Koffi Enakoutsa, Ph.D.
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## Education

Ph.D., Theoretical and Applied Mechanics**,** Pierre & Marie Curie University, Paris, 2007
Advisor: J.B. Leblond
M.S., Theoretical and Applied Mechanics, Pierre & Marie Curie University, Paris, 2002
Advisor: J.B. Leblond
M.S., Theoretical and Applied Mathematics, University of Lomé, Lomé-Togo, 2000

## Employment

[1] Karagozian and Case, Glendale, CA
Senior Engineer, 01/2013-present
[2] UC-Berkeley, Mathematics and Statistics Program**,** Berkeley, CA
Teaching staff member, Fall 2012
[3] FabHaus, LLC, Pensacola Beach, FL
Consultant, 11/2011-present
[4] Center for Advanced Vehicular Systems, Mississippi State University**,** Starkville, MS
Postdoctoral Research Associate, 2009-2011
[5] Aerospace Engineering Department, Texas A&M University**,** College Station, TX
Postdoctoral Research Associate, 2008-2009
[6] Mechanical Engineering Department, Ohio State University, Columbus, OH
Postdoctoral Research Associate, 2007-2008
[7] d'Alembert Institute, Pierre and Marie Curie University**,** Paris, France
Graduate Research Assistant, 2002-2007

## Visiting position

La Sapienza University of Rome, Visiting Researcher, Fall 2014, Rome, (Italy)

## Publications

*Book Chapter*

[1] **K. Enakoutsa**, J-B Leblond and G. Perrin (2006)
Assessment of a Model of Ductile Fracture with a Nonlocal Evolution Equation of the Porosity, in Local Approach to Fracture, Besson, J. *et al*. (ed.), Presse des Mines, Paris (France), pp. 259-265

*Journal Publications*

[2] **K. Enakoutsa**, J-B Leblond and G. Perrin (2007),
Numerical Implementation and Assessment of a Phenomenological Nonlocal Model of Ductile Rupture, ***Computer Methods in Applied Mechanics and Engineering***, 196(13-16), 1946-1957, doi: 10.1016/j.cma.2006.10.003
[3] **K. Enakoutsa** and J-B Leblond (2009)

Numerical Implementation and Assessment of the GLPD Micromorphic Model of Ductile Rupture, ***European Journal of Mechanics-A/Solids***, **28**(3), 445-460, doi: 10.1016/j.euromechsol.2008.11.004

[4] K. Enakoutsa (2011)
Modeling Ductile Fracture in Metals involving two Populations of Voids-Influence of Continuous Nucleation of Secondary Voids upon Growth and Coalescence of Primary Voids, ***Mathematics and Mechanics of Solids***, Sage Publication, **18**(3): 323-345**;** doi: 10.1177/1081286512438883

[5] **K. Enakoutsa**, F.R. Ahad, K. Solanki, Y. Tjiptowidjojo and D. Bammann (2012)
Damage Smoothing Effects in a Delocalized Rate Sensitivity Model for Metals, ***Theoretical and Applied Mechanics Letters***, AIP Publishing, 2, 051005; Doi: 10.1063/2.1105105

[6] **K. Enakoutsa**, F.R. Ahad, K. Solanki, Y. Tjiptowidjojo and D. Bammann (2012)
Using Damage Delocalization to Model Localization Phenomena in Bammann-Chiesa-Johnson Metals, ***Journal of Engineering Materials and Technology***, Transactions of ASME, **134**, 041014, Doi: 10.1115/1.4007352

[7] K. Enakoutsa (2012)
Some New Applications of the GLPD Micromorphic Model of Ductile Fracture, ***Mathematics and Mechanics of Solids,*** Sage Publication, **19**(3), 242-259, Doi: 10.1177/1081286512462835

[8] El Kadiri, H., Utegulov, Z.N., Khafizov, M., Asle Zaeem, M., Mamivand, M., Oppedal, A.,L., **Enakoutsa, K**., Cherkaoui, M., Graham, R.H. and Arockiasamy, A. (2013)
Transformations and Cracks in Zirconia Films Leading to Breakaway Oxidation of Zircaloy, ***Acta Materialia***, Elsevier, **61**(11), 3923-3925, Doi:10.1016/j.actamat.2013.02.052

[9] K. Enakoutsa (2013)
Exact Results for the Problem of a Hollow Sphere Subjected to Hydrostatic Tension and Made of Micromorphic Plastic Porous Materials, ***Mechanics Research Communications***, Elsevier, **49**,1-7, Doi: 10.1016/j.mechrescom.2012.12.009

[10] **K. Enakoutsa**, F.R. Ahad, K. Solanki, Y. Tjiptowidjojo and D. Bammann (2013)
Modeling the Dynamic Failure of Hazmat Railroad Tank Cars using a Physically-Motivated Internal State Variable Plasticity/Damage Model Embedded with a Length Scale (2012), ***Modelling and Simulation in Engineering***, Hindawi Publishing Corporation, *2013*(ID 815158), 11 pages. Doi:10.1155/2013/815158

[11] F.R. Ahad, **K. Enakoutsa**, K. Solanki and D. Bammann (2013)
Nonlocal Modeling in High Velocity Impact Failure of 6061-T6 Aluminum, ***International Journal of Plasticity***, Elsevier, **55,** 108-132, Doi:10.1016/j.ijplas.2013.10.001

[12] K. Enakoutsa (2013)

The Method of Virtual Power in a Micromorphic Theory of Ductile Fracture in Metals, ***International Journal of Theoretical and Applied Multiscale Mechanics***, Inderscience Publishers, **2**(4), 311-322

[13] K. Enakoutsa (2013)
An Analytic Benchmark Solution to the Problem of a Generalized Plane Strain Hollow Cylinder made of Micromorphic Plastic Porous Metal and Subjected Axisymmetric Loading Conditions, ***Mathematics and Mechanics of Solids***, Sage Publication, *Accepted*, Doi: 10.1177/1081286513513457

[14] Koffi Enakoutsa (2013)
An Improved Nonlocal Gurson Model for Porous Plastic Solids, with Applications to the Simulation of Ductile Rupture Tests, ***Applied Mathematical Modelling***, **38**, 2791-2799, Elsevier, Doi: 10.1016/j.apm.2013.11.007

[15] K. Enakoutsa (2014)
A Constitutive Generalized Elasticity Law for a Micromorphic Second Gradient Elastic Material, with Application to the Problem of a Spherical Shell Subjected to Axisymmetric Loading Conditions, ***Theoretical and Applied Mechanics Letters***, **4**(2), 021002, AIP Publishing, Doi:10.1063/2.1402102

[16] K. Enakoutsa (2014)
Combined Stretching and Twisting of a Thin-Walled Tube of Second Gradient Plastic Materials, ***International Journal of Engineering Sciences***, Elsevier, **78**, 114-123, Doi: 10.1016/j.ijengsci.2014.02.014

[17] K. Enakoutsa (2014)
Some new applications of a generalized Hooke's law for second gradient materials, ***Theoretical and Applied Mechanics Letters***, AIP Publishing, *Accepted*

[18] K. Enakoutsa (2014)
Analytical applications and effective properties of a second-gradient isotropic elastic material model, ***Zeitschrift für Angewandte Mathematik und Physik*** (ZAMP), Springer, *(in press)*, Doi: 10.1007/s00033-014-0453-2

[19] K. Enakoutsa (2014)
Axisymmetric plane strain deformations of a second gradient elastic cylindrical shell, ***Mechanics Research Communications,*** Elsevier, *submitted*

[20] K. Enakoutsa (2014)
Analytical elastic-plastic analyses of a spherical shell subjected to hydrostatic tension based on a strain gradient model for porous plastic materials, ***Zeitschrift für Angewandte Mathematik und Mechanik*** (ZAMM)***,*** Wiley, *under review*

[21] K. Enakoutsa (2014)

Combined electric and strain gradient field effects in isotropic flexoelectric solids, ***Proceedings of the Royal Society A: Mathematical, Physical, and Engineering Sciences***, *in preparation*

[22] **K. Enakoutsa** (2014)
A model for isotropic flexoelectric solids including strain gradient effects, ***Mathematics and Mechanics of Solids***, Sage, *in preparation*

[23].**K. Enakoutsa** and I. Giorgi (2014)
Analytical and numerical study of the problem of a circular thin-walled tube of second gradient elastic, ***Mathematics and Mechanics of Solids***, Sage, *in preparation*

[24] **K. Enakoutsa** and Ahad, F. (2014)
Ductile tearing of a CT specimen using an internal state variable plasticity damage model, ***Engineering Fracture Mechanics***, Elsevier, *in preparation*

*Conference Publications*
[25] F. Ahad, **K. Enakoutsa**, K. Solanki and D.J. Bammann
Dynamic Failure of 6061-T6 Aluminum and HY-130 Steel using Damage Delocalization, in *Proceedings of the 2013 International Symposium on Plasticity and Its Current Applications*, 01/2013, Nassau, Bahamas

[26] K. Enakoutsa
Finite element application to ductile fracture problems involving higher number of degrees of freedom, in *Proceedings of the 10$^{th}$ World Congress on Computational Mechanics*, 07/2013, Sao Paulo, Brazil

[27] **K. Enakoutsa** F.R. Ahad, K. Solanki, Y. Tjiptowidjojo and D. Bammann
Damage Smoothing Effects in BCJ Metals with Damage Delocalization, extended abstract, in *Proceeding of the 49$^{th}$ Society of Engineering Sciences Annual Technical Meeting*, 10/2012, Atlanta, GA

[28] **K. Enakoutsa**, F.R. Ahad, K. Solanki, Y. Tjiptowidjojo and D. Bammann
Localization Effects in Bammann-Chiesa-Johnson Metals with Damage Delocalization, in *Proceedings of the ASME 2011 International Mechanical Engineering Congress & Exposition (IMECE 2011)*, 11/2011, Denver, CO, USA, pp. 505-515.

[29] F. R. Ahad, **K. Enakoutsa**, K. Solanki, Y. Tjiptowidjojo and D.J. Bammann
An Internal State Variable Model Embedded with a Length Scale for Hazmat Tank Car Structural's Integrity Applications, in *Proceedings of the ASME 2011 Joint Rail Conference (JRC 2011)*, 03/2011, Pueblo, CO, USA, pp. 263-272.

[30] **K. Enakoutsa**, J-B Leblond and G. Perrin,
Numerical Assessment of a Micromorphic Model of Ductile Fracture, in: *Proceedings of 3$^{rd}$ European Conference on Computational Mechanics (ECCM 2006)*, 06/2006, Lisbon, Portugal

[31] **K. Enakoutsa**, J-B Leblond and B. Audoly

Influence of Continuous Nucleation of Secondary Voids upon Growth and Coalescence of Primary Voids in Ductile Metals, in: *Proceeding of the 11th International Congress on Fracture (ICF IX)*, 03/2005, Turin, Italy

*Thesis*
[32] K. Enakoutsa (2007)
Nonlocal Modeling in Ductile Fracture of Metals, Pierre and Marie Curie University (Paris VI) Eds., Ph.D. Dissertation, *OCLC# 493940344*

*Contract Reports*
**[**33] D. Bammann, P. Wang, K. Solanki, **K. Enakoutsa**, F. Ahad (2011)
US DOT Virtual accident and Injury Reconstruction Project, Mississippi State University Center for Advanced Vehicular System (MSU/CAVS) Contract, Report# MSU.CAVS.CMD.2011-R0001

**Presentations**
[1] K. Enakoutsa
Compuational multiscale and nonlocal modeling of fracture processes and complex behaviors of materials for applications in sustainable design of building structures, Department of Civil and Environmental Engineering, Florida A&M University-Florida State University College of Engineering, Invited Seminar, Tallahassee, Florida, USA. 27 February 2014.

[2] F. Ahad, **K. Enakoutsa**, K. Solanki and D.J. Bammann
Dynamic Failure of 6061-T6 Aluminum and HY-130 Steel using Damage Delocalization, in *Proceedings of the 2013 International Symposium on Plasticity and Its Current Applications*, 01/2013, Nassau, Bahamas

[3] **K. Enakoutsa**, F.R. Ahad, K. Solanki, Y. Tjiptowidjojo and D. Bammann
Analysis of Damage Smoothing Effects in Nonlocal Bammann-Chiesa-Johnson Metals (2012), presentation, *49th Society of Engineering Sciences Annual Technical Meeting*, 10/2012, Atlanta, GA

[4] **K. Enakoutsa**
Reducing Mesh Sensitivity in Ductile Fracture using a Multi-scale Micromorphic Model (2012), presentation, *TMS 2012 Annual Meeting and Exhibition*, 03/2012, Orlando, FL

[5] **K. Enakoutsa**, F.R. Ahad, K. Solanki, Y. Tjiptowidjojo, and D. Bammann
Theoretical and Numerical Assessment of a Nonlocal Model for Rate Dependent Metals (2011), presentation, *2011 ASME International Mechanical Engineering Congress & Exposition*, Denver, CO

[6] **K. Enakoutsa**, F.R. Ahad, K. Solanki, Y. Tjiptowidjojo, and D. Bammann
Using Damage Delocalization to Model Localization Phenomena in the BCJ Metals (2011), presentation, *11th U.S. National Congress on Computational Mechanics* (*USNCCM XI)*, Minneapolis, MN

[7] F. R. Ahad, **K. Enakoutsa**, K. Solanki, Y. Tjiptowidjojo, and D.J. Bammann
A Physically-motivated Internal State Variable Plasticity and Damage Model Embedded with a Length Scale for Hazmat Railroad Tank Car's Structural Integrity Applications (2011), presentation, *2011 Join Rail Conference (JRC 2011)*, Pueblo, CO

[8] **K. Enakoutsa**

Two Modifications of the Gurson's Model to Solve the Problem of Unlimited Localization of Strain and Damage in Ductile Fracture of Metals (2008), presentation, Mechanical Engineering Department, Stanford University, Stanford, CA

[9] **K. Enakoutsa** and J-B Leblond
Numerical Assessment of some Nonlocal Models of Ductile Fracture (2007), presentation, *USNCCM IX*, San Francisco, CA

[10] **K. Enakoutsa** and J-B Leblond
Assessment of a Phenomenological Nonlocal Model for Ductile Rupture of Metals (2006), presentation, Lille Mechanics Laboratory, Lille I University, Lille, France

[11] **K. Enakoutsa**, J-B Leblond and B. Audoly
Ductile Fracture in Porous Metals Containing two Different Population of Cavities (2005), presentation, *11$^{th}$ International Congress on Fracture*, Turin Italy

## Teaching Experience

[1]University of California, Berkeley, CA, Mathematics and Statistics Program, Student Learning Center, Mathematics tutor, graduate and undergraduate levels, fall 2012.

[2] Mississippi State University, Mechanical Engineering Department, Starkville, MS
ME 8000 01: Inelasticity, Class Teaching Assistant, Spring 2011. The class covers plasticity, creep, viscoelasticity, and inelastic behavior in relation to micro-structure-property relations, constitutive modeling at different length scales, and computational simulations.

[3] Texas A&M University, Aerospace Engineering Department, College Station
MEMA 641: Plasticity Theory, Replacement Lecturer, spring 2009

[4] Prepadom, Paris, France
Private mathematics tutor, 2006; the classes taught cover Calculus I&II, Multivariable Calculus, Linear Algebra, Differential Equations, College Algebra and Probability

## Student Mentorship

Fazle R. Ahad, "*Nonlocal Modeling of High Rate Impact Damage*," Master Student, Mississippi State University, co-advisor, 08/2009-2011 (Main advisor: Prof. Douglas Bammann), Currently Validation Engineer at Zodiac Aerospace (Dallas, Texas)

## Honors/Awards

[1] La Sapienza University of Rome Fellowship (Fall 2014), Rome Italy
[2] Highest Honors for Ph.D. Dissertation Work (2007), Pierre and Marie Curie University, Paris France
[3] French Department of Research and Technology Fellowship (2002-2006), Paris-France

## Membership

International Research Center on Mathematics & Mechanics of Complex Systems, **M&MoCS**, University of L'Aquila, Palazzo Caetani, Cistirna di Latina (Greater Rome area), Italy