 2019. Uncertainty Quantification in Metallic Additive Manufacturing Through Physics-Informed Data-Driven Modeling. *JOM*, 71(8), pp.2625-2634.
294. Moore, J.L., Morgan, N.R. and Horstemeyer, M.F., 2019. ELEMENTS: A high-order finite element library in C++. *SoftwareX*, 10, p.100257.

293. Lee, N., Liu, Z., Mun, S., Johnson, K. and Horstemeyer, M.F., 2019. The Function of Horn Ridges for Impact Damping. *Available at SSRN 3322822*.
292. Dimitrov, N., Liu, Y. and Horstemeyer, M.F., 2019. On the thermo-mechanical coupling of the Bammann plasticity-damage internal state variable model. *Acta Mechanica*, 230(5), pp.1855-1868.
291. Bakhtiarydavijani, A., Murphy, M.A., Mun, S., Jones, M.D., Bammann, D.J., LaPlaca, M.C., Horstemeyer, M.F. and Prabhu, R.K., 2019. Damage biomechanics for neuronal membrane mechanoporation. *Modelling and Simulation in Materials Science and Engineering*, 27(6), p.065004.
290. Tenev, T.G. and Horstemeyer, M.F., 2019. Dark matter effect attributed to the inherent structure of cosmic space. *arXiv preprint arXiv:1902.08504*.
289. Liu, P., Wang, Z., Xiao, Y., Horstemeyer, M.F., Cui, X. and Chen, L., 2019. Insight into the mechanisms of columnar to equiaxed grain transition during metallic additive manufacturing. *Additive Manufacturing*, 26, pp.22-29.
288. Horstemeyer, M.F., Panzer, M.B. and Prabhu, R.K., 2019. State-of-the-Art Modeling and Simulation of the Brain's Response to Mechanical Loads. *Annals of Biomedical Engineering*, 47(9), pp.1829-1831.
287. Aslam, I., M. I. Baskes, D. E. Dickel, S. Adibi, B. Li, H. Rhee, M. Asle Zaeem, and M. F. Horstemeyer. "Thermodynamic and kinetic behavior of low-alloy steels: An atomic level study using an Fe-Mn-Si-C modified embedded atom method (MEAM) potential." *Materialia* 8 (2019): 100473.
286. Chen, K.F., Aslam, I., Li, B., Martens, R.L., Goodwin, J.R., Goodwin, F.E. and Horstemeyer, M.F., 2019. Lift-Off of Surface Oxides During Galvanizing of a Dual-Phase Steel in a Galvannealing Bath. *Metallurgical and Materials Transactions A*, pp.1-10, 2019.
285. Bowman, A. L., S. Mun, S. Nouranian, B. D. Huddleston, S. R. Gwaltney, M. I. Baskes, and M. F. Horstemeyer. "Free volume and internal structural evolution during creep in model amorphous polyethylene by Molecular Dynamics simulations." *Polymer*, 2019.
284. Tenev, T.G. and Horstemeyer, M.F., The spacetime metric of a spherically symmetric deformation of space derived from the cosmic fabric model of gravity. *International Journal of Modern Physics D*, p.1950096, 2019.
283. He, G., Liu, Y., Bammann, D.J., Francis, D.K., Chandler, M.Q. and Horstemeyer, M.F., A multiphase internal state variable model with rate equations for predicting elastothermoviscoplasticity and damage of fiber-reinforced polymer composites. *Acta Mechanica*, 230(5), pp.1745-1780, 2019.
282. Lee, Nayeon, Zhen Liu, Sungkwang Mun, K. Johnson, and M. F. Horstemeyer. "The Function of Horn Ridges for Impact Damping." *Available at SSRN 3322822*, 2019.
281. Murphy, M., Mun, S., Jones, M.D., Bammann, D., LaPlaca, M., Horstemeyer, M.F. and Prabhu, R., 2019. Damage biomechanics for neuronal membrane mechanoporation. *Modelling and Simulation in Materials Science and Engineering*, 2019.
280. 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., Molecular dynamics simulations showing 1-palmitoyl-2-oleoyl-phosphatidylcholine (POPC) membrane mechanoporation damage under different strain paths. *Journal of Biomolecular Structure and Dynamics*, 37(5), pp.1346-1359, 2019.
279. Bakhtiarydavijani, A.H., Murphy, M.A., Mun, S., Jones, M.D., Horstemeyer, M.F. and Prabhu, R.K., 2019. Multiscale Modeling of the Damage Biomechanics of Traumatic Brain Injury. *Biophysical Journal*, 116(3), p.322a, 2019.
278. Chen, J., Patnaik, S.S., Prabhu, R.K., Priddy, L.B., Bouvard, J.L., Marin, E., Horstemeyer, M.F., Liao, J. and Williams, L.N., Mechanical Response of Porcine Liver Tissue under High Strain Rate Compression. *Bioengineering*, 6(2), p.49, 2019.
277. Prabhu, R.K., Begonia, M.T., Whittington, W.R., Murphy, M.A., Mao, Y., Liao, J., Williams, L.N., Horstemeyer, M.F. and Sheng, J., Compressive Mechanical Properties of Porcine

- Brain: Experimentation and Modeling of the Tissue Hydration Effects. *Bioengineering*, 6(2), p.40, 2019.
276. Liu, P., Wang, Z., Xiao, Y., Horstemeyer, M.F., Cui, X. and Chen, L., Insight into the mechanisms of columnar to equiaxed grain transition during metallic additive manufacturing. *Additive Manufacturing*, Vol. 26, pp. 22-29, 2019.
275. 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: 021002, 2019.
274. 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.
273. Tenev, T.G. and Horstemeyer, M.F., Recovering the Principle of Relativity from the Cosmic Fabric Model of Space. *Reports in Advances of Physical Sciences*, 2(04), p.1850011, 2018.
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*: 1-8, 2018.
271. Dickel, Doyl, 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, 20018.
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., 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, 2018.
266. Dickel, D., Barrett, C.D., Carino, R.L., Baskes, M.I. and Horstemeyer, M.F., Mechanical Instabilities in the Modeling of Phase Transitions of Titanium. *Modelling and Simulation in Materials Science and Engineering*, 2018.
265. Deang, J. F., Persons, A. K., Oppedal, A. L., Rhee, H., Moser, R. D., & Horstemeyer, M. F. Structure, property, and function of sheepshead (*Archosargus probatocephalus*) teeth. *Archives of Oral Biology*, 89, 1-8, 2018.
264. Tenev, T.G. and Horstemeyer, M.F., Mechanics of spacetime—A Solid Mechanics perspective on the theory of General Relativity. *International Journal of Modern Physics D*, 27(08), p.1850083.263, 2018.
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 (Fe<sub>3</sub>C) 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 Mg<sub>17</sub>Al<sub>12</sub> 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 Mg<sub>17</sub>Al<sub>12</sub> 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., 2013. Role of different material processing methods on the fatigue behavior of an AZ31 magnesium alloy. *International Journal of Fatigue*, 52, pp.131-143.
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  $\alpha$ -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}<1123> 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., Ehrigott, 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. 1/2, 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. 23<sup>rd</sup> 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., Grishibar, 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", 2<sup>nd</sup> 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. 10<sup>th</sup> 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  $\Phi$  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  $\mu$ -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," 22<sup>nd</sup> 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," 22<sup>nd</sup> 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  $\alpha$ -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 LENS<sup>TM</sup> 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 9<sup>th</sup> 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", 9<sup>th</sup> 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 – 17<sup>th</sup> 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, 9<sup>th</sup> 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 Xue<sup>1</sup>, Steve Elder<sup>2</sup>, Devin Shame<sup>1</sup>, Mark Horstemeyer<sup>1</sup>, Statistical Elastic and Creep Properties of Kenaf Fibers, 9<sup>th</sup> 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 1<sup>st</sup> 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," 10<sup>th</sup> 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," 10<sup>th</sup> 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," 8<sup>th</sup> Int. LS-DYNA Users Conference, 2004.
40. Fang, H., Horstemeyer, M.F., Liu, Z., "Multidisciplinary Crashworthiness Optimization by Unified Finite Element Model," 4<sup>th</sup> 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," 3<sup>rd</sup> 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, Warendale, 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, Warendale, 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 Antilles, 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 Antilles, 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. Settgast, 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. Yassar<sup>1</sup>, Sinisa Dj. Mesarovic<sup>2</sup>, David P. Field<sup>3</sup>, Mark Horstemeyer<sup>4</sup>, Paul Wang<sup>5</sup>, 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 LENS™ 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 LENS<sup>TM</sup> 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 Lens<sup>TM</sup> 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.