

Cheryl Xu

Associate Professor
Department of Mechanical and Aerospace Engineering
North Carolina State University (NC State)

1. Education Background:

2006	Ph.D.	Mechanical Engineering Purdue University, West Lafayette, IN
2001	M.S.	Mechanical Manufacturing and Automation Beijing University of Aeronautics and Astronautics, China
1998	B.S.	Electromechanical Engineering Qingdao University, China

2. Professional Experience:

08/2018 – Present	Associate Professor Mechanical & Aerospace Engineering, North Carolina State University (NC State)
01/2014 – 08/2018	Associate Professor Mechanical Engineering, Florida State University (FSU)
05/2013 – 12/2013	Associate Professor Mechanical & Aerospace Engineering, University of Central Florida (UCF)
08/2007 – 04/2013	Assistant Professor Mechanical & Aerospace Engineering, University of Central Florida (UCF)
2006–2007	Postdoctoral Research Associate Mechanical Engineering, Purdue University

3. Scholarly Activities:

Referred Activity

<u>Type</u>	<u>Number</u>
Book	1
Edited Book	0
Book Chapter	5
Referred Journal Article	52
Proceedings	35
Conference Presentations	22

Non-Referred Activity

Invited Presentations: 9 (2 while at NC State)
Patent applications: 9 (1 issued while at NC State)

4. Membership in professional organizations:

- Member, American Society of Mechanical Engineers (ASME)
- Senior Member, The Institute of Electrical and Electronics Engineers (IEEE)
- Member, American Society of Engineering Education (ASEE)
- Member, Society of Manufacturing Engineers (SME)

5. Honors and awards:

- 2016; 2018, Summer Faculty Fellowship, Air Force Research Laboratory (AFRL).
- 2017, College, Research Excellence Award, Florida State University (FSU).

- 2016; 2017, University, Grant Assistant Program (GAP) Award, Florida State University (FSU).
- 2015, IEEE Education Society, Mac E. VanValkenburg Teaching Award.
- 2013, University, Research Incentive Award, University of Central Florida (UCF).
- 2013, College, Distinguished Researcher Award, University of Central Florida (UCF).
- 2013, College, Deans Research Professorship Award (DRPA), University of Central Florida (UCF).
- 2012, University, Teaching Incentive Award, University of Central Florida (UCF).
- 2011, Office of Naval Research Young Investigator (ONR YIP) Award.
- 2011, Society of Manufacturing Engineers (SME), Outstanding Young Manufacturing Engineer Award.
- 2010, Department, Excellence in Research Award, University of Central Florida (UCF).
- 2008, Oak Ridge Associated Universities Visiting Industrial Scholar Program Award.
- 2006-2007, Bilsland Dissertation Fellowship, Purdue University.
- 2006, Chroafas Best Dissertation Award in Mechanical Engineering, Purdue University.

6. Professional service on campus (NCSU only):

- Member, Department Education and Technology Fee (ETF) Planning and Laboratory Committee (2018-2019).

7. Professional service off campus:

- Associate Editor ASME Transactions, J. of Micro- and Nano- Manufacturing (2015-present)
- Associate Editor International J. of Nanomanufacturing (2008-2010).
- Editorial Board J. of Aviation and Aerospace Perspectives (2010-2013).
- Editorial Board International J. of Computational Materials Sci. and Surface Engi. (2007-2010).
- Society Committee IEEE Education Society, Membership Committee (2014-present).
- Panel Moderator ASEE Energy Conversion and Conservation Division, Tampa (2019).
- Invited speaker
 - 2016, Ceramic Expo, Cleveland.
 - 2016, International Conf. on High Temperature Ceramic Matrix Composites.
- Conference Chair
 - 2015, NSF 1st National Wireless Research Collaboration Workshop.
- Executive committee
 - 2012-2014, ASME International Symposium on Flexible Automation.
- Conference Organizing Committee
 - 2015-present, IEEE International Conf. on Electro/Information Technology.
 - 2014, ASME Dynamic Systems and Control Conference.
 - 2010-2013, SPIE Conference, Smart Structures/NDE, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems.
 - 2006-2009, International Conference on Cybernetics and Information Technologies, Systems and Applications.

II.A. Teaching

II.A.1. Courses Taught

NCSU - North Carolina State University
 FSU – Florida State University
 UCF – University of Central Florida

(at NCSU)

MAE208 (Junior):

Engineering Dynamics

(Fall 2018: 42 students; Spring 2019: 46 students)

(at FSU)

¹ EML4930/5930 (Senior/Graduate):	Design and Modeling for Manufacturing Processes
¹ EML4930/5930 (Senior/Graduate):	Manufacturing Process Control
EML4312/5311 (Senior/Graduate):	Design and Analysis of Control Systems
EML4316/5317 (Senior/Graduate):	Advanced Control Systems

(at UCF)

EGN3321 (Junior):	Engineering Analysis: Dynamics
² EML4312 (Senior):	Feedback Controls
EML5311 (Graduate):	System Control
¹ EAS4407/5407 (Senior/Graduate):	Mechatronic Systems
¹ EML4937/5937 (Senior/Graduate):	Design for Manufacturing
¹ EML6808 (Graduate):	Analysis and Control for Robot Manipulators
¹ EML6938 (Graduate):	Intelligent Systems: Modeling, Optimization and Control

¹New courses developed

²Introduced major modification (reconstructed laboratory sessions)

II.C. Mentoring Activities

II.C.1. Supervised Post-Doctoral Scholars

<u>Name</u>	<u>Duration</u>
Jia, Y.	2018-present (FSU & NCSU)
Wang, K.	2016-2017 (FSU)
Yang, J.	2012-2016 (UCF & FSU)
Ji, Y.	2010-2011 (UCF)

II.C.2. Supervised Exchange Students

<u>Name</u>	<u>Duration</u>
Hu, X.	2012 (UCF)
Li, P.	2012-2013 (UCF)
Deng, J. (<i>Female student</i>)	2012-2013 (UCF)
Pang, T.	2011 (UCF)

II.C.3. Served in Honor-In-Major (HIM) Undergraduate Thesis Chair

<u>Name</u>	<u>Degree</u>	<u>Graduation</u>	<u>Chairman</u>
Concoliver-Zack, J.	HIM UG (FSU)	2016	Xu, C. (Co-Chair: Okoli, O.)

II.C.4. Served in Honor-In-Major (HIM) Undergraduate thesis Committee

<u>Name</u>	<u>Degree</u>	<u>Graduation</u>	<u>Chairman</u>
Burkett, M.	HIM UG (FSU)	2015	Zeng, C.
Hodges, J.	HIM UG (UCF)	2012	Kapat, J.
Wright, D.	HIM UG (UCF)	2010	Chew, L.
Robinson, J.	HIM UG (UCF)	2009	Ham, C.

II.C.5. Supervised Undergraduate Research Activities

Justin, D., supported by FSU GAP and ONR YIP projects, 2016-2017.

Macdonald, J., supported by FSU GAP project, 2016.

Rubin, S., supported by FSU GAP project, 2016.

Fajardo, T., supported by FSU GAP project, 2016.

Hood, S., (*Female student*), supported by FSU GAP project, 2016.
 Morales, J., supported by ONR YIP project, 2016.
 Simal, B., (*Female student*), supported by FSU Undergraduate Research Program, 2014-2015.
 Htchinson, J., supported by FSU GAP project, 2015.
 Duckett, M., supported by FSU GAP project, 2015.
 Swain, M., supported by NSF REU - Research Experience for Undergraduates, 2014.
 Albarracin, B., supported by ONR YIP project, 2013.
 Spags, A., supported by General Dynamics project, 2012-2013.
 Harris, K., supported by General Dynamics project, 2012-2013.
 Zuanetti, B., Senior Design, 2012-2013.
 Mayhew, D., supported by ONR YIP project, 2012-2013.
 Gilmore, J., supported by ONR YIP project, 2011-2012.
 Carreiro, J., support by NSF YES (Young Entrepreneur and Scholar) program, 2011-2012.
 Meanor, M., supported by General Dynamics project, 2010-2011.
 Giesecke, D., supported by General Dynamics project, 2010-2011.
 Hernandez, M., (*Minority student*), supported by General Dynamics project, 2010.
 Walls, K., supported by General Dynamics project, 2010.
 Deane, E., (*Minority student*), supported by General Dynamics project, 2009-2010.
 Coy, L., (*Female student*), supported by NSF EXCEL (Excel in Science, Technology, Engineering, and Mathematics) program, 2009.
 Mak, A., supported by Florida State - Florida Center for Advanced Aero-Propulsion (FCAAP), 2008-2009.
 Collins, S., (*Minority student*), supported by NSF SURE - Summer Undergraduate Research in Engineering/Science program, 2008-2009. Then supported by General Dynamics project, 2009-2010.
 Clapp, R., supported by NSF REU - Research Experience for Undergraduates, 2008.
 Joseph, L., (*Minority student*), supported by NSF EXCEL - Excel in Science, Technology, Engineering, and Mathematics program, 2008.
 Abril, R., Heppner, J., Joslin, A., Macha, D., Senior Design, 2007-2008.

II.D. Masters and Doctoral Theses completed and in progress

PhDs completed as Chair (total = 6)

Name	Degree	Graduation	Chairman
Ju, L.	Ph.D. (FSU)	2018	Xu, C.
Zhao, R.	Ph.D. (UCF)	2014	Xu, C.
Liu, J.	Ph.D. (UCF)	2012	Xu, C.
Idahosa, U.	Ph.D. (UCF)	2010	(Co-chair) Basu, S.
Tang, Y.	Ph.D. (UCF)	2009	Xu, C.
Allen, R.	Ph.D. (UCF)	2009	Xu, C.

Student: Ju, L.
 Degree: Doctor of Philosophy
 Thesis: Hybrid Multifunctional Composite Material by co-curing Lay-up Process for Enhanced Surface Durability (co-advisor: Dr. Hellstrom)
 Status: Completed in 2018, currently is a post-doc at University of Central Florida (UCF)

Student: Zhao, R.
 Degree: Doctor of Philosophy
 Thesis: Modeling and Contour Control of Multi-axis Linear Driven Machine Tools
 Status: Completed in 2014, currently works in Google LLC
 Note: [He started his Ph.D. study in my group from Spring 2010. His defense was in November 2013. I joined FSU in December 2013. He did not come with me since he had defended

at that time. He graduated officially from UCF in Spring 2014. In UCF computer system, a Ph.D. advisor has to be a UCF faculty member and Dr. Lin was his Ph.D. advisor on the UCF record, but his dissertation has my name as his Ph.D. advisor.]

Student: Liu, J.
 Degree: Doctor of Philosophy
 Thesis: Experimental Study and Modeling of Mechanical Micro-machining of Particle Reinforced Heterogeneous Materials
 Status: Completed in 2012, currently works in Alcon

Student: Idahosa, U.
 Degree: Doctor of Philosophy
 Thesis: Combustion Dynamics and Fluid Mechanics in Acoustically Perturbed Non-Premixed Swirl-Stabilized Flames (co-advisor: Dr. Basu, S.)
 Status: Completed in 2010, currently works in GE Global Research Center, Niskayuna, NY

Student: Tang, Y.
 Degree: Doctor of Philosophy
 Thesis: Integrated Servomechanism and Process Control for Machining Processes
 Status: Completed in 2009. She is currently an Associate Professor at Embry-Riddle Aeronautical University (Daytona Beach, FL), promoted in 2014
 Note: [She enrolled in UCF in Fall 2004 and joined my research group in Spring 2008, since her previous advisor moved to another university. At the time when she joined my group, she had finished all the required courses and was able to concentrate on research.]

Student: Allen, R.
 Degree: Doctor of Philosophy
 Thesis: Robust Estimation and Adaptive Guidance for Multiple UAVs' Cooperation
 Status: Completed in 2009, currently works at LoneStar, Inc.
 Note: [He enrolled in UCF in Fall 2006 and joined my research group in Spring 2008, since his previous advisor moved to another university. At the time when he joined my group, he had finished all the required courses and was able to concentrate on research.]

PhDs in progress as Chair (total:2)

1. Chowdhury, A. (MAE)
 (FA2018- 1/4RA/1/4TA, SP2019 – 1/4RA/1/4TA)
2. Ajayi, T. (MAE)
 (FA2018- 1/2RA, SP2019 – 1/4RA/1/4TA)

PhDs completed as Committee Member (total =6)

<u>Name</u>	<u>Degree</u>	<u>Graduation</u>	<u>Chairman</u>
Hosani, M. Y. A.	Ph.D. (UCF)	2013	Qu, Z.
Shao, G.	Ph.D. (UCF)	2013	An, L.
Huang, K.	Ph.D. (UCF)	2012	Sohn, Y.
Chen, Y.	Ph.D. (UCF)	2011	An, L.
Li, C.	Ph.D. (UCF)	2011	An, L.
Plaisted, C.E.	Ph.D. (UCF)	2007	Leonessa, A.

PhDs in progress as Committee Member (total =1)

Sarka, S., (Advisor: Dr. Rabiei, A.).

Masters thesis completed as Chair (total = 5)

<u>Name</u>	<u>Degree</u>	<u>Graduation</u>	<u>Chairman</u>
Ajayi, T.	M.S. (FSU)	2018	Xu, C. (Co-Chair: Okoli, O.)
Odevale, V.	M.S. (FSU)	2016	Xu, C.
Hernandez, M.	M.S. (UCF)	2012	Xu, C.
Deane, E.	M.S. (UCF)	2011	Xu, C.
Knipe, K.	M.S. (UCF)	2010	Xu, C.

Student: Ajayi, T.
Degree: Master of Science
Thesis: Boron Nitride Nanotubes (BNNTs) Reinforced-Polymer Derived Ceramic (PDC) Nanocomposites for Mechanical and Thermal Applications (co-advisor: Okoli, O.)
Status: Completed in 2018, currently is a Ph.D student in my group

Student: Odevale, V.
Degree: Master of Science
Thesis: Additive Manufacturing of Freeform Ceramic Material using Polymer-Derived Ceramics (PDC)
Status: Completed in 2016

Student: Hernandez, M. (*Minority student*)
Degree: Master of Science
Thesis: Process Optimization Towards the Development of an Automated CNC Monitoring System for a Simultaneous Turning and Boring Operation
Status: Completed in 2012, currently works at Honda Motor Co., Inc.

Student: Deane, E. (*Minority student*)
Degree: Master of Science
Thesis: Multi-sensor Optimization of the Simultaneous Turning and Boring Operation
Status: Completed in 2011, currently works at Siemens Corporation.

Student: Knipe, K.
Degree: Master of Science
Thesis: Structural Analysis and Active Vibration Control of Tetraform Space Frame for use in Micro-scale Machining
Status: Completed in 2010

Masters thesis in progress as Chair (total:2)

- Justin Morales
(FA2018- 1/4RA/1/4TA, SP2019 – 1/2RA)
- Rachel Hyo Son
(SP2019 – 1/2RA)

Masters thesis completed as Committee Member (total =5)

<u>Name</u>	<u>Degree</u>	<u>Graduation</u>	<u>Chairman</u>
Carbiener, C.	M.S. (FSU)	2017	Clark, J.
Pascioni, K.	M.S. (FSU)	2017	Cattafesta, L.

McKee, J.	M.S. (UCF)	2013	Gou, J.
Mutter, N.	M.S. (UCF)	2012	Gordon, A.
Torrance, M.	M.S. (UCF)	2012	Kapat, J.

I. SCHOLARSHIP IN THE REALMS OF FACULTY RESPONSIBILITY

III.A. Scholarly Accomplishments

III.A.1. Referred Activities (Google Scholar: Citations: 1058; H-index: 16)

Book

- [1] Shin, Y. C. and Xu, C. (2008). *Intelligent Systems: Modeling, Optimization and Control*. CRC Press, Taylor & Francis.

Book Chapters

- [1] Schrand, A. M., Kolel-Veetil, M., Elston, E., Neff, C., Coburn, K., Xu, C. (2019) Printable Nano and Microparticle Formulations/Inks for Additive Manufacturing in Harsh Environments. In *Nanotechnology in Space*, Ed. Maria Letizia Terranova. CRC Press - Taylor & Francis Group.
- [2] Liu, J., Xu, C. and Jackson, M. (2011). Traditional and Non-traditional Control Techniques for Grinding Processes. In *Machining with Abrasives*. Springer.
- [3] Jackson, M. J., Ahmed, W. and Xu, C. (2009). Fundamentals of Machining. In *Machining with Nanomaterials*. Springer.
- [4] Jackson, M. J., Evans, J., Xu, C. and Ahmed, W. (2009). Formation of Nanostructured Metals. In *Machining with Nanomaterials*. Springer.
- [5] Xu, C. (2009). Persistence, Consistence and Patience. In *Tips on Getting an Academic Position*. Lulu Web Publisher.

Referred Journal Papers (Double-underlined is with researchers at NCSU)

- [1] Ju, L., Yang, J., Hao, A., Daniel, J., Morales, J., Nguyen, S., Andrei, P., Liang, R., Hellstrom, E. and Xu, C., (2018). A Hybrid Ceramic-Polymer Composite Fabricated by co-curing Lay-up Process for a Strong Bonding and Enhanced Transient Thermal Protection, *Ceramic International*. 44(10), 11497-11504.
- [2] Daniel, J., Ju, L., Yang, J., Sun, X., Gupta, N., Schrand, A. and Xu, C. (2017). Pearl-Chain Formation of Discontinuous Carbon Fiber Under Electrical Field, *Journal of Manufacturing and Materials Processing*, 1(2).
- [3] Davis, B., Dabrow, D., Ju, L., Li, A., Xu, C. and Huang, Y. (2017). Study of Chip Morphology and Chip Formation Mechanism during Machining of Magnesium-based Metal Matrix Composites, *ASME Transaction, Journal of Manufacturing Science and Engineering*, 139, 091008-1 - 10.
- [4] Qiao, Y., Liu, J., Jia, Y., Xu, C., An, L. and Bai, Y. (2017). Study on Coexistence of Brittle and Ductile Fractures in Nano Reinforcement Composites under Different Loading Conditions. *International Journal of Fracture*, 204(2), 205-224.
- [5] Yang, J., Sprengard, J., Ju, L., Hao, A., Saei, M., Liang, R., Cheng, G. and Xu, C. (2016). Three-dimensional-linked Carbon Fiber-Carbon Nanotube Hybrid Structure for Enhancing Thermal Conductivity of Silicon Carbonitride Matrix Composites. *Carbon*, 108, 38-46.
- [6] Zhu, G., Dong, S., Ni, D., Xu, C. and Wang, D. (2016). Microstructure, Mechanical Properties and Oxidation Resistance of SiC_f/SiC Composites Incorporated with Boron Nitride Nanotubes. *Royal Society of Chemistry (RSC) Advances*, 6, 83482-83492.
- [7] Yang, J., Downes, R., Schrand, A., Park, J. G., Liang, R. and Xu, C. (2016). High Electrical

- Conductivity and Anisotropy of Aligned Carbon Nanotube Nanocomposites Reinforced by Silicon Carbonitride. *Scripta Materialia*, 124, 21-25.
- [8] Yang, J., Downes, R., Yu, Z., Park, J G., Liang, R. and Xu, C. (2016). Strong and Ultra-Flexible Polymer-Derived Silicon Carbonitride Nanocomposites by Aligned Carbon Nanotubes. *Ceramic International*, 42, 13359-13367.
- [9] Yang, J., Dong, S. and Xu, C. (2016). Mechanical Response and Microstructure of 2D Carbon Fiber Reinforced Ceramic Matrix Composites with SiC and Ti₃SiC₂ Fillers. *Ceramics International*, 42, 3019-3027.
- [10] Yang, J., Dong, S., Webster, D., Gilmore, J. and Xu, C. (2016). Characterization and Alignment of Carbon Nanofibers under Shear Force in Microchannel. *Journal of Nanomaterials*, Article ID 1052478.
- [11] Bade, S.G., Li, J., Shan, X., Ling, Y., Tian, Y., Dilbeck, T., Besara, T., Geske, T., Gao, H., Ma, B., Hanson, K., Siegrist, T., Xu, C. and Yu, Z. (2016). Fully Printed Halide Perovskite Light-Emitting Diodes with Silver Nanowire Electrodes. *ACS Nano*, 10(2), 1795-1801.
- [12] Pan, H., Liu, J., Choi, Y., Xu, C., Bai, Y. and Atkins, A. G. (2016). Zones of Material Separation in Simulations of Cutting. *International Journal of Mechanical Sciences*, 115, 262-279.
- [13] Zhao, R., Shao, G., Li, N., Xu, C. and An, L. (2016). Development of A Wireless Temperature Sensor Using Polymer-Derived Ceramics. *Journal of Sensors*, Article ID 8624817.
- [14] Xu, C. (2015). Multifunctional Flexible Ceramic Membranes. *Naval Science and Technology – Future Force*, 2, 26.
- [15] Cheng, H., Shao, G., Ebadi, S., Ren, X., Harris, K., Liu, J., Xu, C., An, L. and Gong, X. (2014). Evanescent-Mode-Resonator-Based and Antenna-Integrated Wireless Passive Pressure Sensors for Harsh-Environment Applications. *Sensors and Actuators: A. Physical*, 220, 22-33.
- [16] Ji, Y., and Xu, C. (2014). Sliding Mode Control of Feed Drive System for a Three-axis Micro-Machining Platform with Nano-Resolution. *Journal of Control Engineering and Technology*, 4(1), 29-36.
- [17] Liu, J., Bai, Y. and Xu, C. (2014). Evaluation of Ductile Fracture Models on Finite Element Simulation of Metal Cutting Process. *ASME Transactions, Journal of Manufacturing Science and Engineering*, 136(1), 011010-1 – 011.
- [18] Liu, J., Li, J. and Xu, C. (2014). Interaction of the Cutting Tools and the Ceramic-reinforced Metal Matrix Composites during Micro-Machining: A Review. *CIRP Journal of Manufacturing Science and Technology*, 7(2), 55-70.
- [19] Zhao, R., Shao, G., Cao, Y., An, L. and Xu, C. (2014). Temperature Sensor Made of Polymer-Derived Ceramics for High-Temperature Applications. *Sensors and Actuators: A. Physical*, 219, 58-64.
- [20] **(invited)** Liu, J., Li, J., and Xu, C. (2013). Cutting Force Prediction on Micro-milling Magnesium Metal Matrix Composites with Nano-reinforcements. *ASME Transaction, Journal of Micro and Nano-Manufacturing*, 1(1), 011010-1 - 011010-10.
- [21] Li, J., Liu, J., Liu, J., Ji, Y. and Xu, C. (2013). Experimental Investigation on the Machinability of SiC Nano-particles Reinforced Magnesium Nanocomposites During Micro-Milling Processes. *International Journal of Manufacturing Research*, 8(1), 64-84.
- [22] Lojewski, B. Yang, W., Duan, H., Xu, C. and Deng, W. (2013). Design, Fabrication, and Characterization of Linear Multiplexed Electrospray Atomizers Micro-Machined from Metal and Polymers. *Aerosol Science and Technology*, 47, 146-152.
- [23] Ji, Y., Hernandez, M., Giesecke, D., Bartles, D. and Xu, C. (2012). Tool Wear Analysis Using Wavelet Transform Based Cutting Force and Acoustic Emission. *Journal of Aviation and Aerospace Perspective*, 2(2), 35-54.
- [24] Shao, G., Zhao, G., Yang, F., Xu, C., and An, L. (2012). Ceramic Nanocomposites Reinforced with a High-Volume Fraction of Carbon Nanofibers. *Materials Letters*, 68, 1940-1945.
- [25] Xu, C. and Shin, Y. C. (2012). A Multilevel Fuzzy Control Design for A Class of Multi-Input Single-Output Systems. *IEEE Transactions on Industrial Electronics*, 59(8), 3113-3123.

- [26] An, L., Qu, J., Luo, J., Fan, Y., Zhang, L., Liu, J., Xu, C. and Blau, P. (2011). Aluminum Nanocomposites Having Wear Resistance Better Than Stainless Steel. *Journal of Materials Research*, 26(19), 2479-2483.
- [27] Chen, Y., Li, C., Wang, Y., Zhang, Q., Xu, C., Wei, B. and An, L. (2011). Self-Assembled C/SiCN Nanocomposites: High-Performance Anode Materials for Li-ion Batteries. *Journal of Materials Chemistry*, 21, 18186-18190.
- [28] Xu, C. and Shin, Y. C. (2011). A Self-Tuning Fuzzy Controller for A Class of Multi-Input Multi-Output Nonlinear Systems. *Engineering Applications of Artificial Intelligence*, 24(2), 238-250.
- [29] Yu, Y., Chen, Y. Xu, C., Fang, J. and An, L. (2011). Synthesis of Spherical Non-Oxide Silicon Carbonitride Ceramic Particles. *Journal of the American Ceramic Society*, 94, 2779-2782.
- [30] Yu, Y., Yang, X., Xu, C., Fang, J. and An, L. (2011). Synthesis of Nanostructured SiC at Ultralow Temperature Using Self-Assembled Polymer Micelles as a Precursor. *Journal of Materials Chemistry*, 21, 17619-17622.
- [31] Idahosa, U., Sara, A., Xu, C. and Basu, S. (2010). Non-Premixed Acoustically Perturbed Swirling Flame Dynamics. *Combustion and Flame*, 157(9), 1800-1814.
- [32] Jiang, T., Hill, A., Fei, W., Wei, Y. Tellam, M., Xu, C. and An, L. (2010). Making Bulk Ceramics from Polymeric Precursors. *Journal of the American Ceramic Society*, 93(10), 3017-3019.
- [33] Sarkar, S., Zou, J., Liu, J., Xu, C., An, L. and Zhai, L. (2010). Polymer-Derived Ceramic Composite Fibers with Aligned Pristine Multiwalled Carbon Nanotubes. *ACS Applied Materials and Interfaces*, 2(4), 1150-1156.
- [34] Tang, Y. and Xu, C. (2010). Online Tool Deflection Compensation in End Milling of Curved Workpiece. *International Journal of Electronics, Computing and Engineering Education*, 1(1), 23-28.
- [35] Yang, M., Xu, C., Lin, K., Chao, Y. J. and An, L. (2010). Fabrication of AA6061/Al₂O₃ Nano Ceramic Particle Reinforced Composite Coating by Using Friction Stir Processing. *Journal of Materials Science*, 45, 4431-4438.
- [36] Yang, W., Gao, F., Xu, C., Wei, G. and An, L. (2010). Fabrication of Si₃N₄/SiC Nanocomposites Toughened by in-situ Formed Low-Dimensional Nanostructures. *Solid State Science*, 12, 1692-1695.
- [37] **(Invited)** Xu, C., Tang, Y. and Jackson, M. J. (2009). Survey on Various Control Techniques in Micro Grinding Processes. *International Journal of Nanomanufacturing*, 3(4), 398-408.
- [38] Jackson, M. J., Whitfield, M. D., Xu, C. and Ahmed, W. (2009). Diamond Coated Microtools for Machining Compact Bone. *International Journal of Nano and Biomaterials*, 2(6), 505-519.
- [39] Jackson, M. J., Xu, C. and Ahmed, W. (2009). A Multifunctional High-speed Spindle for Micromachining Medical Materials. *International Journal of Nano and Biomaterials*, 2(6), 520-539.
- [40] Tang, Y., Xu, C. and Jackson, M. J. (2009). Adaptive Compensation of Tool Deflection in Micromachining Processes. *International Journal of Nanomanufacturing*, 3(1), 159-168.
- [41] Xu, C. and Shin, Y. C. (2009). A Stable Hierarchical Fuzzy Control Design for Certain Nonlinear Systems based on Input-output passivity theory. *Control and Intelligent Systems*, 37(2), 201-2006.
- [42] Allen, R. and Xu, C. (2008). Cooperative Navigation and Adaptive Guidance. *The Bulletin of Military Operations Research: Phalanx*, 41(4), 12-17.
- [43] Knipe, K., Xu, C. and Jackson, M. J. (2008). Finite Element Modelling and Vibration Control of a Tetrahedral Space Frame Applied to Micromachining. *International Journal of Nano and Biomaterials*, 1(4), 448-458.
- [44] Xu, C. and Shin, Y. C. (2008). A Fuzzy Inverse Model Construction Method for General Monotonic Multi-Input-Single-Output (MISO) Systems. *IEEE Transactions on Fuzzy Systems*, 16(5), 1216-1231.
- [45] Xu, C. and Shin, Y. C. (2008). An Adaptive Fuzzy Controller for Constant Cutting Force in End-Milling Processes. *ASME Transactions, Journal of Manufacturing Science and Engineering*, 130, 031001-1-10.

- [46] Xu, C. and Shin, Y. C. (2007). Control of Cutting Force for Creep-feed Grinding Processes using a Multi-level Fuzzy Controller. *ASME Transaction, Journal of Dynamic Systems, Measurement and Control*, 129(4), 480-492.
- [47] Xu, C. and Shin, Y. C. (2007). Interaction Analysis for Multi-Input Multi-Output Nonlinear Systems based on a FBFN model. *Fuzzy Sets and Systems*, 158(18), 2013-2025.
- [48] Xu, C. and Shin, Y. C. (2005). Design of a Multi-level Fuzzy Controller for Nonlinear Systems and Stability Analysis. *IEEE Transactions on Fuzzy Systems*, 13(6), 761-778.
- [49] Xu, C. and Huan, J. (2001). An Automatic Monitoring System on the Fault Diagnosis of NC machine Based on Internet Explorer. *Mechanical Engineer*, 4, 21-23.

Referred Journal Papers (Double-underlined is with researchers at NCSU) (Submitted or in preparation)

- [50] Jia, Y., Ajayi, T., Morales, J., Chowdhury, A., Sauti, G., Chu, S-H, Park, C. and Xu, C., (2019). Thermal properties of polymer-derived ceramic reinforced with boron nitride nanotubes, *Journal of the American Ceramic Society*. Submitted.
- [51] Chowdhury, A., Wang, K., Jia, Y. and Xu, C., (2019). Insulation to Conduction Transformation of Electrical Conductivity of Polymer Derived SiC Ceramics at High Pyrolysis Temperature, *Acta Materilia*. In preparation.
- [52] Jia, Y., Yang, J., Wang, K., Chowdhury, A., Chen, B., Su, Y., Nickerson, B. and Xu, C., (2019). Aligned carbon nanotube/carbon (CNT/C) composites with exceptionally high electrical conductivity, *Advanced Functional Materials*. In preparation.

Referred Proceeding Publications

- [1] Ajayi, T., Kim, K., Liu, J., Nickerson, B., Xu, C. (2019). *Multifunctional Hybrid Composite for Thermal Protection of Carbon Fiber Reinforced Polymers (CFRPs) in Aerospace Applications*, Sea-Based Aviation Structural Materials Track, SAMPE 2019, Charlotte, NC.
- [2] Chowdhury, A., Wang, K., Jia, Y., Xu, C. (2019). *Electrical Conductivity and Structural Evolution of Polymer Derived SiC Ceramics Pyrolyzed from 1200°C to 1800°C*, the 3rd World Congress on Micro and Nano Manufacturing, Raleigh, NC.
- [3] Mousavinezhad, S., Xu, C., (2019). *Teaching and Learning of Electrical and Computer Engineering Courses with High Mathematical Contents*, 2019 ASEE Annual Conference & Exposition.
- [4] Mousavinezhad, S., Xu, C., (2019). *Science and Engineering Courses, Theory and Practice: An Example*, 2019 ASEE Annual Conference & Exposition.
- [5] Xu, C. and Wang, K. (2017). *Effect of Processing Conditions on Electric and Dielectric Properties of Polymer-Derived SiC Ceramics*, Materials Science & Technology 2017 (MS&T 2017). Pittsburgh, PA.
- [6] Davis, B., Dabrow, D., Li, A., Ju, L., Xu, C. and Huang, Y. (2017). *Study of Chip Morphology and Chip Formation Mechanism During Machining of Magnesium-based Metal Matrix Composites*, ASME International Manufacturing Science and Engineering Conference. Los Angeles, CA.
- [7] Xu, C. and Mousavinezhad, H. (2016). Computer and Information Technology Tools in Signals & Systems. In *ASEE Annual Conference & Exposition*. ASEE Annual Conference & Exposition, June 26-29, New Orleans, CA.
- [8] Xu, C., Wentworth, S. and Mousavinezhad, H. (2016). Teaching and Learning of Engineering Topics with Software Tools. In *ASEE Annual Conference & Exposition*. ASEE Annual Conference & Exposition, New Orleans, CA.
- [9] Xu, C., Mousavinezhad, H. (2015). Computer-Aided Design (CAD) of Recursive/Non-Recursive Filters. In *ASEE Annual Conference & Exposition*. Seattle, WA.
- [10] Freese, D., Shao, G. and Xu, C. (2013). *Polymer-Derived Ceramic Sensors for Temperature Measurement in Harsh Environment*. ASME Turbo Expo. Antonio, TX.

- [11] Zhao, R. and Xu, C. (2013). *Analytical Modeling and Experimental Validation of Force Ripple and Friction Force for General Direct Drive Systems*. ASME International Manufacturing Science and Engineering Conference, Madison, WI.
- [12] **(Invited)** Gong, X., An, L. and Xu, C. (2012). *Wireless Passive Sensor Development for Harsh Environment Applications*. IEEE International Workshop on Antenna Technology. Tucson, AZ.
- [13] Ji, Y., Zhao, R. and Xu, C. (2011). *Modeling and Control of Feed Drive Systems for a Micro-machining Platform with Nano-Resolution*. 4th ASME Annual Dynamic Systems and Control Conference. Arlington, VA.
- [14] Deane, E., Hernandez, M., Collins, S., Giesecke, D., Ji, Y. and Xu, C. (2011). *Analysis of the Simultaneous CNC Turning and Boring Operation via Multi-sensor Monitoring*. ASME International Manufacturing Science and Engineering Conference. Corvallis, OR.
- [15] Liu, J., Li, J., Ji, Y. and Xu, C. (2011). *Investigations on the Effect of SiC Nanoparticles on Cutting Forces for Micro-Milling Magnesium Matrix Composites*. ASME International Manufacturing Science and Engineering Conference. Corvallis, OR.
- [16] Liu, J., Li, J., Shao, G., Ji, Y., Xu, C. and An, L. (2011). *Investigation of Micro-End-Milling of Polymer-Derived Ceramics for High Temperature Micro-Sensor Fabrication*. NSF CMMI Engineering Research and Innovation Conference. Atlanta, GA.
- [17] Liu, J., Li, J., Grummel, B., Xu, C. and Shen, J., 2010, "A Contactless Polymer Derived Ceramic Temperature Sensing System for Turbine Applications", *Florida Center for Advanced Aero-Propulsion (FCAAP) – Annual Technical Symposium*.
- [18] Joslin, A., Hernandez, M., Collins, S., Giesecke, D., Ji, Y. and Xu, C. (2010). *Experimental Setup for Multi-sensor Fusion and Data Correlation Analysis during CNC Steel Turning Process*. ASME International Manufacturing Science and Engineering Conference. Erie, PA.
- [19] Li, J., Liu, J. and Xu, C. (2010). *Machinability Study of SiC Nano-Particles Reinforced Magnesium Nanocomposites during Micro-Milling Processes*. ASME International Manufacturing Science and Engineering Conference. Erie, PA.
- [20] Shao, G., Xu, C. and An, L. (2010). Carbon Nanofiber Reinforced Polymer Derived Ceramic Nanocomposites". *Material Science and Technology*. Houston, TX.
- [21] Idahosa, U., Saha, A., Basu, S. and Xu, C. (2010). *Acoustic Perturbation Effects on the Fluid Dynamics and Swirling Flame Response in a Non Premixed Co-flow Burner*. ASME Turbo Expo. Glasgow, UK.
- [22] Liu, J., Xu, C. and An, L. (2010). *Micro-machinable Polymer-Derived Ceramics Sensors for High-Temperature Applications*. ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems. San Diego, CA.
- [23] Allen, R., Lin, K. and Xu, C. (2010). *Robust Estimation of a Maneuvering Target from Multiple Unmanned Air Vehicles' Measurements*. International Symposium on Collaborative Technologies and Systems. Lombard, IL.
- [24] Tang, Y. and Xu, C. (2009). *Geometrical Adaptive Controller for Tool Deflection Compensation in Helical End Milling Processes*, ASME International Manufacturing Science and Engineering Conference (MSEC), West Lafayette, IN.
- [25] Joslin, A. and Xu, C. (2009). *A Hybrid Modeling Technique for Partially-Known Systems using Linear Regression and Neural Network*. ASME International Manufacturing Science and Engineering Conference (MSEC), West Lafayette, IN.
- [26] Shamieh, F. and Xu, C. (2009). *Generation of Optimal Functions using Particle Swarm Method over Discrete Intervals*. North American Fuzzy Information Processing Society. Cincinnati, OH.
- [27] Xu, C. and Shin, Y. (2008). *A Multi-level Fuzzy Control Design for General Nonlinear Multi-Input Single Out-put Systems*. North American Fuzzy Information Processing Society. New York, NY.
- [28] Idahosa, U., Saha, A., Xu, C. and Basu, S., 2009, "On the Fluid Dynamics of Acoustically Perturbed Swirling Non-Premixed Flames", *Proceedings of the Eastern States Section of the Combustion Institute 2009*, University of Maryland College Park.

- [29] Nicholson, D., J. Liu, S. Qiu, A. Mak, J. Trinh, Xu, C. and Vaidyanathan, R., 2009, “Fabrication and Thermo-Mechanical Testing of a High Temperature Shape Memory Alloy Helical Actuator”, *Florida Center for Advanced Aero-Propulsion (FCAAP) – Annual Technical Symposium*.
- [30] Idahosa, U., Saha, A., Xu, C. and Basu, S., 2009, “Frequency Response Characterization of Swirl Stabilized Flames Dynamics”, *Proceedings of the 6th US National Combustion Meeting of the Combustion Institute*, Ann Arbor, MI.
- [31] Idahosa, U., Abhishek S., Joslin, A., Basu, S., Xu, C., 2009, “Flame Response to Equivalence Ratio Oscillations in Perturbed Swirl Stabilized Flames”, *ASME Turbo Expo 2009 – Combustion Dynamics*, Orlando, FL.
- [32] Idahosa, U., Saha, A., Xu, C. and Basu, S., 2009, “Characterization of Combustion Dynamics in Swirl Stabilized Flames”, *Proceedings of Power2009, ASME Power Albuquerque*, New Mexico, USA.
- [33] Xu, C. and Shin, Y. C., 2007, “A Fuzzy Inverse Model Construction Method for a General MISO System with a Monotonic Input-Output Relationship”, *Proceedings of 2007 North American Fuzzy Information Processing Society*, San Diego, CA.
- [34] Xu, C. and Shin, Y. C., 2006, “Adaptive Control of Cutting Force for End Milling Processes with System Variation using Self-tuning Fuzzy Technique”, *ASME International Mechanical Engineering Congress and Exposition*, Chicago, IL.
- [35] **(Best paper in session)** Xu, C. and Shin, Y. C., 2006, “A Hierarchical Self-tuning Fuzzy Controller for General Nonlinear Systems with Stability Analysis”, *The 3rd International Conference on Cybernetics and Information Technologies Systems and Applications*, Orlando, FL.

Referred Conference Presentations

- [1] Ajayi, T., Nickerson, B., Xu, C. (2019). *Carbon Nanotube (CNTs) Reinforced Ceramic Thin Films as Thermal/Environmental Barrier Coatings (T/EBCs) for Aerospace Applications*, Sandphobic Thermal/Environmental Barrier Coatings Symposium, Materials Science & Technology, Portland, OR.
- [2] Xu, C., Ajayi, T., Nickerson, B. (2018). *A Hybrid Ceramic-Polymer Composite Fabricated by Co-Curing Lay-Up Process for Erosion Resistance*, The Composites and Advanced Materials Expo (CAMX), Dallas, TX.
- [3] Xu, C., Daniel, J. (2018). *Wireless Temperature Sensor for High Temperature Environments (up to 1000C) using RF Techniques with 0.5 meter Sensing Distance*, 41th Annual Conference on Composites, Materials, and Structures, Cocoa beach, FL.
- [4] Macdonald, J. and Xu, C. (2017). *Metamaterial Enabling RF Transparency – Ceramic Composite Design for High Temperature Application*, National Space and Missile Materials Symposium, CA.
- [5] Xu, C. and Peebles, J. (2017). *Non-Destructive Testing of Composite Materials at High Temperature (2000°C)*, Material Measurements Working Group, Dayton, OH.
- [6] Xu, C. and Daniel, J. (2017). *Wireless Temperature Measurement Based on Radio Frequency (RF) Technology*, 40th Annual Conference on Composites, Materials, and Structures, Cocoa beach, FL.
- [7] Xu, C. (2015). *Ceramic Matrix Composites (CMCs) with High Volume Fractions of Reinforcements (up to 60 Vol.%) and Ensuring 3-Dimensional Bonding Strength*. Workshop on Carbon Fiber and their Composites, Oak Ridge, TN.
- [8] Yang, J., Xu, C., Ju, L., Downes, R., Hao, A., Liang, R. (2015). *Flexible Ceramic Matrix Composite with High Strength and Conductive by Aligned CNTs*. 39th International Conference and Expo on Advanced Ceramics and Composites, Daytona, FL.
- [9] Xu, C., Yang, J., Ju, L., Jiang, Z. and Wang, H. (2015). *Effective Nano-Infiltration to Make Fully-Densed Ceramic Composites with A High Volume Fraction of Reinforcements*. 39th International Conference and Expo on Advanced Ceramics and Composites, Daytona, FL.
- [10] Xu, C. (2015). *Flexible Ceramic Thin Film with High Conductivity*, Defense Manufacturing Conference, Phoenix, AZ.
- [11] Yang, J. and Xu, C. (2014). *Optimization of Carbon Nanofibers Alignment Induced by Shear Force*.

- 38th International Conference and Exposition on Advanced Ceramics and Composites, Daytona, FL.
- [12] Shao, G., Freese, D., Xu, C. and An, L. (2013). *Polymer Derived Ceramic Sensors for Ultra-High Temperature Application*. 37th International Conference and Exposition on Advanced Ceramics and Composites, Combustion Institute, Daytona, FL.
 - [13] **(Invited)** X. Gong, L. An, and Xu, C. (2011), “Recent advances on wireless passive high-temperature sensors for harsh environments,” in 35th International Conference & Exposition on Advanced Ceramics and Composites, Daytona Beach, FL.
 - [14] Shao, G., Xu, C. and An, L. (2010). *Carbon Nanofiber Reinforced Polymer Derived Ceramic Nanocomposites*. Materials Science & Technology (MS&T'10), Houston, TX.
 - [15] Xu, C., Knipe, K. and Jackson, M. (2008). *Finite Element Modeling and Vibration Control of a Tetraform Space Frame for Micro-Machining Processes*. 6th International Workshop on Microfactories, Evanston, IL.
 - [16] Xu, C., Tang, Y. and Jackson, M. (2008). *Adaptive Control of Cutting Force to Compensate Tool Deflection during Micro-Milling Processes*. 6th International Workshop on Microfactories, Evanston IL.
 - [17] Xu, C. (2007). *Intelligent Control System for Manufacturing Processes*. North American Manufacturing Research Conference (NAMRC), Ann Arbor, MI.
 - [18] Jin, L., Xu, C. and Fricker, J. D. (2008). Comparison of Annual Average Daily Traffic Estimates: Traditional Factor, Statistical, Artificial Neural Network, and Fuzzy Basis Neural Network Approach, *TRB Meeting, National Research Council*, Washington D.C.
 - [19] Tang, Y., Xu, C. and Jackson, M. J. (2008). Adaptive Control of Cutting Force to Compensate Tool Deflection during Micro-Milling Processes, *The 6th International Workshop on Microfactories*, Evanston, IL.
 - [20] Knipe, K., Xu, C. and Jackson, M. J. (2008). Finite Element Modeling and Vibration Control of a Tetraform Space Frame for Micro-Machining Processes, *The 6th International Workshop on Microfactories*, Evanston, IL.
 - [21] Allen R. and Xu, C. (2008). Cooperative Navigation: Adaptive Robust Estimator/Tracker for UAV Weaponization, *The Institute of Navigation – Guidance, Navigation, and Control Challenges for Miniature Autonomous Systems Workshop*, Fort Walton Beach, FL.
 - [22] Xu, C. (2007). Intelligent Control System for Manufacturing Processes, *NAMRC 35 – North American Manufacturing Research Conference, SME NIST-ATP Technology Dissemination Workshop on Intelligent Optimization and Control of Grinding Processes*, Ann Arbor, MI.

III.A.2. Non-Referred Activities

Representative Invited Presentations

- [1] Xu, C., (2018). *Ceramic Composite Enabling EM Absorbing for High Temperature Application*, AFOSR Project Peer Review, Dayton, OH.
- [2] Xu, C. (2018). *Multifunctional Ceramic Materials for Extreme Environment Applications*, U.S. Army Research Laboratory, Aberdeen Proving Ground (APG), Maryland.
- [3] Xu, C., Ajayi, T. and Morales, J. (2017). *Thermal and Oxidation Stability of BNNT and BNNT Composites*. Presentation at NASA Langley.
- [4] Xu, C. (2016). *Strong and Flexible Ceramic Composites with High In-Plane Thermal Conductivity for Hypersonic Applications*. Presentation at Air Force Research Lab (AFRL) at Eglin, FL.
- [5] Xu, C. and Yang, J. (2016). *Three-Dimensional Multi-Reinforced Ceramic Composites with Enhanced Through-Thickness Thermal Conductivity*. 9th International Conference on High Temperature Ceramic Matrix Composites (HTCMC-9), Toronto, Canada.
- [6] Xu, C. (2016). *High Conductive Ceramic Thin Film with Unique Mechanical Property*. Presentation at Ceramic Expo, Cleveland, OH.

- [7] Xu, C. (2015). *Flexible Ceramic Composites with High In-Plane Thermal Conductivity*. Presentation at Air Force Research Lab (AFRL) at Eglin, FL.
- [8] Xu, C. (2008). “Intelligent Modeling and Control System for Micro-Machining Processes”, *Invited Presentation*, March 26, Microlution, Inc., Chicago, IL.
- [9] Xu, C. (2008). “Intelligent Data-based Multivariable Modeling and Control Systems with Various Applications”, *Invited Presentation*, Aug. 12, University of California at Berkeley, Berkeley, CA.

III.B. Research Funding ~\$5.48M in total (~\$3.76M as a PI; ~\$1.72M as a co-PI)

Funding Source	PI			Co-PI			Total
	NCSU	FSU	UCF	NCSU	FSU	UCF	
NSF	N/A	N/A	\$325,630	N/A	\$324,335	N/A	\$649,965
DOD	\$230,825	\$1,420,799	\$338,014	N/A	N/A	N/A	\$2,064,638
DOE	N/A	N/A	N/A	N/A	N/A	\$1,194,000	\$1,194,000
NASA	\$75,000	\$5,000	N/A	N/A	N/A	N/A	\$42,500
Industry	N/A	\$4,127	\$859,406	N/A	N/A	\$72,946	\$936,479
National labs, State funds, University internal funds	N/A	\$106,000	\$390,952	N/A	N/A	\$128,750	\$625,702
Total	\$305,825	\$1,535,926	\$1,914,002	N/A	\$324,335	\$1,395,696	\$5,475,784

- Xu, C. (2019). *Manufacturing Hybrid Multifunctional Composite Skin Materials via Standard Prepreg Lay-up Process*. Sub-contracted from KAI, LLC (Funded from ONR STTR). Total award \$75,000. Single PI.
- Xu, C. (2018-2019). *A Hybrid Multifunctional Composite Material by Co-Curing Lay-up Process for Enhanced Thermal/Chemical Stability and Surface Durability*. Funded by Office of Naval Research (ONR). Total award \$230,825. Single PI.
- Xu, C. (2018). *Evaluate Readability Range and Accuracy of Wireless Temperature Sensor*. Saint-Gobain. Total award \$4,127. Single PI.
- Xu, C. (2018). *Dielectric Measurement of Ceramic Materials at High Temperature*. Funded by the Johns Hopkins University Applied Physics Laboratory (JHU/APL). Total award \$50,000. Single PI.
- Soto, R. and Xu, C. (2018). *Wireless High Temperature Sensor for Real Time Monitoring of Power Generation Turbine Engines*. Funded by National Science Foundation (NSF) STTR. Total award \$225,000. Xu is the co-PI.
- Xu, C. (2017–2020). *Electromagnetic Properties of Conductive Ceramic Composites Made of Ultra-High-Temperature and Polymer-Derived Ceramics*. Funded by Air Force Office of Scientific Research (AFOSR). Total award \$333,022. Single PI.
- Xu, C. (2017–2019). *A Hybrid Multifunctional Composite Material by Co-Curing Lay-up Process for Enhanced Thermal/Chemical Stability and Surface Durability*. Funded by Office of Naval Research (ONR). Total award \$265,577. Single PI.
- Xu, C. (2017–2018). *Effect of Pyrolysis Temperature on Electrical Properties of Polymer-Derived SiC Ceramics*. Funded by Army Research Office (ARO). Total award \$60,000. Single PI.
- Xu, C. (2017–2018). *In-situ Wireless Temperature Sensor in Ultra-high Temperature and Harsh Environment*. Funded by FSU Grant Assistance Program (GAP) Award. Total award \$34,000. Single PI.
- Xu, C. (2017–2018). *Additive Manufacturing of A Ceramic Pressure Sensor for Embedded and Wireless Monitoring of Munitions*. Funded by Air Force Research Laboratory (AFRL). Total award \$25,000. Single PI.
- Xu, C. (2017). *Material Processing and Electrical Property Characterization of Ceramic Materials in High*

- Temperature*. Funded by NASA Glenn. Total award \$5,000. Single PI.
- Xu, C. (2016–2017). *High Temperature Furnace Apparatus for Electrical Property Characterization of Ceramic Materials*. Funded by Department of Defense (DOD) Historically Black Colleges and Universities/Minority Institutions (HBCU/MI) Equipment/Instrument. Total award \$431,884. Single PI.
- Xu, C. (2016–2017). *In-situ Temperature and Strain Sensor in Ultra-High Temperature and Harsh Environment*. Funded by FSU Grant Assistance Program (GAP) Award. Total award \$22,000. Single PI.
- Xu, C. (2014–2016). *Multifunctional Ceramic Nanocomposites Reinforced with a High Volume Fraction of Well-Dispersed and Well-Aligned Carbon Nanotubes*. Funded by Office of Naval Research (ONR). Total award \$305,316. Single PI.
- Mousavinezhad, S., Xu, C., Chiu, S., Zydek, D. and Welch, T. (2013–2015). *1st Annual National Wireless Research Collaboration Symposium*. Funded by National Science Foundation (NSF). Total award \$99,335. Xu is a co-PI.
- Xu, C. (2012–2013). *Dispersion and Alignment System for Carbons Nanotubes for Polymer-Derived Ceramic Composite*. Funded by Defense University Research Instrumentation Program (DURIP). Total award \$133,416. Single PI.
- Xu, C. (2011–2014). *Multifunctional Ceramic Nanocomposites Reinforced with a High Volume Fraction of Well-Dispersed and Well-Aligned Carbon Nanotubes*. Funded by Office of Naval Research (ONR). Total award \$204,598. Single PI.
- Xu, C. (2012). *Adaptive On-line Controller Design and System Integration for CNC Simultaneous OD Turning and ID Boring Operations*. Funded by General Dynamics. Total award \$203,927. Single PI.
- Xu, C. (2010–2011). *Response Surface Design and Process Optimization for CNC simultaneous OD turning and ID boring operations*. Funded by General Dynamics. Total award \$295,155. Single PI.
- Xu, C. (2012). *Adaptive On-line Controller Design and System Integration for CNC Simultaneous OD Turning and ID Boring Operations*. Funded by Florida High Tech Corridor. Total award \$41,105. Single PI.
- Xu, C. (2010–2011). *Response Surface Design and Process Optimization for CNC simultaneous OD turning and ID boring operations*. Funded by Florida High Tech Corridor. Total award \$98,385. Single PI.
- Xu, C. (2010). *A Contactless Polymer Derived Ceramic Temperature Sensing System for Turbine Applications*. Funded by Florida State - Florida Center for Advanced Aero-Propulsion (FCAAP). Total award \$25,000. Single PI.
- Gong, X., An, L. and Xu, C., (2010–2012). *On-line, In-situ Monitoring Combustion Turbine using Wireless Passive Ceramic Sensors*. Funded by Department of Energy (DOE) and UCF. Total award \$1,014,000. Xu is a co-PI.
- An, L. and Xu, C. and (2009–2014). *Micromachinable Polymer-Derived Ceramic Ultra-High Temperature Sensors*. Funded by National Science Foundation (NSF). Total award \$325,630. Xu was the former PI and was switched to the co-PI because of changing school.
- Kapat, J. and Xu, C. (2009). *Detailed Study of Flow Interaction and its Impact on Aerodynamic Performance and Heat Transfer in Turbomachinery Passages*. Funded by Florida State - Florida Center for Advanced Aero-Propulsion (FCAAP). Total award \$128,750. Xu is the co-PI.
- Xu, C. (2009–2010). *Multivariate Factor Analysis for CNC Turning Operations*. Funded by General Dynamics. Total award \$360,324. Single PI.
- Xu, C. (2009–2010). *Multivariate Factor Analysis for CNC Turning Operations*. Funded by Florida High Tech Corridor. Total award \$120,108. Single PI.
- Xu, C. (2009). *Intelligently Controlled High Temperature Shape Memory Alloy Actuators*. Funded by Florida State - Florida Center for Advanced Aero-Propulsion (FCAAP). Total award \$53,000.

Single PI.

- Sohn, Y., Kapat, J. and Xu, C. (2008–2010). *Phase-Field Modeling and Experimentation of Thermotransport in U-alloys for Transmutation in Fast Reactors*. Funded by Idaho National Laboratory from Department of Energy (DOE). Total award \$180,000. Xu is a co-PI.
- Basu, S. and Xu, C. (2008–2009). *Integrated Advance Gas Turbine Monitoring*. Funded by GT Analysis, Inc. Total award \$72,946. Xu is the co-PI.
- Xu, C. (2007–2010). *Dynamic Analysis and Control System for Interdisciplinary Nano-Research*. Funded by UCF Presidential Major Equipment Award. Total award \$53,354. Single PI.

V. TECHNOLOGICAL AND MANAGERIAL INNOVATION

V.A. Patent applications

- [1] Xu, C. *Nanoparticle-Reinforced Composites and Methods of Manufacture and Use*. U.S. Patent No. 10,214,801. issued on February 26, 2019.
- [2] Xu, C. *Three-Dimensional Multi-Reinforced Composites and methods of Manufacture and Use Thereof*. U.S. Application No. 14/874,818.
- [3] Xu, C., *Methods for Aligning Fibers with An Electrical Field And Composite Materials*. U.S. Application No. 15/287,027.
- [4] Xu, C. and Nickerson, W., *Hybrid Multifunctional Composite Material and Method of Making the Same*. U.S. Application No. 15/791,661.
- [5] Xu, C. and Daniel, J., *Wireless Temperature Sensors and Methods*. U.S. Application No. 16/027,922.
- [6] Xu, C. *Ceramic Composite Materials and Methods*. U.S. Application No. 15/492,628.
- [7] Xu, C. and Schrand, A., *Polymeric Ceramic Precursors for Additive Manufacturing and Methods*. U.S. Provisional Application No. 62/342,429.
- [8] Xu, C. and Schrand, A., *Temperature and Pressure Sensors and Methods*. U.S. Provisional Application No. 62/443,103.
- [9] Xu, C. and MacDonald, J., *Metamaterial Enabling RF Transparency – Radome Material Design for Hypersonic Vehicle Application*. U.S. Provisional Application No. 62/525,617.

VI. SERVICE TO THE UNIVERSITY AND PROFESSIONAL SOCIETIES

VI.A. University Service (NCSU only)

- Member, Department Education and Technology Fee (ETF) Planning and Laboratory Committee (2018-2019).

VI.B. National and International Service

- **Associate Editor**
2015-present, ASME Transactions, Journal of Micro- and Nano- Manufacturing.
2008-2010, International Journal of Nanomanufacturing.
- **Board of Editors**
2010-2013, Journal of Aviation and Aerospace Perspectives.
2007-2010, International J. of Computational Materials Science and Surface Engineering.
- **Society Committee**
2014-present, IEEE Education Society, Membership Committee.
- **Conference Organizer**
Panel Moderator

2019, Energy Conversion and Conservation Division, ASEE, Tampa.

Invited speaker

2016, Ceramic Expo, Cleveland.

2016, International Conf. on High Temperature Ceramic Matrix Composites, Canada.

Conference Chair

2015, NSF 1st National Wireless Research Collaboration Workshop.

(<http://nwrcw2015.engr.isu.edu/home-1>)

Executive committee

2012-2014, ASME International Symposium on Flexible Automation.

Conference Organizing committee

2015-present, IEEE International Conf. on Electro/Information Technology.

2014, ASME Dynamic Systems and Control Conference.

2010-2013, SPIE Conference, Smart Structures/NDE, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems.

2006-2009, International Conference on Cybernetics and Information Technologies, Systems and Applications.

Symposium organizer

2014, ASME Dynamic Systems and Control Conference, Advanced Manufacturing track.

2009, 2014, ASME International Manufacturing Science and Engineering Conference.

2010, Sensor Technology, 3rd International Congress on Ceramics, Osaka, Japan.

- **Reviewer**

Proposal Panels

NSF Control system division

NSF EFRI-SEED panel

DOE panel

Research Grants Council, Hong Kong

Innovation and Technology Commission, Hong Kong

Books

Oxford University Press

Journals

ASME Transaction, Journal of dynamic systems, measurement and control

IEEE Transactions on Systems, Man and Cybernetics, Part B: Cybernetics

IEEE Transactions on control systems technology

IEEE/ASME Transactions on mechatronics

International Journal of Computational Materials Science and Surface Engineering (IJCMSSE)

Journal of Machining Science and Technology

Journal of Manufacturing Systems

Journal of Manufacturing Processes

Journal of Control and Intelligent Systems

Journal of Systems and Control Engineering

Conferences

ASME International Conference on Manufacturing Science and Engineering (MSEC)

American Control Conference (ACC)