

Biographical Sketch Katerina E. Aifantis

Associate Professor and Faculty Fellow
Mechanical and Aerospace Engineering
University of Florida
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Citation Information: Scopus: h-factor: 26 (excluding self-citations), citations: 1958 (excluding self)

Education

Bachelor of Engineering, 2002, Michigan Technological University, USA
Masters, 2004, University of Cambridge, 2004
PhD, 2005, University of Groningen, The Netherlands

Academic Positions

- 2017-present Associate Professor and Faculty Fellow, Mechanical and Aerospace Engineering, University of Florida
- 2013-2017 Associate Professor, joint appointment in Materials Science Engineering and Civil Engineering-Engineering Mechanics
University of Arizona
- 11/08-11/13 Adjunct Assistant Professor, Physics, Michigan Technological University, MI
- 09/08-09/13 European Research Council (ERC) Grantee
Received 1.5 Million USD (only 10% overheads kept) to carry out her research on nanotechnology at the Aristotle University of Thessaloniki in Greece and the University of Erlangen-Nurnberg in Germany. *Out of ~9100 applicants, 300 got funded.* In addition to research she also taught undergraduate and graduate courses and supervised students.
Related Publicity:
(i) <http://news.bbc.co.uk/2/hi/science/nature/7264828.stm>
(ii) <https://www.sciencemag.org/careers/2008/03/ahead-her-time>
- 02/09-07/08 Researcher, Harvard University
- 01/07-09/07 Researcher, Ecole des Mines de Paris, France

Honors

- 2019 (December) George Th. Fotini Award from the Academy of Athens for her work on electrochemistry.
- 2019 (October) Stoddart International Scientific Award of the 2019 Sustainable Industrial Processing Summit and Exhibition for her scientific contributions

- 2017 Plenary speaker at SIPS 17, alongside Nobel Laureate Dan Shechtman.
- 2014 Senior Research Visiting Scholarship to perform research on nanostructured electrodes at Fudan University, China, 2014.
- 2011 Outstanding Young Alumni Award, Michigan Technological University, USA
- 2011 Best paper presentation titled ‘Nanostuctured polymer surfaces for deep brain stimulation’ at the 9th International Congress on Current Treatment and Therapeutic perspectives in Alzheimer’s, Parkinson’s Disease, MS and Epilepsy’, Athens, Greece, 2011.
- 2009 Included in the 2009 Issue of Who’s Who in the World.
- 2009 Honored by the Female Scientists of Greece for her Academic Achievements.
- 2009 Honored by the *President of the Greek Democracy*, Dr. Karolos Papoulias, for being the youngest ever European Research Council Grant recipient. In 2008, out of ~9100 applications, 300 got funded. The average age was 34, while the PI was the youngest at 24.
- 2005 Recognized by the President of the University of Groningen at the 2005 New Academic Year Ceremony for being the youngest PhD ever in The Netherlands at age 21 (offering also a 100 kEuros Post-Doctoral Fellowship, which she declined)
- 2003 Received a Graduate Research Fellowship (100k USD) from the USA National Science Foundation to carry out her graduate studies for three years wherever she chose.

Editorial Board Member and Special Issue Editor

- 2016-present Associate Editor, Journal of Materials Letters (Impact factor: 2.687)
- 2016-present Editorial Board Reviews on Advanced Materials Science (Impact factor: 2.172)
- 2011-present co-Editor Journal of Nanomaterials (Impact factor: 2.207)
- 2009-present Editorial Board Journal of Mechanics and MEMS (JMM)
- 2014 Co-editor with X. Li and N. Dunne the Special Issue: *Scaffolds Reinforced by Fibers or Tubes for Tissue Repair*, Biomed Research International (Impact Factor: 1.579)
- 2013-present Editorial Board Materials Physics and Mechanics (MPM)
- 2014-present Editorial Board Journal of the Mechanical Behavior of Materials (JMBM)
- 2011 Co-editor with R. Yassar and S.-M. Hang the Special Issue: *Advances in Mechanics of One-Dimensional Micro/Nano Materials*, Journal of Materials Research (Impact Factor: 1.647)

Organization of Scientific Meetings

- 2011 Co-organizer with R. Yassar and S.-M. Han of the Symposium *Advances in Mechanics of One-Dimensional Micro/Nano Materials*, TMS 2011, San Diego, USA (45 speakers)
- 2014 Co-organizer with V.R. Kumar of 1st Intl. Symp. on Sustainable Secondary Battery Manufacturing

- and Recycling, Shechtman Intl Symposium, 2014, Cancun, Mexico (29 speakers)
- 2015 Co-organizer with V.R. Kumar of 2nd Intl. Symp. on Sustainable Secondary Battery Manufacturing and Recycling, SIPS 2015, 2015, Antalya, Turkey (31 speakers)
- 2016 Co-organizer with V.R. Kumar of 3rd Intl. Symp. on Sustainable Secondary Battery Manufacturing and Recycling, SIPS 2016, 2016, Hainan, China (31 speakers)
- 2017 Co-organizer with V.R. Kumar of 4th Intl. Symp. on Sustainable Secondary Battery Manufacturing and Recycling, SIPS 2017, 2017, Cancun, Mexico (25 speakers)
- 2018 Co-organizer with V.R. Kumar of 5th Intl. Symp. on Sustainable Secondary Battery Manufacturing and Recycling, SIPS 2018, 2018, Rio De Janeiro, Brazil (23 speakers)

Funding

- 7/2019-7/2021: *PI*: \$180,000 Department of Energy, Office of Basic Research
Title: The Role of Grain Boundary Structure and Chemistry in Materials Failure, PI: K.E. Aifantis (Renewable after 1.5 years)
Summary: Examine the strengthening effect of grain boundaries as a function of the grain boundary chemistry and geometric characteristics. Nanoindentation, in-situ TEM, atomistic/MD simulations and discrete dislocation dynamics will be performed in order to obtain a detailed understanding of how to tune materials properties through grain boundary engineering.
- 6/2019-6/2022: *PI*: \$350,000 US National Science Foundation
Title: IRES: Track II: Advanced Study Institute: Using Nanotechnology for fabricating new biomaterials and next-generation electrodes
Summary: Develop 3 Advanced Study Institutes for PhD students at the University of Cambridge and the University of Erlangen-Nuremberg.
- 8/2018-8/2021: *PI*: \$313,000 US National Science Foundation
Title: Probing the effect that ion insertion has on the mechanical stability of high capacity nanocomposite anodes
Summary: Develop an experimental validated multi-physics model for capturing the chemomechanical behavior of electrodes for Li-ion and Na-ion batteries. Based on the model predictions new nanostructured anodes will be fabricated and tested.
- 7/2016-7/2019: *PI*: \$820,000 Department of Energy, Office of Basic Research
Title: The Role of Grain Boundary Structure and Chemistry in Materials Failure, PI: K.E. Aifantis, coPI: S.A. Hackney
Summary: Examine the strengthening effect of grain boundaries as a function of the grain boundary chemistry and geometric characteristics. Nanoindentation, in-situ TEM, atomistic/MD simulations and discrete dislocation dynamics will be performed in order to obtain a detailed understanding of how to tune materials properties through grain boundary

engineering.

- 9/2017-9/2021: *US Partner: European Union-Horizon Research and Innovation Framework Title: Fracture Across Scales and Materials, Processes and Disciplines*
Network for exchange of young researchers between universities and industry between the EU, US, China and Russia.
1 million euro distributed to EU partners and transferred to KEA's institution based on researchers hosted (PI: Harm Askes/Univ of Sheffield).
Summary: Understand fracture in materials with applications in energy systems through the exchange of young researchers within a network of companies and universities.
- Spring 2016: \$469,000 Department of Defense (DURIP)
Direct Laser Writing Equipment for Fabrication of Novel Electromagnetic, Acoustic and Mechanical Meta-Structures
Summary: Purchase a 3D laser printer for the fabrication of 3D polymers that can be used in energy and bio applications.
- 1/2016-1/2017: \$75,000 Tucson Water
Examining Fracture in Asbestos Cement Pipes
PIs: K.E. Aifantis, R. Fleichman, (Renewable each year)
Summary: Examine fracture in asbestos-cement pipes through compression tests and electron microscopy experiments. Determine the correlation between fracture and soil composition.
- 9/2008-9/2013: \$1,500,000 European Research Council Starting Grant
Probing the Micro-to-Nanoscale Transition: Theory and Simulations, Experiments and Applications, PI: K.E. Aifantis
Summary: Examine the changes in the mechanical stability of materials as their microstructure transitioned from the micro to the nanoscale. Focus was given on micropillars, and nanomaterials, but also in nanostructured anodes for Li-ion batteries. Towards the end of the grant biomaterials were also considered as they also poses a nanostructure. The project was interdisciplinary as new theoretical models were developed but also simulations and novel experiments were performed. Over 40 publications were produced throughout the project.
- 2003-2006: \$100,000 National Science Foundation
Graduate Research Fellowship, PI: K.E. Aifantis, 100k.
Summary: Study the mechanical behavior of nanomaterials, such as nanostructured anodes and nanomaterials.

PhD Students Supervised: **1.** Bo Wang (current), **2.** Fei Shuang (current), **3.** Utkarsh Ahuja (current), **4.**

Haokun Deng (Arizona), **5.** Xu Zhang (Huazhong Univ of Science and Tech), **6.** Alexandros Sidiropoulos (Aristotle Univ), **7.** Theodoros Mpiros (Aristotle Univ), **8.** Manolis Kouris (Aristotle Univ).

Master Students Supervised: **1.** Arulmurugan Senthilnathan (Florida), **2.** Dhruva Kapoor (Arizona), **3.** Kimmon Lappas (Aristotle Univ), **4.** Alexandros Kampouris *Aristotle Univ), **5.** Alexandros Sidiropoulos (Aristotle Univ), **6.** Konstantinos Michos (Aristotle Univ), **7.** Alexandros Pavlou (Aristotle Univ), **8.** Kanyaporn Adpakpang (Chiangmai Univ), **9.** Prodromos Liamiadis (Aristotle Univ)

Post Docs Supervised: **1.** Bryan Kuhr, **2.** Haokun Deng (*2 co-authored articles*), post doc through DOE grant at Univ Arizona 2016-2017, **3.** Julien Guenole, post doc through ERC grant at the Univ Erlangen Nuremberg in 2013, currently continues as post doc at the same university, **4.** Eugene Harea (*2 co-authored article*), post doc at Aristotle Univ between 2011-2013, currently is a senior research at the Moldova Academy of Sciences, **5.** Xu Zhang (*8 co-authored articles*), post doc through ERC grant at Univ Erlangen-Nuremberg in 2012, **6.** Tao Huang, post doc through ERC grant at Aristotle Univ between 2011-2012, currently associate professor at Fudan Univ in China, **7.** Sanjiv Shrivastava (*4 co-authored articles*), post doc through ERC grant between 2009-2012 at Aristotle Univ, currently founder of LMSERA Inc, **8.** Tang Bin (*1 co-authored article*), post doc through ERC grant at Aristotle Univ in 2010, currently associate professor at Southern University of Science and Technology in China, **9.** George Tsibidis (*1 co-authored article*), post doc through ERC grant at Foundations for Research and Technology-Hellas in 2010, currently continues as a researcher there, **10.** Sergio Brutti (*1 co-authored article*), post doc through ERC grant at Aristotle Univ in 2009, currently researcher at Università degli Studi della Basilicata in Italy, **11.** Natee Tagrakarn (*1 co-authored article*) 2009 at Aristotle University, currently assistant professor at Khon Kaen University in Thailand.

Publications

Book

Editor and co-Author of three chapters (4,6&8): High Energy Density Lithium Batteries: Materials, Engineering, Applications, K.E. Aifantis, S. A. Hackney and V.R. Kumar (Editors), Wiley-VCH, 2010, ISBN 978-3-527-32407-1. [This book was translated in Chinese: *China Machine Press*, 2011, ISBN: 9787111371786.]

Chapter Author

Katerina E. Aifantis, Chapter 4: The biodegradability of scaffolds reinforced by fibers or tubes for tissue repair in *Tissue Repair: Reinforced Scaffolds*, Xiaoming Li (Editor), Springer Science + Business Media Singapore Pte Ltd. In Print.

Katerina E. Aifantis and Stephen A. Hackney, Chapter 8: Nanoscale Engineering for the Mechanical Integrity of Li-Ion Electrode Materials in *Nanostructured Materials*, Ali Eftekhari (Editor), Wiley-VCH, 2008, ISBN 978-3-527-31876-6.

Peer Reviewed Articles (* denote articles resulting from researchers funded/advised by K.E.Aifantis)

- 1*. Shuang F.^G, Deng H.^A, Shafique A. B.^G, Marsh S., Treiman D., Tsakalis K., Aifantis K. E. A first study on nanoporous tungsten recording electrodes for deep brain stimulation. *Materials Letters*, 126885, 2019.
- 2*. Shuang F.^G, Aifantis, K.E., Relating the strength of graphene/metal composites to the graphene orientation and position, *Scripta Materialia* 181, 70-75, 2020.
- 3*. Hu P.^P, Peng W.^P, Wang B.^G, Xiao D.^P, Ahuja U.^G, Réthoré R., Aifantis K.E., Concentration-Gradient Prussian Blue Cathodes for Na-Ion Batteries, *ACS Energy Letters* 5, 100-108, 2020.
- 4*. Hu P.^P, Wang B.^G, Xiao D.^P, Aifantis K.E., Capturing the differences between lithiation and sodiation of nanostructured TiS₂ electrodes, *Nano Energy*, 63, 103820, 2019.
- 5*. Huang Y.^G, Deng H.^A, Fan Y., Zheng L., Che J.^G, Li X., Aifantis K.E., Conductive nanostructured Si biomaterials enhance osteogenesis through electrical stimulation, *Matls Sci. & Eng. C*, 103, 109748, 2019.
- 6*. Hu P.^P, Dorogov M., Yan X., Aifantis K.E., Transforming single crystal CuO/Cu₂O nanorods into nano-polycrystalline Cu/Cu₂O through lithiation, *ChemElectroChem*, 6, 3139, 2019.
- 7*. Li T.^G, Gulzar U.^G, Zaccaria R.P.^G, Capiglia C., Aifantis K.E., Damage Formation in Sn Film Anodes of Na-Ion Batteries, *ACS The J. of Phys. Chem. C*, 123, 15244-15250, 2019.
- 8*. Aifantis K.E., Shrivastava S., Pelidou S.-H., Ngan A.H.W., Baloyannis S.I., Relating the blood-thinning effect of pentoxifylline to the reduction in the elastic modulus of human red blood cells: An in vivo study, *Biomaterials Science*, 7, 2545-2551, 2019.
9. Li T.^G, Gulzar U.^G, Bai X.^G, Lenocini M.^G, Prato M.^G, Aifantis K.E., Capiglia C., Zaccaria R.P.^G, Insight on the Failure Mechanism of Sn Electrodes for Sodium-Ion Batteries: Evidence of Pore Formation during Sodiation and Crack Formation during Desodiation, *ACS Appl. Energy Mater.*, 2, 860–866, 2019.
- 10*. Konstantinidis A.A., Aifantis K.E., Capturing slip band formation in Ni₃Al nanocubes during compression, *Materials Science and Technology*, 35, 571-576, 2019.
- 11*. Deng H.^A, Hackney S.A., Aifantis, K.E., Fabrication of octagonal and dodecagonal single crystal Si micropylamids via etching without using a pre-patterned mask, *Materials Science in Semiconductor Processing*, 93, 36-43, 2019.
- 12*. Kuhr B.R.^P, Aifantis, K.E., Interpreting the inverse Hall-Petch relationship and capturing segregation hardening by measuring the grain boundary yield stress through MD indentation *Materials Science and Engineering: A*, 745, 107-114, 2019.
- 13*. Aifantis K.E., Deng H.^A, Shibata H.^G, Tsurekawa S., Lejček P., Hackney S.A., Interpreting slip transmission through mechanically induced interface energies: a Fe–3% Si case study, *Journal of Materials Science* 54, 1831-1843, 2019.
- 14*. Kuhr B.R.^P, Aifantis, K.E., The Formation and Evolution of Defects in Nanocrystalline Fe During Indentation: The Role of Twins in Pop-Ins, *Physica Status Solidi (b)*, <https://doi.org/10.1002/pssb.201800370>.
- 15*. Réthoré J., Zheng H., Li H., Li J., Aifantis K.E., A multiphysics model that can capture crack patterns in Si thin films based on their microstructure, *J Power Sources*, 10 pages, <https://doi.org/10.1016/j.jpowsour.2018.07.106>.
- 16*. Merle B., Kraus X., Tallawi M.^G, Scharfe B., El Fray M., Aifantis K.E., Boccaccini A.R., Göken M. Dynamic mechanical characterization of poly(glycerol sebacate)/poly(butylene succinate-butylene dilinoleate) blends for cardiac tissue engineering by flat punch nanoindentation, *Matls Letters* 221, 115-118, 2018.
17. Gur S.^G, Frantziskonis G., Aifantis K.E., A computation study on the interplay between surface

morphology and electrochemical performance of patterned thin film electrodes for Li-ion batteries, *J. Power Sources* 360, 504-515, 2017.

- 18*. Kolb, T., Kraxner, J., Skodzek, K., Haug, M., Crawford, D., Maaß, K. K., Aifantis, K.E., Whyte, G. (2017). Optomechanical measurement of the role of Lamins in whole cell deformability. *Journal of Biophotonics* 10, 1657-1664, 2017.
- 19*. Bonadkar N.^G, Gerum R.^G, Kuhn M., Sporrer M., Lippert A., Schneider W., Aifantis K.E., Fabry B., Mechanical plasticity of cells, *Nature Materials*, *Nature Materials* 15, 1090–1094, 2016.
- 20*. Deng H.^G, Chu G.^G, Luo F., Li H., Chen L. Aifantis K.E., Si micropyramid patterned anodes that can suppress fracture and solid electrolyte interface formation during electrochemical cycling, *J Power Sources* 329, 372-378, 2016.
- 21*. Liu H., Deng H.^G, Bi J.-Q., Aifantis K.E., Synthesis of Silicon Hollow Nanospheres with a Mesoporous Shell via a Low-temperature Metathesis Reaction *Rev Adv Mater Sci* 45, 84-90, 2016.
- 22*. Steinwachs J.^G, Metzner C., Skodzek K., Lang N.^G, Thievensen I.^G, Mark C., Münster S. (g), Aifantis K.E., Fabry B., Three-dimensional force microscopy of cells in biopolymer networks. *Nature Methods* 13, 171–176, 2016.
23. Karapanagiotis I., Aifantis K.E., Konstantinidis A., Capturing the evaporation process of water drops on sticky superhydrophobic polymer-nanoparticle surfaces. *Materials Letters* 164, 117-119, 2016.
- 24*. Zhang X.^P, Aifantis K.E., Interpreting the internal length scale in strain gradient plasticity, *Reviews in Advanced Materials Science* 41, 72-83, 2015.
25. Li X.M., Zhao T.X., Sun L.W., Aifantis K.E., Fan Y.B., Feng Q.L., Cui F.Z., Watari F. The applications of conductive nanomaterials in the biomedical field. *Journal of Biomedical Materials Research Part A* 104, 322-339, 2015.
26. Shi S., Jiang W.B., Aifantis K.E., Wang H., Lin L., Fan Y.B., Feng Q.L., Cui F.Z., Li X.M. The application of nanomaterials in controlled drug delivery for bone regeneration. *Journal of Biomedical Materials Research Part A* 103, 3978-3992, 2015.
27. Karapanagiotis, I., Grosu, D.^G, Aslanidou, D., Aifantis, K.E., Facile method to prepare superhydrophobic and water repellent cellulosic paper, *Journal of Nanomaterials*, 2015 <http://dx.doi.org/10.1155/2015/219013>
- 28*. Zhang, X.^P, Aifantis, K.E., Examining the evolution of the internal length as a function of plastic strain, *Materials Science and Engineering A* 631, 27-32, 2015.
29. Li X.M., Liu W., Sun L.W., Aifantis K.E., Yu B., Fan Y.B., Feng Q.L., Cui F.Z., Watari F. Effects of physicochemical properties of nanomaterials on their toxicity. *Journal of Biomedical Materials Research Part A* 2015; 103 (7): 2499–2507.
- 30*. Tallawi, M.^G, Zebrowski, D.C., Rai R., Roether, J.A., Schubert, D.W., El Fray, M., Engel, F.B., Aifantis, K.E., Boccaccini, A.R., Poly(glycerol sebacate)/poly(butylene succinate-dilinoleate) (PGS/PBS-DLA) fibrous scaffolds for cardiac tissue engineering, *Tissue Eng C* 21, 585-596, 2015.
- 31*. Manda, M.G.^P, Aifantis, K.E., Nanoindentation derived mechanical properties of experimental dental restorative material, *Ceramics International*, 41, 4882-4889, 2015.
- 32*. Lang, N.R.^G, Skodzek, K., Hurst, S., Mainka, A., Steinwachs^G, J., Schneider, J., Aifantis, K.E., Fabry, B., Biphasic response of cell invasion to matrix stiffness in 3-dimensional biopolymer networks, *Acta Biomaterialia* 13, 61-67, 2015.
- 33*. Tallawi M.^G, Rai R., Boccaccini A.R., Aifantis K.E., Effect of substrate mechanics on cardiomyocyte -maturation and growth, *Tissue Eng B*. In Print. 21, 157-165, 2015.
- 34*. Zhang X.^P, Aifantis K.E., Weygand D., Senger J., Zaiser M., Internal length scale and grain boundary yield strength in gradient models of polycrystal plasticity: How do they relate to dislocation microstructure?, *J Mater Res* 29, 2116-2128, 2014. *Featured Article*

- 35*. Harea, E.E.^P, **Aifantis, K.E.**, Pyrtsac, K.M., Ghimpu, L., Cyclic nanoindentation for examination of the piezoresistivity and the strain-sensor behavior of indium-tin-oxide thin films, *NATO Science for Peace and Security Series A: Chemistry and Biology* 39, 53-59, 2015.
- 46*. Harea, E.E.^P, **Aifantis, K.E.**, Understanding the evolution of the pop-out effect in Si-based structures for photovoltaics, *Surface Engineering and Applied Electrochemistry* 50, 497-503, 2015.
- 37*. Karapanagiotis I., Pavlou A.^G, Manoudis P.N, **Aifantis K.E.**, Water repellent ORMOSIL films for the protection of stone and other materials, *Mat Lett* 131, 276-279, 2014.
38. Li X., Cui R., Sun L., **Aifantis K.E.**, Fan Y., Feng Q., Cui F.-Z., Watari F., 3D printed biopolymers for tissue engineering application, *Int J of Polymer Science*, 2014, # of pages 13. <http://dx.doi.org/10.1155/2014/829145>
39. Li X., Liu W., Sun L., **Aifantis K.E.**, Yu B., Fan Y., Feng Q., Cui F., Watari F., Resin Composites Reinforced by Nanoscaled Fibers or Tubes for Dental Regeneration, *Biomed Research Int*, 2014, # of pages 13. <http://dx.doi.org/10.1155/2014/542958>
- 40*. Weis C., Blank F., West A., Black G., Woodward R.C., Carroll M.R.J., Kartmann R., Hallam E., Shaw J., Murphy J., Teoh W.Y., **Aifantis K.E.**, Amal R., House M., Pierre M., Fabry B., Labeling of cancer cells with magnetic nanoparticles for magnetic resonance imaging, *Magnetic Resonance in Medicine* 71, 1896–1905, 2014.
- 41*. Konstantinidis A.A., **Aifantis K.E.**, De Hosson J.Th.M., Capturing the stochastic mechanical behavior of micro and nanopillars, *Matls Sci & Eng A* 597, 89–94 2014.
- 42*. Zhang X.^P, **Aifantis K.E.**, Ngan A.H.W., Interpreting the stress-strain response of Al micropillars through gradient plasticity, *Matls Sci & Eng A* 591, 38-45, 2014.
- 43*. Lang N.R.^G, Münster S.^G, Metzner C., Krauss P., Schürmann S.b, Lange J.^G, **Aifantis, K.E.**, Friedrich, O., Fabry, B., Estimating the 3D pore size distribution of biopolymer networks from directionally biased data, *Biophys. J.* 105, 1967-1975, 2013.
- 44*. Zhang X.^P, **Aifantis K.E.**, Zaiser, M., Material vs discretization length scales in plasticity simulations of solid foams, *Rev Adv Matls Sci* 35, 39-47, 2013.
- 45*. Tallawi M.^G, Rai R. (p), Gleixner M-R., Roerick O., Weyand M., Roether J.A., Schubert W.D., Kozłowska A., El Fray M., Merle B. (p), Göken M., **Aifantis K.E.**, Boccaccini A.R., Poly(glycerol sebacate)\Poly(butylene succinate-dilinoleate) Blends as Candidate Materials for Cardiac Tissue Engineering, *Macromol. Symp.* 334, 57–67, 2013.
- 46*. Adpakpang K.^G, Sarakonsri T., **Aifantis K.E.**, Hackney S.A., Morphological study of SnSb/graphite composites influenced by different ratio of Sn:Sb, *Reviews on Advanced Materials Science* 32, 12-18, 2012.
- 47*. Zaiser M., Mill F., Konstantinidis A., **Aifantis K.E.**, Strain localization and strain propagation in collapsible solid foams, *Materials Science and Engineering A* 567, 38-45, 2013.
- 48*. **Aifantis K.E.**, Shrivastava S.^P, Pelidou E., Capturing the elasticity and morphology of live fibroblast cell cultures during degradation with atomic force microscopy, *Journal of Microscopy* 249, 62-68, 2013.
- 49*. Hackney S.A., **Aifantis K.E.**, Tagrakarn A.^P, Shrivastava S.^P, Using the Kelvin-Voigt model for nanoindentation creep in Sn-C/PVDF nanocomposites, *Materials Science & Technology* 28, 1161-1166, 2012.
- 50*. Dimitrijevic B.J.^G, **Aifantis K.E.**, Hackl K., The influence of particle size and spacing on the fragmentation of nanocomposite anodes for Li batteries, *Journal of Power Sources* 206, 343-348, 2012.
- 51*. **Aifantis K.E.**, Motz C., Weydand D., Nikitas N.^G, Zaiser M., Microbending of a thin film through discrete dislocation dynamics and gradient plasticity, *Journal of Materials Research* 27, 612-618, 2012.

- 52*. Wang Y.H.^G, He Y. (p), Xiao R.J., Li H., **Aifantis K.E.**, Huang X.J., Investigation of crack patterns and cyclic performance of Ti-Si nanocomposite thin film anodes for lithium ion batteries, *Journal of Power Sources* 202, 236-245, 2012.
- 53*. **Aifantis, K.E.**, Huang, T.^P, **Hackney, S.A.**, Sarakonsri, T.^F, **Yu, A.^F**, Capacity fade in Sn-C nanopowder anodes due to fracture, *J. Power Sources* 197, 246-252, 2012.
- 54*. Bin T.^G, **Aifantis K.E.**, Ngan A.H.W.^F, Elastic modulus of nanostructured polymer surfaces, *Materials Letters* 67, 237-240, 2012.
- 55*. Tsibidis G.D.^P, Stratakis E., **Aifantis K.E.**, Thermoplastic deformation of silicon surfaces induced by ultrashort pulsed lasers in submelting conditions, *Journal of Applied Physics* 111, 053502, 2012, # of pages 12.
56. Hoffman D., Miskioglu I., **Aifantis K.E.**, Drelich J., Measuring the surface and bulk modulus of polished polymers with AFM and nanoindentation, *Journal of Adhesion Science & Technology* 26, 1201–1220, 2012.
- 57*. Koufaki N.^G, Ranella A., **Aifantis K.E.**, Barberoglou M. (p), **Psycharakis S.**, **Fotakis C.**, **Stratakis E.**, Controlling cell adhesion via replication of laser micro/nano-textured surfaces on polymers, *Biofabrications* 3, 045004, 2011, # of pages 12.
- 58*. **Aifantis, K.E.**, Nikitas, N.^G, **Zaiser, M.**, Modelling thin film microbending: A comparative study of three different approaches, *AIP Conference Proceedings*, 2011, Volume 1389, Issue 1, p.1526-1529.
- 59*. **Aifantis, K.E.**, Haycock M.^U, Sanders, P. **Hackney, S.A.**, Fracture of nanostructured Sn/C anodes during Li-insertion, *Materials Science & Engineering A* 529, 55-61, 2011.
- 60*. Zhang X.^G, **Aifantis K.E.**, Interpreting the softening of nanomaterials through gradient plasticity, *Journal of Materials Research* 26, 1399-1406, 2011.
- 61*. **Aifantis, K.E.**, Shrivastava, S.^P, **Odegard, G.M.^F**, Transverse mechanical properties of collagen fibers from nanoindentation, *Journal of Materials Science: Materials in Medicine* 22, 1375-1381, 2011.
- 62*. Shrivastava, S.^P, **Aifantis, K.E.**, Effects of cola drinks on the morphology and elastic modulus of dentin, *Materials Letters* 65, 2254-2256, 2011.
- 63*. Zhang, X.^G, **Aifantis K.E.**, Interpreting Strain Bursts and Size Effects in Micropillars using Gradient Plasticity, *Materials Science&Engineering A* 528, 5036-5043, 2011.
- 64*. **Aifantis K.E.**, **Hackney S.A.**, Mechanical stability for nanostructured Sn- and Si-based anodes, *Journal of Power Sources* 196, 2122-2127, 2011.
- 65*. Zhang, X.^G, **Aifantis, K.E.**, Accounting for grain boundary thickness in the submicron and nanoscales, *Reviews in Advanced Materials Science* 26, 14-34, 2010.
- 66*. **Aifantis K.E.**, Brutti S.^P, Sarakonsri T.^F, **Hackney S.A.**, **Scrosati B.**, SnO₂/C nanocomposites as anodes in secondary Li-ion batteries, *Electrochimica Acta* 55, 5071-5076, 2010.
67. **Aifantis K.E.**, Konstantinidis A., Forest S., Modeling strain localization bands in metal foams, *J.Comput. Theor. Nanosci.* 7, 360-366, 2010.
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