Curriculum Vitae

YOUSSEF HAMMI

Mechanical Engineering Department
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ASSOCIATE PROFESSOR

Material Development ♦ Nonlinear Finite Element ♦ Computational and Structural Mechanics
Continuum and Fracture Mechanics ♦ Metal Forming Processes ♦ Heat Transfer
Discrete Elements ♦ Coupled Eulerian Lagrangian (CEL) ♦ eXtended Finite Element (XFEM)
Fluid Structure Interaction ♦ SPH ♦ User Material and User Element Development in Abaqus.

EDUCATION

Ph.D. in Mechanical Engineering • 2000 • University of Technology of Troyes – Troyes, FRANCE
M.S. in Mechanical Engineering • 1995 • University Pierre et Marie Curie – Paris, FRANCE
B.S. in Mechanical Engineering • 1992 • University Pierre et Marie Curie – Paris, FRANCE

ACADEMIC AND RESEARCH ACTIVITIES

MECHANICAL ENGINEERING DEPARTMENT (Mississippi State, MS) **08-2019 – Present**

Associate Professor

Teach graduate courses in advanced finite element and fatigue. Coordinate and conduct complex research focused on modeling material modeling, fatigue, fluid-structure interaction, etc. Key person for advanced material modeling and finite element analysis.

CENTER FOR ADVANCED VEHICULAR SYSTEMS (Mississippi State, MS) **01-2004 – 08-2019**

Assistant/Associate Research Professor

Hold full accountability for leading structural, thermal, manufacturing, performance, durability design and analysis in multiple projects in relation with industry. Coordinate and conduct complex research focused on modeling thermoviscoplastic deformations and structural dynamics. Key person for advanced material modeling and finite element analysis. Serve as Adjunct Professor in both Mechanical and Computational Engineering Departments.

Key achievements:

- Conducted extensive FEA modeling and simulation analysis to assess manufacturing, performance, fatigue and durability and spearheaded correlation of FEA results with test data.
- Developed and maintained collaborative relationships with automotive industrial and academic partners; provided training and technical support to industrial partners.
- Developed highly nonlinear and advanced constitutive models into material user subroutines for thermoviscoplasticity with multiple kinematic and isotropic hardenings coupled to damage, granular materials, polycrystalline materials, diffusion, powder compaction, sintering, concrete, ceramics matrix composites (CMC) etc.
- Developed new Computer-Aided Engineering (CAE) tools and user subroutines for validation, calibration, prediction and optimization of models related to multi-stage fatigue life, plasticity, powder compaction, sintering, etc.
- Designed and coordinated experiment in support of model calibration and validation.

- Successfully completed project milestones within established time parameters and reported to sponsors and industrial partners via presentations, conference calls, and technical reports.
- Successfully obtained competitive external grants (~$400K) for research in the role of principal investigator (National Science Foundation and Nuclear Energy University Program)
- Provided technical and modeling support to co-researchers and students; advised and mentored undergraduate and graduate students to conduct research toward their academic degrees.
- Instructed undergraduate classes in Mechanics of Materials (Evaluation of 4.3 out of 5)
- Co-taught graduate classes in Applied Elasticity and Finite Elements in Mechanical Engineering.

SANDIA NATIONAL LABORATORIES (Livermore, CA) **05-2000 – 10-2003**

Postdoctoral Researcher

Conducted complex research focused on developing a library of advanced material models into finite element codes for other researchers to use them in high velocity penetration and fatigue simulations.

Key achievements:

- Developed constitutive theories with thermoviscoplasticity, damage anisotropy, structure tensor, nucleation, void growth, coalescence, etc., for modeling finite deformation in polycrystalline metals from quasi-static to high strain rate with temperature effects.
- Developed stress integration algorithms for the aforementioned materials and performed code implementation into user material subroutines.

UNIVERSITY OF TECHNOLOGY OF TROYES (Troyes, FRANCE) **05-1996 – 04-2000**

Research/Teaching Assistant

Studied and researched multidisciplinary topics while acquiring a Ph.D. in Mechanical Engineering. Conducted complex research focused on modeling thermoviscoplastic deformations and damage prediction in metal forming processes. Served as Teaching Assistant for Engineering Mechanics, Optic Physics, Electricity and CAE (Pro/Engineer) courses.

Key achievements:

- Developed and implemented Lemaitre-Chaboche plasticity-damage model with multi-kinematic hardening functions into user material subroutines (in plane stress, plane strain and 3D).
- Performed metal forming simulations of forging, sheet metal forming, hydroforming, forging, sheet metal cutting, extrusion, etc.
- Instructed various undergraduate classes including Engineering Mechanics, Optic Physics, Electricity and CAE using Pro/Engineer.

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*Early experience included **Research Assistant** (University Pierre et Marie Curie – Paris, FRANCE), **Project Engineer** (Laboratory of Condensed Matter Physics, University Paris 6– Paris, FRANCE)*

PUBLICATIONS

Peer-Reviewed Publications (53)

- R.A. Perkins, C.J. Duncan, D. Johnson, T.W. Stone, J.A. Sherburn, M. Chandler, R.D. Moser, B. Paliwal, R.K. Prabhu, **Y. Hammi**, Assessment of a high strength concrete using experimental and numerical methodologies for high strain rate ballistic impacts, International Journal of Impact Engineering, Volume 178, 2023, 104598, https://doi.org/10.1016/j.ijimpeng.2023.104598.
- A.S. Carey, M.N. McBride, **Y. Hammi**, R. Moser, D.A. Scott, D. Seely, M.F. Horstemeyer, and I.L. Howard, Stress–strain behaviour and failure properties of ultra-high-performance concrete,

Proceedings of the Institution of Civil Engineers - Construction Materials 2023 176:2, 81-92, https://doi.org/10.1680/jcoma.19.00088.

- Perkins, R.A., Duncan, C., Johnson, D., Stone, T., Sherburn, J., Chandler, M., Moser, R., Paliwal, B., Prabhu, R.K., and **Hammi Y.**, Assessment of the ballistic impact response of Cor-Tuf UHPC concrete using the HJC constitutive model. International Journal of Protective Structures. 2023;0(0). doi:10.1177/20414196231160235.
- J.M. Darius, D.S. Kenney, M. Lugo, **Y. Hammi**, R. Carino, M.F. Horstemeyer, A historical and mathematical review and revision of the MultiStage Fatigue (MSF) model, International Journal of Fatigue, Volume 167, Part A, 2023, 107316, https://doi.org/10.1016/j.ijfatigue.2022.107316.
- Reeves, J., Liu, Y., R., Hammi, W., Dickel, D., Stone, T., and Bounds, C., Automation and High-Speed Forming of Thin Layer Composite, International Journal of Engineering Science Invention, Volume 11, Issue 3, Series I, 2022, pp. 34-54.
- Perkins, R.A., Bakhtiarydavijani, A., Ivanoff, A.E., Jones, M., **Hammi, Y.**, Prabhu, R.K., Assessment of brain injury biomechanics in soccer heading using finite element analysis, Brain Multiphysics, Volume 3, 2022, 100052, https://doi.org/10.1016/j.brain.2022.100052.
- T.R. Fonville, S.J. Scarola, **Y. Hammi**, Raj K. Prabhu, Mark F. Horstemeyer, Chapter 14 - Resonant frequencies of a human brain, skull, and head, Editor(s): Raj Prabhu, Mark Horstemeyer, Multiscale Biomechanical Modeling of the Brain, Academic Press, 2022, Pages 239-254.
- G. He, Y. Liu, **Y. Hammi**, D. J. Bammann & M. F. Horstemeyer (2021) A combined viscoelasticity-viscoplasticity-anisotropic damage model with evolving internal state variables applied to fiber reinforced polymer composites, Mechanics of Advanced Materials and Structures, 28:17, 1775-1796, DOI: 10.1080/15376494.2019.1709673
- Reeves, J., Williams, E., Plouffe, C., Staples, C., Carlucci, W., Smith, R., Hammi, Y., Whittington, W., Dickel, D., and Liu, Y., Combined Experimental and Computational Failure and Fatigue Analysis of a Socket Drive Adapter. J Fail. Anal. and Preven. 21, 1434–1444 (2021). https://doi.org/10.1007/s11668-021-01198-4
- A.S. Carey, M.N. McBride, **Y. Hammi**, R. Moser, D.A. Scott, D. Seely, M.F. Horstemeyer, and I.L. Howard Stress–strain behaviour and failure properties of ultra-high-performance concrete, Proceedings of the Institution of Civil Engineers - Construction Materials 0 0:0, 1-12. https://doi.org/10.1680/jcoma.19.00088
- Xing Deng, Shisong Wang, **Youssef Hammi**, Linmao Qian, Yucheng Liu, A combined experimental and computational study of lubrication mechanism of high precision reducer adopting a worm gear drive with complicated space surface contact, Tribology International, Volume 146, 2020, 106261, https://doi.org/10.1016/j.triboint.2020.106261.
- Dou, Y., Liu, Y., Huddleston, B., **Hammi, Y.**, and Horstemeyer, M.F., A molecular dynamics study of effects of crystal orientation, size scale, and strain rate on penetration mechanisms of monocrystalline copper subjected to impact from a nickel penetrator at very high strain rates. Acta Mech 231, 2173–2201 (2020). https://doi.org/10.1007/s00707-020-02632-8.
- Ge He, Yucheng Liu, **Y. Hammi**, D. J. Bammann & M. F. Horstemeyer (2020) A combined viscoelasticity-viscoplasticity-anisotropic damage model with evolving internal state variables applied to fiber reinforced polymer composites, Mechanics of Advanced Materials and Structures, DOI: 10.1080/15376494.2019.1709673.
- B. Paliwal, **Y. Hammi**, M. Chandler, R.D. Moser, M.F. Horstemeyer, 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, Volumes 182–183, 2020, Pages 77-99, ISSN 0020-7683, https://doi.org/10.1016/j.ijsolstr.2019.07.029.

- Paliwal, B., **Hammi, Y.**, Chandler, M., Moser, R. D., and Horstemeyer, M. F. (May 30, 2019). "A Dynamic Three Invariant Cap-Viscoplastic Damage Model for Ultrahigh-Performance Concrete." ASME. J. Eng. Mater. Technol. January 2020; 142(1): 011001. https://doi.org/10.1115/1.4043705.
- Jeremiah Stache, John F Peters; Jeremiah Stache; **Youssef Hammi**, and Farshid Vahedifard, (2019), A Kinematic Hardening Model based on Endochronic Theory for Complex Stress Histories Corresponding Author: Farshid Vahedifard, Computers and Geotechnics, Elsevier (under revision).
- Cisko, A.R.; Jordon, J.B.; Avery, D.Z.; Liu, T.; Brewer, L.N.; Allison, P.G.; Carino, R.L.; **Hammi, Y.**; Rushing, T.W.; Garcia, L. (2019) Experiments and Modeling of Fatigue Behavior of Friction Stir Welded Aluminum Lithium Alloy. Metals, Vol. 9, 293.
- H.E. Cho, **Y. Hammi**, A.L. Bowman, Shun-ichiro Karato, J.R. Baumgardner, M.F. Horstemeyer, (2019), 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, Vol. 112, Pages 123-157, ISSN 0749-6419, https://doi.org/10.1016/j.ijplas.2018.08.009.
- **Youssef Hammi**, Tonya Stone, Haley Doude, L. Arias Tucker, P. G. Allison, and Mark F. Horstemeyer, (2018), Chapter 6: Steel Powder Metal Modeling, Integrated Computational Materials Engineering (ICME) for Metals: Concepts and Case Studies, Editor: Mark F. Horstemeyer, 2018 John Wiley & Sons, Inc., pp. 137-198.
- Heechen E. Cho, **Youssef Hammi**, David K. Francis, Tonya Stone, Yuxiong Mao, Ken Sullivan, John Wilbanks, Robert Zelinka, and Mark F. Horstemeyer, (2018), Microstructure-Sensitive, History-Dependent Internal State Variable Plasticity-Damage Model for a Sequential Tubing Process, Integrated Computational Materials Engineering (ICME) for Metals: Concepts and Case Studies, Editor: Mark F. Horstemeyer, John Wiley & Sons, Inc., pp. 199-234.
- Haley Doude, David Oglesby, Philipp M. Gullett, Haitham El Kadiri, Bohumir Jelinek,Michael I. Baskes, Andrew Oppedal, **Youssef Hammi**, and Mark F. Horstemeyer, (2018), Chapter 10: Cast Magnesium Alloy Corvette Engine Cradle, Integrated Computational Materials Engineering (ICME) for Metals: Concepts and Case Studies, Editor: Mark F. Horstemeyer, John Wiley & Sons, Inc., pp. 337-376.
- Marco Lugo, Wilburn Whittington, **Youssef Hammi**, Clémence Bouvard, Bin Li, David K. Francis, Paul T. Wang, and Mark F. Horstemeyer, (2018), Chapter 11: Using an Internal State Variable (ISV)–Multistage Fatigue (MSF) Sequential Analysis for the Design of a Cast AZ91 Magnesium Alloy Front-End Automotive Component, Integrated Computational Materials Engineering (ICME) for Metals: Concepts and Case Studies, Editor: Mark F. Horstemeyer, John Wiley & Sons, Inc., pp. 377-409.
- Tonya Stone and **Youssef Hammi**, (2018), Chapter 13: Nickel Powder Metal Modeling Illustrating Atomistic-Continuum Friction Laws, Integrated Computational Materials Engineering (ICME) for Metals: Concepts and Case Studies, Editor: Mark F. Horstemeyer, John Wiley & Sons, Inc., pp. 447-464.
- Paliwal, B., **Hammi, Y.**, Moser, R.D., & Horstemeyer, M. (Mar 2017). A Three-invariant Cap-plasticity Damage Model for Cementitious Materials. International Journal of Solids and Structures Elsevier, 108, 186-202.
- Liu, Y., Whittington, W. R., & **Hammi, Y.** (Jan 2017). Application of a Microstructure-based ISV Plasticity Damage Model to Study Penetration Mechanics of Metals and Validation through Penetration Study of Aluminum. Modelling and Simulation in Engineering, 6189168, 1-10.
- Huddleston, B. D., Dickel, D. E., Horstemeyer, M., Williams, N., Danielson, K., and **Hammi, Y.** (Dec 2016). Damage Progression and Fragmentation in Atomistic, Single Crystal Copper at High Strain Rates. Solid State Phenomena Trans Tech Publications, 258, 49-52.

- Dou Y., Liu Y., **Hammi Y.**, Whittington W., Application of a Microstructure-Based ISV Plasticity Damage Model to Study Penetration Mechanics of Metals and Validation through Penetration Study of Aluminum. Modelling & Simulation in Engineering. 1-10, Jan. 29, 2017.
- Lawrimore, W.B. II, Francis, D.K. Bouvard, J-L., Hammi, Y., & Horstemeyer, M.F., (2016), "A Mesomechanics Parametric Finite Element Study of Damage Growth and Coalescence in Polymers Using an Internal State Variable Model", Mechanics of Materials, Vol. 96, pp. 83–95.
- Yadollahi, A., Shamsaei, N., **Hammi, Y.**, & Horstemeyer, M.F., (2016), "Quantification of tensile damage evolution in additive manufactured austenitic stainless steels", Materials Science and Engineering: A, Vol. 657, No. 7, pp. 399–405.
- Francis, D.K., Bouvard, J.-L., **Hammi, Y.**, & Horstemeyer, M. (Aug 2014). Formulation of a Damage Internal State Variable Model for Amorphous Glassy Polymers. International Journal of Solids and Structures, 51(15-16), 2765–2776.
- Whittington, W. R., Oppedal, A. L., Turnage, S., **Hammi, Y.**, Rhee, H., Allison, P., Crane, C.K., & Horstemeyer, M. (Jan 2014). 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: AElsevier, 594, 82-88.
- Allison, P., Grewal, H., **Hammi, Y.**, Brown H.R., Whittington, W.R., & Horstemeyer, M. (2013). "Plasticity and Fracture Modeling/Experimental Study of a Porous Metal Under Various Strain Rates, Temperatures, and Stress States," J. Eng. Mater. Technol., 135(4).
- P. G. Allison, **Y. Hammi**, J. B. Jordon & M. F. Horstemeyer (2013) Modelling and experimental study of fatigue of powder metal steel (FC-0205), Powder Metallurgy, 56:5, 388-396
- Tang, T., Hammi, Y., Horstemeyer, M., & Wang, P. (Apr. 2012). Finite Element Micromechanical Analysis of the Deformation and Stress State Dependent Damage Evolution in Fiber Reinforced Metal Matrix Composites. Computational Materials Science, Vol. 59, pp. 165–173.
- Horstemeyer, M., Hammi, Y., Allison, P.G., Brown, H.R., Tucker, M.T., & Hwang, Y. (Sep 2011), "Microstructure-Property Relations of a Steel Powder Metal under Varying Temperatures, Strain Rates, and Stress States," Matls. Science Eng. A, 529(1), 335-344.
- Damiens, N. R., Rhee, H., Hwang, Y., Park, S.J., Hammi, Y., Lim, H., & Horstemeyer, M., "Investigation on the Compressive Behavior of Turtle's Shell: Experiment," Modeling, and Simulation. Journal of the Mechanical Behavior of Biomedical Materials, Volume 6, February 2012, Pages 106-112.
- Ma, Q., Marin, E.B., Antonyraj, A., Hammi**, Y.**, Kadiri, H. E., Wang, P.T. and Horstemeyer, M.F. (2011) On Predicting the Channel Die Compression Behavior of HCP Magnesium AM30 using Crystal Plasticity FEM, in Magnesium Technology 2011 (eds W. H. Sillekens, S. R. Agnew, N. R. Neelameggham and S. N. Mathaudhu), John Wiley & Sons, Inc., Hoboken, NJ, USA.
- E. Acar, **Y. Hammi.**, P.G. Allison, T.W. Stone, & M.F. Horstemeyer, 2010, "Sensitivity and Uncertainty Analysis of Microstructure-Property Relations for Compacted Powder Metals," Powder Metallurgy, 53(2), 141-145.
- Y. Xue, A. Wright, D.L. McDowell, M.F. Horstemeyer, K.N. Solanki, and **Y. Hammi**, 2010, "Micromechanics Study of Fatigue Damage Incubation Following an Initial Overstrain," Journal of Engineering Materials and Technoloogy, 132(1), 021010-17.
- K.N. Solanki, M.F. Horstemeyer, G. Steele, **Y. Hammi**, and B. Jordon, 2010, "Calibration, Validation, and Verification Including Uncertainty of a Physically Motivated Internal State Variable Plasticity and Damage Model, " International J. of Solids and Structures, 47(2), 186-203.
- H. El Kadiri, L. Wang, H.O. Gulsoy, P. Suri, S.J. Park, **Y. Hammi**, and R.M. German, 2009, "Development of a Ti-based alloy: Design and experiment," JOM Journal of the Minerals, Metals and Materials Society Springer Boston, 61(5), 60-66.
- T.W. Stone, M.F. Horstemeyer, **Y. Hammi**, and P.G. Gullett, 2008, "Contact and Friction of Single Crystal Nickel Nanoparticles Using Molecular Dynamics," Acta Materialia, 56, 3577-3584.

- T.W. Stone, M.F. Horstemeyer, **Y. Hammi** and P.G. Gullett, 2008, "Contact and Friction of Single Crystal Nickel Nanoparticles Using Molecular Dynamics," Acta Materialia (accepted).
- W. Li, S.J. Park, **Y. Hammi**, R.M. German and P.J. Blue, 2008, "Prediction of Tool Wear and Tool Lifeby Experiment, Modeling, and Simulation of the Die Compaction Process," Advances in Powder Metallurgy and Particulate Materials, Princeton, NJ: Metal Powder Industries Federation.
- **Y. Hammi** and M.F. Horstemeyer, 2007, "A Physically Motivated Anisotropic Tensorial Representation of Damage with Separate Functions for Void Nucleation, Growth, and Coalescence", International Journal of Plasticity, Vol. 23, no. 10-11, pp. 1641–1678.
- **Y. Hammi**, T.W. Stone, and M.F. Horstemeyer, 2005, "Constitutive Modeling of Metal Powder Behavior", SAE 2005 Transactions, J. of Materials & Manufacturing, Vol. 114, n. 5, pp. 293–299.
- **Y. Hammi**, M.F. Horstermeyer and D.J. Bammann. 2003. ''Modeling of Anisotropic Damage for Ductile Materials in Metal Forming Processes", International Journal of Damage Mechanics, vol. 13, no. 2, pp. 123–146.
- **Y. Hammi**, M.F. Horstermeyer and D.J. Bammann. 2003. ''An Anisotropic Damage Model for Ductile Metals", International Journal of Damage Mechanics, vol. 12, no. 3, pp. 245–262.
- A. Cherouat, K. Saanouni and **Y. Hammi**. 2003. "Improvement of forging process of a 3D complex part with respect to damage occurrence", J. Mater. Process. Tech., vol. 142, no. 2, pp. 307–317.
- K. Saanouni, A. Cherouat and **Y. Hammi**. 2002. ''Numerical improvement of thin tubes hydroforming with respect to ductile damage", International Journal of Mechanical Sciences, Volume: 44, Issue: 12, pp. 2427–2446.
- K. Saanouni, A. Cherouat and **Y. Hammi**. 2000. ''Stress Computation in Finite Elastoplasticity with Isotropic Ductile Damage for Metal Forming", Revue Européenne des Eléments Finis, vol. 10, n°2-3-4, p. 327–351**.**
- K. Saanouni and **Y. Hammi**. 2000. ''Numerical Simulation of Damage in Metal Forming Processes", in Continuous Damage and Fracture, Edited by A. Benallal, Elsevier, pp. 353–363.
- K. Saanouni, K. Nesnas and **Y. Hammi**. 2000. "Damage Modeling in Metal Forming Processes," International Journal of Damage Mechanics, vol. 9, no. 3, pp. 196–240.

Conference Papers (23)

- Duncan, C, Perkins, RA, Johnson, D, Chandler, M, Moser, R, Sherburn, J, & Hammi, Y. "Comparison of Ballistic Impact Simulations Using Different Constitutive Material Models of Concrete." Proceedings of the ASME 2022 International Mechanical Engineering Congress and Exposition. Volume 3: Advanced Materials: Design, Processing, Characterization and Applications; Advances in Aerospace Technology. Columbus, Ohio, USA. October 30–November 3, 2022. V003T03A037. ASME. https://doi.org/10.1115/IMECE2022-94248
- Paliwal, B., Jordan, M. E., Scott, D., Hammi, Y., Moser, R., & Horstemeyer, M. (2017). Internal State Variable (ISV) Informed Cap-Plasticity Damage Model with Highly Non-linear Hardening for Cementitious Materials,, 2017 International Mechanical Engineering Congress and Exposition (ASME), Tampa, FL, Nov 3-9.
- Paliwal, B., Hammi, Y., & Horstemeyer, M. Three Invariant Capped Damage-plasticity Constitutive Model for Cementitious Materials, XXIV ICTAM Conference, Montreal, Canada, Aug 21-26, 2016.

Abedin, M.Z., Chang, C.C., Li, B., Hammi, Y., and Horstemeyer, M. (2011). Powder Metal Main Bearing Cap Durability and Fatigue Analysis Using Density Distribution Based Mechanical Properties. Simulia Customer Conference, Barcelona, Spain.

- Najafi, A., Rais-Rohani, M., and **Hammi, Y.** (Jul 2011). Multi-Attribute Integrated Forming-Crush Simulation Optimization Using Internal State Variable Model. Proceedings, !st World Congress on Integrated Computational Materials Engineering.
- Stone, T.W., Asafa, O. A., Stone, J., & **Hammi, Y.** (Oct 2011). Multiscale Modeling of Nanoparticle Deformation. Material, Science and Technology (MS&T) Conference, Columbus, OH (2011)
- Ma, Q., Marin, E., Antonyraj, A., **Hammi, Y.**, Wang, P., & Horstemeyer, M. (Oct 2010). On Predicting the Channel Die Compression Behavior of HCP Magnesium AM30 Using Crystal Plasticity FEM. Magnesium Technology 2011, 583-587. Proceddings of 2011 TMS Annual Meeting and Exhibition, San Diego, California, USA.
- **Hammi, Y.**, T.W. Stone, P.G. Allison, and M.F. Horstemeyer, 2010, "Fatigue Modeling of a Powder Metallurgy Main Bearing Cap," 2010 SIMULIA Customer Conference, Providence, RI: 3DS SIMULIA.
- Florea, R. S., Solanki, K.N., **Hammi, Y.**, Bammann, D., & Castanier, M.P. (Aug 2010). An Experimental Study of Mechanical Behavior of Resistance Spot Welded Aluminum 6061-T6 Joints. Proceedings of the ASME International Mechanical Engineering Congress & Exposition, IMECE2010, Vancouver, British Columbia, Canada.
- T.W. Stone,, **Y. Hammi**, R.L. Carino, and M.F. Horstemeyer, 2009, Modeling for Powder Metallurgy Component Design and Performance Prediction. Advances in Powder Metallurgy & Particulate Materials, Las Vegas, NV: MPIF.
- T.W. Stone,, H.I. Sanderow, H.I. Grewal, H., E. Acar, **Y. Hammi**, P.G. Allison, and K.N. Solanki, K.N., 2009, Process Modeling: Use of Uncertainty, Sensitivity and Optimization Techniques for Improved Understanding of Compaction Model Outputs. Advances in Powder Metallurgy & Particulate Materials, Las Vegas, NV: MPIF.
- **Y. Hammi**, T.W. Stone, L. Tucker, P.G. Allison, and M.F. Horstemeyer, "Modeling for Powder Metallurgy Component Design and Performance Prediction," MPIF/APMI 2008 World Congress on Powder Metallurgy & Particulate Materia, Washington, DC, June 8-12 2008, 1-96 –1-110.
- T.W. Stone, L. Tucker, **Y. Hammi**, T.N. Williams, H. El Kadiri, and M.F. Horstemeyer, "Comparison of Density Measurement Techniques for Large PM Components," MPIF/APMI 2008 World Congress on Powder Metallurgy & Particulate Materialsl, Washington, DC, June 8–12 2008.
- P.G. Allison, H. Brown, **Y. Hammi**, and M.F. Horstemeyer, "Stress-State Dependence of FC-0205 Steel Powder," MPIF/APMI 2008 World Congress on Powder Metallurgy & Particulate Materialsl, Washington, DC, June 8–12 2008.
- **Y. Hammi**, L. Tucker, P.G. Allison, T.W. Stone, M.F. Horstemeyer and E.B. Marin, "Constitutive Modeling of Compaction and Sintering for P/M Automotive Components", PowderMet 2007 conference, Denver, CO, May 13-16 2007.
- P.G. Allison, **Y. Hammi** and M.F. Horstemeyer, "Determination of Microstructure-Property Relations for Performance and Design Optimization of the P/M Process", PowderMet 2007 conference, Denver, CO, May 13-16 2007.
- T.W. Stone, L.M. Arias, **Y. Hammi** and M. F. Horstemeyer, "Multiscale Modeling of Powder Metallurgy Process", PowderMet 2006, San Diego, June 17-22 2006.
- **Y. Hammi**, T.Y. Stone and M.F. Horstermeyer. ''Constitutive Modeling for Powder Compaction and Densification", PM^{2}TEC 2005 International Conference on Powder Metallurgy & Particulate Materials, June 19-23 2005, Montreal, Canada.
- **Y. Hammi**, T.Y. Stone and M.F. Horstermeyer. ''Constitutive Modeling of Metal Powder Behavior during Compaction", SAE 2005 World Congress, April 11-14 2005, Detroit, Michigan.
- Solanki, K., **Hammi, Y**., Oglesby, D., & Horstemeyer, M. . Implementation of Internal State Variable Material Model for Crashworthiness. *Proceedings of AmeriPAM 2004 User Conference*, Troy, Michigan, 2004.

- **Y. Hammi**, M.F. Horstermeyer and D.J. Bammann. ‘‘An Anisotropic Damage Model for Ductile Metals”, 2002 ASME International Mechanical Engineering Congress and Exposition, 17-22 November 2002, New Orleans, Louisiana.
- **Y. Hammi**, M.F. Horstermeyer and D.J. Bammann. ‘‘Modeling of Anisotropic Damage for Ductile Materials in Metal Forming Processes”, 2002 ASME International Mechanical Engineering Congress and Exposition, November 2002, New Orleans, Louisiana.
- K. Saanouni, A. Cherouat and **Y. Hammi**. ‘‘Numerical Aspects of Finite Elastoplasticity with Isotropic Damage for Metal Forming”, Numerical Modeling in Damage Mechanics ‘‘NUMEDAM’00”, October 2000, Troyes, France.

Oral Communications (12)

- **Y. Hammi**, T.W. Stone, P.G. Allison, and M.F. Horstemeyer, 2010, “Fatigue Modeling of a Powder Metallurgy Main Bearing Cap,“ 2010 SIMULIA Customer Conference, Providence, RI: 3DS SIMULIA.
- **Y. Hammi**, P.G. Allison, T.W. Stone, L. Tucker, and M.F. Horstemeyer, 2008, Pressure-Dependent Plasticity Model for Powder Metallurgy Compaction. First American Academy of Mechanics Conference, New Orleans, June 17-20 2008.
- **Y. Hammi**, P.G. Allison, T.W. Stone, L. Tucker and M.F. Horstemeyer, “Dependent Plasticity Model for Powder Metallurgy Compaction,” First American Academy of Mechanics Conference, New Orleans, June 17-20 2008.
- **Y. Hammi**, T.W. Stone, L. Tucker, P.G. Allison, and M.F. Horstemeyer, “Modeling for Powder Metallurgy Component Design and Performance Prediction,” MPIF/APMI 2008 World Congress on Powder Metallurgy & Particulate Materia, Washington, DC, June 8-12 2008.
- T.W. Stone, L. Tucker, **Y. Hammi**, T.N. Williams, H. El Kadiri, and M.F. Horstemeyer, “Comparison of Density Measurement Techniques for Large PM Components. MPIF/APMI 2008 World Congress on Powder Metallurgy & Particulate Materialsl, Washington, DC, June 8–12 2008.
- P.G. Allison, **Y. Hammi** and M.F. Horstemeyer, “Determination of Microstructure-Property Relations for Performance and Design Optimization of the P/M Process”, PowderMet 2007 conference, Denver, CO, May 13-16 2007.
- **Y. Hammi**, T.Y. Stone and M.F. Horstermeyer. ‘‘Constitutive Modeling for Powder Compaction and Densification”, PM^{2}TEC 2005 International Conference on Powder Metallurgy & Particulate Materials, June 19-23 2005, Montreal, Canada.
- **Y. Hammi**, T.Y. Stone and M.F. Horstermeyer. ‘‘Constitutive Modeling of Metal Powder Behavior during Compaction”, SAE 2005 World Congress, April 11-14 2005, Detroit, Michigan.
- **Y. Hammi**, M.F. Horstermeyer and D.J. Bammann. ‘‘An Anisotropic Damage Model for Ductile Metals”, 2002 ASME International Mechanical Engineering Congress and Exposition, 17-22 November 2002, New Orleans, Louisiana.
- **Y. Hammi**, M.F. Horstermeyer and D.J. Bammann. ‘‘Modeling of Anisotropic Damage for Ductile Materials in Metal Forming Processes”, 2002 ASME International Mechanical Engineering Congress and Exposition, November 2002, New Orleans, Louisiana.
- **Y. Hammi**, M.F. Horstermeyer and D.J. Bammann. 2002. "A Physically Motivated Anisotropic Representation of Damage for Ductile Materials,” 14th U.S. National Congress of Theoretical and Applied Mechanics 23-28 June 2002, Blacksburg, VA.
- **Y. Hammi** and K. Saanouni. 1999. "Numerical Prediction of Damage During Metal Forming Processes," 1999 U.S. National Congress on Computational Mechanics, Minisymposium on Progress in Damage Mechanics, 4-6 August 1999, Colorado, USA.

STUDENT ADVISING AND MENTORING

Advising 1 PhD Student
Mentoring of 5 PhD Students, 3 Graduate students and 2 Undergraduate students.
Committee Members in 20 PhD Defenses and 12 Master Defenses

AWARDS AND GRANTS

- **Visiting Research Award (2000)** from Champagne Ardenne Regional Council (FRANCE) of an amount of 250,000 Francs (FF) (equivalent to $50,000 U.S. dollars) to perform one year research visit at Sandia National Laboratories in California.
- **National Science Fondation Grant (2007)** • $53,829 (3 years).
  Principal Investigator: Richard .A. Regueiro, University of Colorado, Youssef Hammi, Mississippi State University, and Khalid Alshibli, Louisiana State University.
  Project title: Simulating Deformation and Flow of Dry Particulate Materials.
- **Nuclear Energy University Programs Grant – Dept. of Energy (2010)** • $345,941 (3 years).
  Principal Investigator: Youssef Hammi, Mississippi State University.
  Project title: Multiscale Concrete Modeling for Aging Degradation.
- **University of Southern Mississippi Grant – NASA (2017)** • $100,597 (1 year).
  Principal Investigator: Youssef Hammi, Mississippi State University.
  Project title: Coupling Loci/CHEM with Solid Mechanics Finite Element Code to Capture the Gas-to-Solid Responses regarding Heat Transfer, Stress, Plasticity, Damage, Creep, and Fatigue.

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CREDENTIALS

Technical Proficiencies

Computer Aided Engineering: Abaqus (CAE, Standard and Explicit with user subroutines Uel, Umat, Vumat, Creep, Disp, Uvarm, Mpc,etc.), Matlab, Mathematica, Ensight, Forge2,
Pro-Engineer, Fortran
Platforms: Windows series, Linux, UNIX, SGI, HP, Solaris, Mac, MPI Parallel Computing
Equipment: Instron Machines, Powder Metallurgy Presses, Furnaces

Professional Associations

Society of Automotive Engineers (SAE)
American Society for Engineering Education (ASEE)