Curriculum Vitae of Seetha Raghavan

University of Central Florida, Department of Mechanical & Aerospace Engineering
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Website: http://www.mmae.ucf.edu/Faculty/Raghavan.html

BIOGRAPHICAL DATA

Seetha Raghavan

PROFESSIONAL PREPARATION

Undergraduate Institution

Nanyang Technological University (Singapore)	Mechanical Engineering	B.Eng, 1995

Graduate Institutions

ENSAE (SUPAERO, France)	Aeronautical Engineering	MS, 1997
Purdue University	Aeronautics and Astronautics	PhD, 2008

APPOINTMENTS

Assistant Professor — Sept 2008 – present
Department of Mechanical and Aerospace Engineering
University of Central Florida, Orlando, Florida

Lockheed Martin Faculty Fellow (2012-2014)

Research Assistant — Aug 2003 – Feb 2008
Purdue University, West Lafayette, Indiana

Senior Engineer, — June 1995 – Aug 2003
Structural Mech. Group, Singapore Technologies Aerospace Ltd, Singapore

Graduate Intern — Oct 1997 – Dec1997
Messier Bugatti, Velizy, Paris, France

TEACHING AND EDUCATION

Courses Taught

Semester	Course Number	Course Title	Enrollment	Overall assessment of instructor (max 5)
Fall 08	EAS4210	Space Structural Dynamics	11	4.25
Fall 08	EAS4200	Flight Structures	56	3.22
Sp 09	EAS4210/ EML4220	Space Structural Dynamics/Vibrations	46	4.58/ 4.75

Semester	Course Number	Course Title	Enrollment	Overall assessment of instructor (max 5)
Sum 09	EAS4210/ EML4220	Space Structural Dynamics/Vibrations	10/ 80	3.75/ 3.48
Fall 09	EAS4210	Space Structural Dynamics	22	4.6
Fall 09	EAS4200	Flight Structures	63	3.92
Fall 09	EML3990	ME Career Faculty Advising 1	4	-
Fall 09	EAS3990	AE Career Faculty Advising 1	5	4.67
Sp 10	EAS4210/ EML4220	Space Structural Dynamics/Vibrations	38	3.9697
Sp 10	EML3990	ME Career Faculty Advising 1	5	3.8
Sp 10	EAS3990	AE Career Faculty Advising 1	1	-
Sum 10	EAS5937	Aeroelasticity	7	4.0
Sum 10	EML3990	ME Career Faculty Advising 1	9	4.4
Sum 10	EAS3990	AE Career Faculty Advising 1	4	-
Fall 10	EAS4200	Flight Structures	87	3.6944
Fall 10	EML3990	ME Career Faculty Advising 1	5	3.6667
Fall 10	EAS3990	AE Career Faculty Advising 1	6	4.75
Sp 11	EML6067	Finite Elements 1	41	4.2381
Sp 11	EGN3321H	Honors Dynamics	23	4.3077
Sp 11	EML3990	ME Career Faculty Advising 1	5	5
Sum 11	EAS4210/ EML4220	Space Structural Dynamics/Vibrations	19/ 69	4.5/ 4.1579
Sum 11	EML3990	ME Career Faculty Advising 1	10	4.2857
Sum 11	EAS3990	AE Career Faculty Advising 1	4	-
Fall 11	EAS4210	Space Structural Dynamics	22	4.6667
Fall 11	EAS4200	Flight Structures	103	4.0476
Fall 11	EML3990	ME Career Faculty Advising 1	9	5
Fall 11	EAS3990	AE Career Faculty Advising 1	8	5
Sp 12	EAS4210	Space Structural Dynamics	45	4.2857
Sp 12	EML6067	Finite Elements 1		4.4167
Sp 12	EML3990	ME Career Faculty Advising 1		4.6
Fall 12	EAS4210	Space Structural Dynamics	32	4.18
Fall 12	EAS4200	Analysis and Design of Aerospace Structures	100	4.0541
Fall 12	EAS3990	AE Career Faculty Advising 1	7	4.75
Sp 13	EAS5211	Aeroelasticity	4	-
Sp 13	EAS4210	Space Structural Dynamics	51	4.18
Sp 13	EML3990	ME Career Faculty Advising 1	3	-
Sp 13	EAS3990	AE Career Faculty Advising 1	2	-
Fall 14	EAS4210	Space Structural Dynamics	17	4.18
Fall 14	EAS4200	Analysis and Design of Aerospace Structures	68	4.11

RESEARCH

Mechanics of aerospace structures and materials, Piezo-spectroscopy, Thermal Barrier Coatings, Spectral Analysis Methods using Genetic Algorithms, In-situ strain measurements using synchrotron radiation, Non-destructive evaluation.

List of Publications:
Raghavan's: +Grad Students #UG Students
**Corresponding author*

Refereed journal papers:

+Gregory Freihofer, +Daniela Fugon-Dessources, +Emrecan Ergin, +Amy Van Newkirk, +Ankur Gupta, Sudipta Seal, Axel Schülzgen, Seetha Raghavan*, "Piezospectroscopic measurements capturing the evolution of plasma-spray coating stresses with substrate loads", ACS Applied Materials & Interfaces, Article ASAP, 14 January 2014.

Jason Gibson, James McKee, Gregory Freihofer, Seetha Raghavan and Jihua Gou*, "Enhancement in ballistic performance of composite hard armor through carbon nanotubes", International Journal of Smart and Nano Materials, Available online, 17 January 2014.

+Sanna F. Siddiqui, +Kevin Knipe, +Albert Manero, Carla Meid, Janine Wischek, John Okasinski, Jonathan Almer, Anette Karlsson, Marion Bartsch, and Seetha Raghavan*, "Synchrotron X-Ray Measurement Techniques for Thermal Barrier Coated Cylindrical Samples under Thermal Gradients", Review of Scientific Instruments, 84, 083904, 2013.

+Gregory Freihofer, Seetha Raghavan*, David Gosztola, "Investigation of temperature dependent multi-walled nanotube G and D doublet using pseudo-Voigt functions", Applied Spectroscopy, 67, pp. 321-328, 2013.

#R. Diaz, +M. Jansz, #M. Mossaddad, S. Raghavan*, J. Okasinski, J. Almer, H. Palaez-Perez and P. Imbrie, "Role of mechanical loads in inducing in-cycle tensile stress in the thermally grown oxide", Applied Physics Letters, Vol. 100, 111906, 2012.

+Gregory Freihofer, Fei Liang, +Bharathi Mohan, Jihua Gou, Seetha Raghavan*, "Ex-situ Raman spectroscopy to optimize the manufacturing process for a structural MWNT nanocomposite" International Journal of Smart and Nano Materials, Vol. 3, pp 309-320, 2012.

+Amanda Stevenson, #Ashley Jones, and Seetha Raghavan*, "Stress-Sensing Nanomaterial Calibrated with Photostimulated Luminescence Emission", Nano Letters, 11 (8), pp 3274– 3278, 2011.

+Amanda Stevenson, #Ashley Jones, Seetha Raghavan* "Characterization of Particle Dispersion and Volume Fraction in Alumina-Filled Epoxy Nanocomposites Using Photo-Stimulated Luminescence Spectroscopy" Polymer Journal, 43 (11), pp. 923-929, 2011. ***(Selected as feature article)***

Yibo Gao, Fei Liang, +Gregory Freihofer, Benxin Wu, +Bharathi Mohan, Seetha Raghavan, Jihua Gou, Shuyou Li, Brian Albee, Sandra Whaley Bishnoi, "Laser Sintering of Carbon Nanotube Reinforced Ceramic Composites "International Journal of Smart and Nano Materials, Vol.2, pp 219-229, 2011.

Seetha Raghavan* and Peter Imbrie, "High resolution stress mapping of polycrystalline alumina compression using synchrotron radiation " Journal of Synchrotron X-ray Diffraction, Vol 18, Issue 3, 497-505, 2011.

#Gregory Freihofer, #Laura Poliah, #Kalippe Walker, #Andre Medina and Seetha Raghavan*, "Optical Stress Probe: In situ stress mapping with Raman and Photo-stimulated Luminescence Spectroscopy" Journal of Instrumentation, Vol 5, P12003, 2010.

S. Raghavan* & P.K. Imbrie, "Ex-situ stress measurements in polycrystalline ceramics using photo-stimulated luminescence spectroscopy and high energy x-rays" Journal of the American Ceramic Society,Vol. 92, 1567-1573, June 2009.

Seetha Raghavan*, P.K. Imbrie & William A. Crossley, "Spectral analysis of R lines and vibronic sidebands in the emission spectrum of ruby using genetic algorithms", Applied Spectroscopy, Vol. 62, 759-765, July 2008.

Patents:
Seetha Raghavan, +Amanda Stevenson, #Ashley Jones, "Stress Sensitive Material", (Patent Pending, U.S. Patent Application No.: 13/630,236)

S.Y. Lim, B.S. Wong, Raghavan S "An Apparatus for Ultrasonic Inspection of Flawed Materials" Patent assignee: Singapore Technologies Aerospace Ltd, Granted 02/28/2006. (Patent Application Number 200107295-8, Publication Number: 118100)

Refereed publications in conference proceedings:

+Gregory Freihofer, Ankur Gupta, Amy Van Newkirk, Sudipta Seal, and Seetha Raghavan Optical Stress Sensing Alumina Nanocomposite Coatings for Aerospace Structures" AIAA SciTech 55th AIAA/ASMe/ASCE/AHS/SC Structures, Structural Dynamics, and Materials Conference, 13-17 January 2014, National Harbor, Maryland.

+Erik Durnberg, +Ashley Jones, #Joseangel Rosas, George Sunny, and Seetha Raghavan, "Monitoring Strain Rate Effects on Nanocomposites using Piezospectroscopy" AIAA SciTech 55th AIAA/ASMe/ASCE/AHS/SC Structures, Structural Dynamics, and Materials Conference, 13-17 January 2014, National Harbor, Maryland.

+Kevin Knipe, +Albert Manero, +Sanna F. Siddiqui, #Stephen Sofronsky, #Pascal Fouquet, Carla Meid, Janine Wischek, Marion Bartsch, John Okasinski, Jonathan Almer, Anette Karlsson and Seetha Raghavan "Synchrotron XRD Measurements of Thermal Barrier Coatings Subjected to Loads Representing Operational Conditions of Rotating Gas Turbine Blades" AIAA SciTech 52nd Aerospace Sciences Meeting 13-17 January 2014, National Harbor, Maryland.

+Gregory Freihofer, +Daniela Fugon, +Ashley Jones, Emrecan Ergin, Axel Schülzgen and Seetha Raghavan*, "Prediction of Piezospectroscopic properties with nanoparticle load transfer theories", Proceeding of the Society for the Advancement of Material and Process Engineering 2013 conference, 6-9 May 2013, Long Beach, California.

+Ashley Jones +Greg Freihofer, +Daniela Fugon, Marc Lowen, and Seetha Raghavan* "Low Strain Rate in situ piezospectroscopic studies of Alumina Nanocomposites" Proceeding of the Society for the Advancement of Material and Process Engineering 2013 conference, 6-9 May 2013, Long Beach, California.

+K. Knipe, #David Siljee, +Albert Manero, John Okasinski, Jonathan Almer, S. Raghavan*, Sendil Rangaswamy "Simulations Mapping Stress Evolution in High Temperature Ceramic Coatings under Thermal-Mechanical Conditions", AIAA Structures, Structural Dynamics, and Materials Conference, Boston, MA, 2013.

+Ashley S. Jones, +Gregory Freihofer, Emrecan Ergin, #Kevin Lautenslager, #Will Gysi, Axel Schülzgen, Seetha Raghavan and Hong Tat, "Embedded alumina nanoparticles as diagnostic coatings for structures" Proceeding of the Society for the Advancement of Material and Process Engineering 2012 conference, 21-24 May 2012, Baltimore, MD. (*Best paper award 3rd place*)

+Gregory Freihofer, #Spencer Frank, Emrecan Ergin, +Ashley Jones, +Amanda Stevenson, Axel Schülzgen and Seetha Raghavan and Hong Tat, "Measurement of load transfer within alumina nanoparticle epoxy composites using piezospectroscopy" Proceedings of the Society for the Advancement of Material and Process Engineering 2012 conference, 21-24 May 2012, Baltimore, MD.

#Field T., +Jones A., +Jansz M., Raghavan S.*, Okasinski J., Almer J. "Synchrotron X-rays Monitoring Nano-Aluminum Grain Growth of a Metal Matrix Composite under Thermo-mechanical Conditions", Proceedings of the 53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, 23-26th April 2012, Honolulu, Hawaii.

+Freihofer, G., #Wirth, Brian and Raghavan S*. "Ex-Situ Raman Spectroscopy of Manufacturing Process for a MWNT Nanocomposite", Proceedings of the Society for the Advancement of Material and Process Engineering 2011 conference, 23-26 May 2011, Long Beach, California.

+Mohan, B., +Freihofer, G. and Raghavan S. "An In situ Raman Stress Measurement Method for Tensile Testing of Carbon Nanofiber/Nanotube Composites" Proceeding of the Society for the Advancement of Material and Process Engineering 2011 conference, 23-26 May 2011, Long Beach, California.

+Amanda L. Stevenson, #Ashley Jones and Seetha Raghavan, "Real-time monitoring of an adhesive lap shear test using piezospectroscopy" Proceedings of the 52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, 4-7th April 2011, Denver, Colorado.

+Bharathi Mohan, +Gregory Freihofer and Seetha Raghavan, "Measuring Tensile Stresses in CNF/Polymer composites using Raman Spectroscopy" Proceedings of the 52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, 4-7th April 2011, Denver, Colorado.

#Rene Diaz, #Mitra Mossaddad, #Anil Bozan, Seetha Raghavan, Jonathan Almer, John Okasinski, Hugo Palaez-Perez and Peter Imbrie,, "In-Situ Strain Measurements of EB-PVD Thermal Barrier Coatings using Synchrotron X-Ray Diffraction under Thermo-Mechanical Loading" Proceedings of the 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 7 January 2011, Orlando, Florida.

+Amanda L. Wright & S. Raghavan "Effects of Stress on Alumina Nanocomposites Using Piezospectroscopy", Proceedings of the Society for the Advancement of Material and Process Engineering 2010 conference, 17-20 May 2010, Seattle, Washington.

+Gregory Freihofer, #Adonay Jimenez and Seetha Raghavan "Optical Spectra of Carbon Nanotubes for Stress Measurements of Aerospace Structures" Proceedings of the 51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, 12-15th April 2010, Orlando, Florida.

+Amanda Wright, #Christopher Gonzalez, #Ashley Jones, Seetha Raghavan "Piezospectroscopic measurements on Alumina Epoxy Composites" Proceedings of the 51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, 12-15th April 2010, Orlando, Florida.

Sendil Rangaswamy, Seetha Raghavan, Mohammad Z. Ahmad, Thomas Clarke, Chris Ellis, Sergio Tafur, Ravi Palaniappan, "High Performance Computing Benchmark Tool for Parallel Processing of Large Models" AIAA Infotech@Aerospace 2010, 20 - 22 April 2010, Atlanta, Georgia.

S. Raghavan & P.K. Imbrie, " The Development of Photo-stimulated Luminescence Spectroscopy for 3D Stress Measurements in the Thermally Grown Oxide Layer of Thermal Barrier Coatings", Proceedings of the Materials Science and Technology 2007 conference, September 16-20 2007, Detroit, Michigan.

S. Raghavan & P.K. Imbrie "A 3D Stress Measurement Model for Chromium-doped Alumina using the Photo-stimulated Luminescence Spectroscopy Technique", Proceedings of the 44th Annual Technical Meeting of the Society of Engineering Science, October 21-24 2007, College Station, Texas.

P.K. Imbrie & S. Raghavan, " Work in Progress- A Remote e-laboratory for Student Investigation, Manipulation and Learning", Proceedings of the 35th ASEE/IEEE Frontiers in Education conference, Oct 19-22 2005, Indianapolis.

#G. Freihofer, +B. Mohan & S.Raghavan, "In-situ techniques in optical spectroscopy for the analysis of carbon nanotubes", Nanotech 2010, Chapter 1: Nanoscale Materials Characterization; pp 99-102, Anaheim, CA.

Conference Presentations (without paper)

+K. Knipe, #S. Sofronsky, +S. Siddiqui, +A. Manero, C. Meid, J. Wischek, J. Okasinski, J. Almer, A. Karlsson, M. Bartsch, S. Raghavan, "High Energy X-rays Characterizing the Material Behavior of High Temperature Thermal Barrier Coatings" 38th ICACC 2014, Daytona Beach, FL.

+A. Manero, +S. Siddiqui, #S. Sofronsky, +K. Knipe, C. Lacdao, M. Smith, J. Wischek, C. Meid, A. Karlsson, M. Bartsch, S. Raghavan, "Piezospectroscopy Measurements of Thermal Barrier Coating Systems", 38th ICACC 2014, Daytona Beach, FL.

+S. Siddiqui*, #S. Scott, M. Ewen, +K. Knipe, +A. Manero, J.Okasinski, J. Almer, L. Li, A. Feuerstein, S. Raghavan "Effect of Calcium-Magnesium-Alumina-Silicate on Strain within the TGO Layer of Thermal Barrier Coatings" 37th ICACC 2013, Daytona Beach, FL.

+K. Knipe*, +A. Manero, +S. Das, S. Siddiqui, #S. Scott, M. Ewen, C. Meid, J. Schneider, DLR Aerospace, Germany; J. Okasinski, J. Almer, M. Bartsch, S. Raghavan, "Acquisition Techniques for Synchrotron X-ray Strain Measurements in Tubular TBC Specimens for Thermal Gradient Mechanical Testing" 37th ICACC 2013, Daytona Beach, FL.

Posters/Video Presentations:

#Erik Durnberg, #Timothy Johnson, #Forrest Vaughn, +Gregory Freihofer, Seetha Raghavan "Piezospectropy To Compare Analytical And Numerical Nanoparticle Load Transfer Theories", Showcase of Undergraduate Research in Engineering, UCF, 2013 (***1st Place winner, Engineering***).

#Stephen Sofronsky, #Michael Hunter, +Albert Manero, +Kevin Knipe, John Okasinski, Jonathan Almer, Marion Bartsch, and Seetha Raghavan, "Strain evolution within Thermal Barrier Coatings under Thermal Gradients and Mechanical Loads" ", Showcase of Undergraduate Research in Engineering, UCF, 2013

#William Gysi, #Kevin Laugtenslager, +Gregory Freihofer, +Ashley Jones, Axel Schülzgen and Seetha Raghavan, "Stress-sensing nanomaterials using photo-stimulated luminescence spectroscopy" Showcase of Undergraduate Research in Engineering, UCF, 2012 (***1st Place winner, Engineering***).

#Spencer Frank, #Erik Durnberg, +Gregory Freihofer, +Ashley Jones, Seetha Raghavan "A Theoretical Model of Load-Transfer in an Alumina Nanoparticle Filled Epoxy Matrix to Obtain Stress-Sensing Characteristics", Showcase of Undergraduate Research in Engineering, UCF, 2012 (***Honorable Mention winner, Engineering***).

#Gregory Freihofer, #Adonay Jimenez, Seetha Raghavan, and David Gosztola. "Temperature and laser excitation effects on the raman spectra of carbon nanotube engineered paper." In Poster presentation at the CNM Users Meeting, Argonne, IL., 2009.

#Adonay Jimenez, Seetha Raghavan, "Photo-stimulated Luminescence for Stress Measurements in Aerospace Materials" Showcase of Undergraduate Research in Engineering, UCF, 2009.

Seetha Raghavan, Nanotechnology Research Poster Presentation at Women in International Research and Engineering Summit, Barcelona, Spain, June 2009.

Frank Ramirez, Albert Manero, Kevin Knipe, "US Germany Collaboration – Achieving breakthroughs in high temperature ceramics", October 2013. http://mmae.ucf.edu/Faculty/Raghavan/Videos.html

#Steven Scott, Arjun Babuji, Seetha Raghavan "An Undergraduate Story", Research documentary, 2011. (***Winner of Usies Award, Best Documentary category, ANL User's meeting 2011***)

Invited presentations:

Seetha Raghavan, "Synchrotron and Piezospectroscopic Characterization of Structures and Materials for Space Applications", Canadian Space Agency, Canada, 2013.

Seetha Raghavan, "Mechanics of Alumina Nanoparticle composites revealed through piezospectroscopy", Materials Science and Technology 2013, October 28-31, 2013, Montreal, Canada.

Seetha Raghavan,"Piezospectroscopy for in-situ visualization of static and dynamic loads – An NSF GOALI effort", Boeing Research & Technology, Seattle Washington, July 2013.

Seetha Raghavan, "Investigating the mechanics of high temperature coatings under operational conditions", GE Global Research Center, Niskayuna, NY, July 2013.

Seetha Raghavan, "Mechanical stability of nanoparticle enhanced/nanostructured material systems", US-Korea Workshop on US-Korea Workshop, Yonsei University, 2013, South Korea.

Seetha Raghavan, "Enhancing Properties of Carbon-based Nanomaterials Through Advanced Raman Characterization", International Conference of Young Researchers on Advanced Materials (ICYRAM) 2012, Singapore.

Seetha Raghavan, "Shedding light on the mechanics of ceramic coatings and reinforcements", Forschungszentrum Jülich GmbH in Jülich, June 2012 (Invited by Prof. Robert Vaßen, Jülich Research Center)

Seetha Raghavan, "Shedding light on the mechanics of ceramic coatings and reinforcements", Deutsches Zentrum für Luft- und Raumfahrt e. V. (DLR Aerospace Center), June 2012 (Invited by Prof. Marion Bartsch)

Seetha Raghavan, "Elucidating the mechanics of high temperature coatings: the key to durability enhancement", Siemens Energy, Inc., Orlando, November 2011.

Seetha Raghavan, "In situ studies using spectroscopy and synchrotron x-ray diffraction – mapping strain evolution in aerospace materials," SEAS, Harvard University, March 2011 (Invited by Prof. David R. Clarke).

Seetha Raghavan, "Strain Measurements in Thermal Barrier Coatings Using High Energy X-Rays and Photo-Stimulated Luminescence Spectroscopy", Materials Science and Technology 2009, October 25-29, 2009, Pittsburgh, PA.

S. Raghavan "Photo-stimulated Luminescence Spectroscopy and High Energy X-rays for Stress Measurement", Advanced Photon Source, Argonne National Laboratory, June 2008.

Media Coverage of Research and Students

MTS. Pushing the boundaries of noninvasive materials characterization. Technical report, Force & Motion Newsletter, Volume 19, 2010.
http://www.mts.com/ucm/groups/public/documents/library/dev_004893.pdf

DLR (German Aerospace Center) Magazine Issue 138, "Messplatz der Superlative", July 2013. English version Pg 29.
http://www.dlr.de/dlr/en/Portaldata/1/Resources/documents/dlr_magazin_139/englisch/DLR_MagazinE_138-139.pdf

Dr Raghavan Featured on National Academy of Engineering (NAE) Engineergirl website
http://www.engineergirl.org/Engineers/interviews/7176.aspx

GRANTS FUNDED:

National Science Foundation, DMR: MRI: "Development of a Multi-Scale Thermal-Mechanical-Spectroscopic System for in-Situ Materials Characterization, Research, and Training" (co-PI, $559,917) 2013-2015.

UCF Major Research Equipment (Office of Research and Commercialization), "Joint Proposal for a Multi-Purpose Testing System in Situ Characterization of the Mechanics of Advanced Structures and Materials", (PI, $31,660), 2013.

National Science Foundation OISE, "US-Germany collaboration: Achieving breakthroughs in the mechanics of high temperature ceramic coatings with novel thermal- gradient mechanical fatigue studies." (PI, $52,438) 2012 - 2014

National Science Foundation BRIGE Award, "Engineering the mechanisms controlling durability of high temperature ceramic coatings for energy efficiency" (PI, $184,936) 2011-2014

National Science Foundation GOALI Award, "GOALI: Developing piezospectroscopic sensing systems in adhesives and coatings" (PI, $498,157) 2011-2014

Intelligent Automation Inc., "Study of dense matrix thermal and structural problems of interest to NASA for High Performance Computing Benchmark Suite" (PI, $35,000) 2011-2012

Florida Space Grant Consortium, "Thermal Barrier Coatings Advancement throughExperiments and Simulation for Rocket Combustion Chamber Linings" (PI, $25,000) 2011-2012

DWA Composites, "Synchrotron Studies of Trimodal Composites" (PI, $10,000), 2011

Florida Consortium of Advanced Aero-Propulsion: High Energy X-rays and Photo-luminescence Spectroscopy to enhance life prediction of EB-PVD Thermal Barrier Coating Systems under In-situ Thermo-mechanical loading" (PI, $10,000), 2010

Florida Consortium of Advanced Aero-Propulsion: Modeling and mu-analysis for the gas turbine flutter problem" (PI, $25,000), 2010

UCF In house Research Grant, "Nanoscale Interface Friction Measurements with a new AFM-Raman Technique", (PI, $7500) 2011 – 2012

UCF In house Research Grant, "Experimental measurements of nanoparticle interface strains in Alumina-Epoxy composites", (PI, $7500) 2010 – 2011

UCF In house Research Grant, "Stress Sensitive Adhesives/Coatings using Piezospectroscopy", (PI, $7500) 2009 – 2010

PROFESSIONAL ACTIVITIES:

Department Committees:
Member, ABET Committee, MAE, 2013-present
Member, MAE Department Faculty Search Committee, UCF, 2008-2009, 2010, 2011, 2012, 2013
Member, MAE Department Lecturer Search Committee, UCF, 2011
Member, MAE Awards and Honors Committee, UCF 2008-2009, 2012-2013, 2013-present
Member, MAE Graduate Studies Committee, UCF, 2011
Member, MAE Undergraduate Studies Committee, UCF, 2013
MAE Research Day Organizer 2013

University Committees:
Member, Undergraduate Research Journal Committee, UCF, 2009-2012
Member, Committee for the Engineering Leadership & Innovation Institute (eli^2)
Member, MAE Chair Search Committee, 2013 - 2014

Professional Organizations:
Associate Fellow, American Institute of Aeronautics and Astronautics (AIAA),
Member, Structural Dynamics Technical Committee, American Institute of Aeronautics and Astronautics (AIAA),
Member, Sigma Xi (The Scientific Research Society),
Member, American Ceramics Society (ACerS),
Member, American Society for Engineering Education (ASEE)
Senior Member, Society of Women Engineers (SWE)
Member, Society of the Advancement of Material and Process Engineering (SAMPE)
Member, American MENSA

Reviewer, Journals/Panels:
Reviewer for Journal of the American Ceramic Society.
Reviewer for Surface Coatings and Technology
Reviewer for Center of Nanoscale Materials, Argonne National Laboratory
Reviewer for National Science Foundation
Reviewer for Department of Defense
Reviewer for ASME conference publications
Reviewer for SAMPE conference publications
Reviewer for Nanomaterials and Energy
Reviewer for Materials Letters
Reviewer for Science Reports

Conference leadership:
Session co-chair, Application of Viscoelasticity and Viscoelastic Materials, Scitech 2014.
Session chair, Ceramics session, SAMPE 2010, Seattle Washington
Session co-chair, Ceramics session, SAMPE 2011, Long Beach, California
Session co-chair, Turbine Aerodynamics, AIAA ASM 2011, Orlando, Florida
Session co-chair, Fan and Compressor, AIAA ASM 2011, Orlando, Florida
Member, Local organizing committee, Women's international research engineering summit, 2011, Orlando, Florida.

Other activities:

Faculty co-advisor, AIAA, UCF

Faculty advisor, Sigma Gamma Tau, The Aerospace Honors Society, UCF

Women in International Research & Education (WIRES 2009) summit participant (sponsored by NSF & ESF), Barcelona, Spain, 2009 & member of local organizing committee, Orlando USA, 2011

Expand Your Horizons, activities co-ordinator, Engineering introductory program for middle school girls, UCF, 2009, 2010

UCF/Osceola TIPS, presenter and activity organizer for middle school students, on "Aerospace Engineering", UCF, 2009

SWEet event for high school girls, A presentation on "Aerospace Engineering", Society of Women Engineers, UCF, 2009,

2009 NSF CAREER proposal writing workshop participant, George Mason University, Arlington, VA.

HONORS AND AWARDS:

2013 College of Engineering Teaching Incentive Program award.

Elected Associate Fellow AIAA 2013

Lockheed Martin Faculty Fellow 2012

2012 College of Engineering Excellence in Undergraduate Teaching Award.

NSF BRIGE Award 2011

Graduate teaching award from Purdue University (2006)

First Prize award for "A 3D Stress Measurement Model for Chromium-doped Alumina using the Photo-stimulated Luminescence Spectroscopy Technique" in student abstract/presentation competition sponsored by the Office of Naval Research, the Air Force Office of Scientific Research and NSF at the 44th Annual Technical Meeting of the Society of Engineering Science, October 21-24 2007, College Station, Texas

Winner of Honorable Mention Award for The Society of Sigma Xi Graduate Student Research Poster Competition, Purdue University, West Lafayette (Indiana, USA). Feb 2007

Fellowship Aeronautical and Space Industry Award, FASIA, by French Aerospace Industry Association for graduate studies in Aeronautical Engineering at Institut Aeronautique et Spatial and Ecole Nationale Superieure de L'Aeronautique et de L'Espace (SUPAERO), Toulouse, France

THESIS/DISSERTATIONS (ADVISOR) COMPLETED:

Amanda L. Stevenson, "Calibration of Alumina-Epoxy Nanocomposites using Piezospectroscopy for the development of stress-sensing adhesives" Master's Thesis, MSAE, May 2011.

Melan N. Jansz, "Effects of Thermo-mechanical loading from in-situ studies of EB-PVD thermal barrier coatings", Master's Thesis, MSME, July 2011.

Gregory J. Freihofer, "Enhancing CNT Composites with Raman Spectroscopy", Master's Thesis MSME, November 2011.

Ashley Jones "Low strain rate studies of Alumina Epoxy composites using piezospectroscopy", Master's Thesis, MSME, Spring 2013.

Rene O. Diaz, "In-Situ Stress Measurements of EB-PVD Thermal Barrier Coatings using Synchrotron X-Ray Diffraction under Thermo-Mechanical Loading", Honors-in-the-Major Thesis, BSAE, July 2010.

Spencer Frank, "Vortex Tilting and the enhancement of spanwise flow in flapping wing flight" Honors-in-the-Major Thesis, BSAE, November 2011.

THESIS/DISSERTATIONS (ADVISOR) IN PROGRESS:

Gregory J. Freihofer, "Nano particulate mechanics observed via Piezospectroscopy", Ph.D. dissertation in progress (Expected completion, Summer 2014)

Kevin Knipe, “In-Situ Synchrotron Strain Measurements of Turbine Blade Thermal Barrier Coatings under Operational Environments”, Ph. D. dissertation in progress (Expected completion, Summer 2014)

Ashley Jones, Ph. D. research in progress (Expected completion, Fall 2015) *NSF Graduate Research Fellow*

Albert Manero, “Characterization of Advanced Materials for Aerospace Applications via Synchrotron Radiation and Spectroscopy“ Masters Thesis in progress (Expected completion, Spring 2014)

Daniela Fugon,” Piezospectroscopic Calibration of Alumina-Nanocomposites for the Development of Stress-Sensing Epoxy Coatings”, Masters Thesis in progress (Expected completion, Spring 2014)

Sanna Siddiqui, Masters Thesis in progress, “ Synchrotron Studies of Thermal Barrier Coatings with Contaminant Infiltration” Masters Thesis in progress (Expected completion, Spring 2014) *NSF Graduate Research Fellow*