

Curriculum Vitae Cheryl Xu

Education

- 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

Professional Experience

- 08/2018 – Present Associate Professor
Mechanical & Aerospace Engineering, North Carolina State University (NCSU)
- 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

Honors and Awards

- Office of Naval Research (ONR), Young Investigator Award (2011).
Society of Mechanical Engineers (SME), Outstanding Young Manufacturing Engineer Award (2011).
Institute of Electrical and Electronics Engineers (IEEE) Education Society, Mac E. Van Valkenburg Teaching Award, (2015).
Air Force Research Laboratory (AFRL), Summer Faculty Fellowship (2016; 2018).
Oak Ridge Associated University Visiting Industrial Scholar Award (2008).
University, Grant Assistant Program (GAP) Award, Florida State University (2016; 2017).
University, Research Incentive Award, University of Central Florida (2013).
University, Teaching Incentive Award, University of Central Florida (2012).
University, Bilsland Dissertation Fellowship, Purdue University (2006).
College, Research Excellence Award, Florida State University (2017).
College, Distinguished Researcher Award, University of Central Florida (2013).
Department, Excellence in Research Award, University of Central Florida (2010).
Department, Chroafas Best Dissertation Award, Purdue University (2006).

Research Focuses

- Advanced manufacturing of multifunctional ceramic composites
Focus on electric/dielectric and thermal properties study of ceramic composites, and related manufacturing processes for high temperature applications
- High temperature wireless sensor design and manufacturing
Focus on design and manufacturing for wireless temperature and pressure sensors, demonstrating high

- temperature survivability, oxidation and corrosion resistance
- Manufacturing process control through artificial intelligence
 - Focus on fundamental modeling and control for advanced manufacturing processes and integrating machine learning into such processes

Contracts and Grants

~\$5.5M in total

(~\$3.8M as a PI; ~\$1.7M as a co-PI)

Funding Source	PI		Co-PI		Total
	UCF	FSU	UCF	FSU	
NSF	\$325,630	N/A	N/A	\$324,335	\$649,965
DOD	\$338,014	\$1,726,624	N/A	N/A	\$2,064,638
DOE	N/A	N/A	\$1,194,000	N/A	\$1,194,000
NASA	N/A	\$42,500	N/A	N/A	\$42,500
Industry	\$859,406	\$4,127	\$72,946	N/A	\$936,479
University internal funds, State funds, National lab	\$390,952	\$106,000	\$128,750	N/A	\$625,702
Total	\$1,914,002	\$1,879,251	\$1,395,696	\$324,335	\$5,513,284

- Xu, C. (2018). *Evaluate Readability Range and Accuracy of Wireless Temperature Sensor*. Saint-Gobain. Total award \$4,127. Single PI.
- Xu, C., Guo, W. (2018). *Wireless Passive Nanoparticle based Intelligent Sensor System for Extreme Environments*. Sub-contracted from Sensatek Propulsion Technology Inc. (Funded from NASA STTR). Total award \$37,500. PI.
- Xu, C., Andrei, P. and Hao, A. (2018). *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. 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 \$496,402. 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. (2012). *On-line Adaptive 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. (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. (2010–2011). *Adaptive On-line Control 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 Optimization for CNC simultaneous OD turning and ID boring operations*. Funded by General Dynamics. Total award \$295,155. 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). *Response Surface Design and Process Optimization for CNC Simultaneous OD turning and ID boring 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. 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.

Patent Applications

- [1] Xu, C. *Three-Dimensional Multi-Reinforced Composites and methods of Manufacture and Use Thereof*. U.S. Application No. 14/874,818.
- [2] Xu, C. *Nanoparticle-Reinforced Composites and Methods of Manufacture and Use*. U.S. Application No. 15/166,982.
- [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. Provisional Application No. 62/325,748.
- [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.

Publications

(Google Scholar: Citations: 766; H-index: 15)

Book

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

Book Chapters

- [1] Liu, J., Xu, C. and Jackson, M. (2011). Traditional and Non-traditional Control Techniques for Grinding Processes. In *Machining with Abrasives*. Springer.
- [2] Jackson, M. J., Ahmed, W. and Xu, C. (2009). Fundamentals of Machining. In *Machining with Nanomaterials*. Springer.
- [3] Jackson, M. J., Evans, J., Xu, C. and Ahmed, W. (2009). Formation of Nanostructured Metals. In *Machining with Nanomaterials*. Springer.
- [4] Xu, C. (2009). Persistence, Consistence and Patience. In *Tips on Getting an Academic Position*. Lulu Web Publisher.

Journal Papers

- [1] Ju, L., Yang, J., Hao, A., Daniel, J., Morales, J., Nguyen, S., Andrei, P., Liang, R., Hellstrom, E. and Xu, C., A Hybrid Ceramic-Polymer Composite Fabricated by co-curing Lay-up Process for a Strong Bonding and Enhanced Transient Thermal Protection, *Ceramic International*. Article in Press.
- [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*, Vol. 1, No. 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 Carbonidtride 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] 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), pp. 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 Multi-level 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 Multivariable 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] Xu, C., Tang, Y. and Jackson, M. J. (2009). Survey on Various Control Techniques in Micro Grinding Processes. *International Journal of Nanomanufacturing*, 3(4), pp. 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), 103-113.
- [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 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.

Representative Proceeding Publications

- [1] 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.
- [2] 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.
- [3] Freese, D., Shao, G. and Xu, C. (2013). *Polymer-Derived Ceramic Sensors for Temperature Measurement in Harsh Environment*. ASME Turbo Expo. Antonio, TX.
- [4] 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.
- [5] Gong, X., An, L. and Xu, C. (2012). *Wireless Passive Sensor Development for Harsh Environment Applications*. IEEE International Workshop on Antenna Technology. Arlington, VA.
- [6] 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.
- [7] 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.
- [8] 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.
- [9] 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.
- [10] 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.
- [11] 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.
- [12] 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.
- [13] 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.
 - [14] 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.
 - [15] Joslin, A. and Xu, C. (2009). *A Hybrid Modeling Technique for partially-Known Systems using Linear Regression and Natural Network*. ASME International Manufacturing Science and Engineering Conference. West Lafayette, IN.
 - [16] 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.
 - [17] 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.

Representative Invited Talks

- [1] Xu, C., Ajayi, T. and Morales, J. (2017). *Thermal and Oxidation Stability of BNNT and BNNT Composites*. Presentation at NASA Langley.
- [2] 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.
- [3] 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.
- [4] Xu, C. (2016). *High Conductive Ceramic Thin Film with Unique Mechanical Property*. Presentation at Ceramic Expo, Cleveland, OH.
- [5] Xu, C. (2015). *Flexible Ceramic Composites with High In-Plane Thermal Conductivity*. Presentation at Air Force Research Lab (AFRL) at Eglin, FL.
- [6] Gong, X., An, L. and Xu, C. (2011). *Recent Advances on Wireless Passive High-Temperature Sensors for Harsh Environments*. 35th International Conference and Exposition on Advanced Ceramics and Composites, Composite Institute, Daytona, FL.

Representative Conference Presentations

- [1] Xu, C. and 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.
- [2] Macdonald, J. and Xu, C. (2017). *Metamaterial Enabling RF Transparency – Ceramic Composite Design for High Temperature Application*, National Space and Missile Materials Symposium, CA.
- [3] Xu, C. and Peebles, J. (2017). *Non-Destructive Testing of Composite Materials at High Temperature (2000°C)*, Material Measurements Working Group, Dayton, OH.
- [4] 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.
- [5] 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.
- [6] Yang, J., Xu, C., Ju, L., Downes, R., Hao, A. and 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.
- [7] Xu, C., Yang, J., Ju, L., Jiang, Z. and Wang, H. (2015). *Effective Nano-Infiltration to Make Fully-Densified Ceramic Composites with A High Volume Fraction of Reinforcements.* 39th International Conference and Expo on Advanced Ceramics and Composites, Daytona, FL.
- [8] Xu, C. (2015). *Flexible Ceramic Thin Film with High Conductivity,* Defense Manufacturing Conference, Phoenix, AZ.
- [9] 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.
- [10] 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.
- [11] Shao, G., Xu, C. and An, L. (2010). *Carbon Nanofiber Reinforced Polymer Derived Ceramic Nanocomposites.* Materials Science & Technology (MS&T'10), Houston, TX.
- [12] 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.
- [13] 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.
- [14] Xu, C. (2007). *Intelligent Control System for Manufacturing Processes.* North American Manufacturing Research Conference (NAMRC), Ann Arbor, MI.

Teaching

Courses Taught

- Design and Modeling for Manufacturing Processes (EML4930/5930): Topics include and are not limited to descriptive and analytical treatment of manufacturing processes, production equipment, and integrated systems.
- Manufacturing Process Control (EML4930/5930): Topics include and are not limited to computer integrated manufacturing with numerical control of machine tools, automation via programmable logic controller, motion control, and process control examples.
- Design for Manufacturing: Gas/Steam/Wind Turbines & Generators (EML4937/5937): Topics include and are not limited to overall assembly of rotating and stationary components in power generation powertrains; probabilistic design; coatings, manufacturing steps, defects for gas/steam/wind turbines and generators.
- Mechatronic Systems (EAS4407/5407): Topics include and are not limited to concepts of programming and interfacing with microprocessors, microprocessor architectures and programming, hardware and software interfacing for serial communication and digital and analog I/O, and stand-alone microcomputers to control actual processes.
- Intelligent Systems: Modeling, Optimization and Control (EML6938): Topics include and are not limited to multiple disciplines of intelligent systems, such as fuzzy logic, neural network,

evolutionary strategy and genetic algorithm, for system modeling, off-line optimization and online automatic control.

- Analysis and Control for Robot Manipulators (EML6808): Topics include and are not limited to basic components of robotic systems; selection of coordinate frames; homogeneous transformations; solutions to kinematic equations; velocity and force/torque relations; manipulator dynamics in Lagrange's formulation; digital simulation of manipulator motion; motion planning; obstacle avoidance; and manipulator control.
- System Control (EML5311): This course is designed to provide a graduate level introductory treatment of the theory and design of feedback control systems from both classical and modern view points, design of performance oriented controllers under typical practical implementation constraints; systematic state-space design methodologies; frequency domain interpretations.
- Advanced Control Systems (EML4316/5317): This course is designed to provide an introductory treatment of the theory and design of feedback control systems; design of performance oriented controllers under typical practical implementation constraints.
- Feedback Controls (EML4312): Topic include and are not limited to typical control systems; basic systems analysis using Laplace transforms and transfer functions; characterize system behavior using poles-zeros term; basic controller design using standard root-locus or PID techniques; and analyze closed-loop controlled systems.
- Engineering Analysis: Dynamics (EGN3321): Topics include and are not limited to kinematics and kinetics of particles and rigid bodies; mass and acceleration; work and energy; impulse and momentum.

PhD Students Supervised

- Ju, L., graduated. (2018). (co-advised with Dr. Hellstrom), *Hybrid Multifunctional Composite Material by co-curing Lay-up Process for Enhanced Surface Durability*.
- Zhao, R., graduated. (2014). *Modeling and Contour Control of Multi-axis Linear Driven Machine Tools*. [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.]
- Liu, J., graduated. (2012). *Experimental Study and Modeling of Mechanical Micro-machining of Particle Reinforced Heterogeneous Materials*.
- Idahosa, U., graduated. (co-advised with Dr. Basu). (2010). *Combustion Dynamics and Fluid Mechanics in Acoustically Perturbed Non-Premixed Swirl-Stablized Flames*.
- Tang, Y., graduated. (2009). *Integrated Servomechanism and Process Control for Machining Processes*. [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. She is currently an Associate Professor at Embry-Riddle Aeronautical University (Daytona Beach, FL), promoted in 2014.]
- Allen, R., graduated. (2009). *Robust Estimation and Adaptive Guidance for Multiple UAVs' Cooperation*. [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.]

MS Students Supervised

Ajayi, T., graduated. (2018). (co-advised with Dr. Okoli). Industrial and Manufacturing Engineering, FSU
Odewale, V., graduated. (2016). Mechanical Engineering, FSU
Hernandez, M., graduated. (2012). Mechanical and Aerospace Engineering, UCF
Deane, E., graduated. (2011). Mechanical and Aerospace Engineering, UCF
Knipe, K., graduated. (2010). Mechanical and Aerospace Engineering, UCF

Service

Representative Service for Federal Agencies and Professional Associations

Fellows Committee, IEEE Education Society (2014–present).
Conference Chair, NSF 1st National Wireless Research Collaboration Workshop (2015).
Executive committee, ASME International Symposium on Flexible Automation (2012–2014).
Organizing committee, IEEE International Conference on Electro/Information Technology (2015–present).
Organizing committee, ASME Dynamic Systems and Control Conference (2014).
Organizing committee, SPIE Conference, Smart Structures/NDE, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems (2010).

Service for Refereed Journals

Associate Editor, *Transactions of the ASME, Journal of Micro- and Nano- Manufacturing* (2015–present).
Associate Editor, *International Journal of Nanomanufacturing* (2008–2010).
Board of Editors, *Journal of Aviation and Aerospace Perspectives* (2010–2013).
Board of Editors, *International Journal of Computational Materials Science and Surface Engineering* (2007–2010).

Departmental Service

ETF Planning and Laboratory Committee (2018).
Faculty Search Committee (2017-2018).
Graduate Committee (2014–2016).
Undergraduate Committee (2014–present).
Assistant Graduate Seminar Coordinator (2014).