

Cheryl Xu, Ph.D.

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1. 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

2. Professional Experience:

08/2022 – Present	Professor Mechanical & Aerospace Engineering, North Carolina State University (NCSU)
08/2024 – Present	Research Fellow (on sabbatical) Office of Energy Efficiency & Renewable Energy, Department of Energy (DOE)
08/2018 – 08/2022	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

3. Honors and Awards:

- 2024, **Fellow**, Executive Leadership in Academic Technology, Engineering and Science (ELATES)
- 2024, **Fellow**, American Association for the Advancement of Science (AAAS) Science & Technology Policy
- 2023; 2020, Summer Faculty Fellow, Naval Research Laboratory (NRL)
- 2021, **Chancellor’s Innovation Fund (CIF) Award**, NCSU
- 2021, Defense University Research Instrumentation Program (DURIP) Award, Air Force Office of Scientific Research (AROSR)
- 2021, **Fellow**, International Association of Advanced Materials (IAAM)
- 2020, **Fellow**, American Society of Mechanical Engineers (ASME)
- 2018; 2016, Summer Faculty Fellow, Air Force Research Laboratory (AFRL)
- 2017, College, Research Excellence Award, Florida State University (FSU)
- 2017; 2016, University, Grant Assistant Program (GAP) Award, Florida State University (FSU)
- 2015, **Mac E. VanValkenburg Teaching Award**, IEEE Education Society
- 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 Program (TIP) Award, University of Central Florida (UCF)
- 2012, Defense University Research Instrumentation Program (DURIP) Award, Office of Naval Research (ONR)
- 2011, **Office of Naval Research Young Investigator Program (ONR YIP) Award**
- 2011, Outstanding Young Manufacturing Engineer Award, Society of Manufacturing Engineers (SME)
- 2010, Department, Excellence in Research Award, University of Central Florida (UCF)
- 2008, Oak Ridge Associated Universities Visiting Industrial Scholar Program Award
- 2007, Bilsland Dissertation Fellowship, Purdue University
- 2006, Chroafas Best Dissertation Award in Mechanical Engineering, Purdue University

4. Leadership Roles and Training: (a representative incomplete list)

- 2024-2025 Participate **Executive Leadership in Academic Technology, Engineering, and Science (ELATES) Fellows** Leadership Development program. This program is designed to promote senior women faculty in leadership for academic engineering, computer science, and other STEM fields into effective institutional leadership roles within their schools and universities.
- 2024-2025 Participate **American Association for the Advancement of Science (AAAS) Science & Technology Policy Fellows** program. This program provides opportunities for scientists and engineers to contribute to federal policymaking. The fellows are placed across all branches of the federal government to use their knowledge and skills to address today’s most pressing societal challenges.
- 2024 Chair **American Carbon Society Thermal Management Conference at NC State University**. This event brought together leading experts from academia, industry, and government to discuss advancements in thermal management technologies. My leadership in coordinating this high-profile conference fostered collaborations and significantly enhanced the visibility of the university. By showcasing NC State as a hub for cutting-edge research, this event positioned us as a key player in addressing global energy efficiency and materials innovation.
- 2021-2022 Participate **NSF Panel Fellow Cohort for CMMI’s Game Changer Academies (CGCA)** for Advancing Research Innovation. This experience enhanced my leadership skills by providing in-depth exposure to strategic decision-making in research funding and innovation, fostering my ability to guide interdisciplinary research teams and advance impactful scientific initiatives.
- 2021 Participate **NSF Industry-Academia Collaboration in Advanced Manufacturing Workshop**. This experience has enhanced my leadership skills in bridging the gap between fundamental research and industrial applications, facilitating collaborations that drive innovation in advanced manufacturing.
- 2021 Participate **Kern Entrepreneurial Engineering Network (KEEN) Integrating Curriculum with Entrepreneurial Mindset 1.0 (ICE) workshop**. This workshop helped me develop strategies to integrate an entrepreneurial mindset into engineering education, empowering students to think creatively and critically about real-world challenges.
- 2015 Chair **NSF 1st National Wireless Research Collaboration Workshop**. This leadership role allowed me to spearhead discussions on emerging wireless technologies, fostering collaborations that have since contributed to the evolution of this critical field.

5. Service and Contributions to NCSU Campus (internally):

- University, Group Insurance and Benefits Committee (2022- present)
- Department, Faculty Search Committee (2020-2021, 2022-2023)
- Department, Mentoring Committee (2022-present)
- Department, Peer Teaching Evaluation Committee (2021-present)
- Department, Education and Technology Fee (ETF) Planning and Laboratory Committee (2018-present)

6. Service and Contributions to Professional Societies (externally)

(a representative incomplete list):

➤ Journal Editors and Editorial Board Roles

<u>Editor-in-Chief</u>	Nature portfolio: <i>npj</i> Advanced Manufacturing (2023-present) (<i>npj</i> Advanced Manufacturing, part of the Nature Portfolio, is a peer-reviewed journal. Xu is the founding Editor-in-Chief.)
<u>Associate Editor</u>	ASME Transactions, J. of Manufacturing Science and Engineering (2021-present)
<u>Associate Editor</u>	ASME Transactions, J. of Micro- and Nano- Manufacturing (2015-2019)
<u>Associate Editor</u>	International Journal of Nanomanufacturing (2008-2010)
<u>Editorial Board</u>	Journal of Aviation and Aerospace Perspectives (2010-2013)
<u>Editorial Board</u>	Intl. J. of Computational Materials Science & Surface Engineering (2007-2010)

➤ Representative Leadership Roles in Professional Societies

<u>Fellow</u>	American Society of Mechanical Engineers (ASME)
<u>Fellow</u>	International Association of Advanced Materials (IAAM)
<u>Life Member</u>	Society of Manufacturing Engineers (SME)
<u>Senior Member</u>	Institute of Electrical and Electronics Engineers (IEEE)
<u>Advisory Committee</u>	American Carbon Society (2023-present)
<u>Society Committee</u>	American Ceramic Society (ACerS), Diversity & Inclusion Committee
<u>Society Committee</u>	American Society of Mechanical Engineers (ASME), Manufacturing Science and Engineering, Diversity & Inclusion Committee
<u>Society Committee</u>	IEEE Education Society
<u>Executive Committee</u>	ASME International Symposium on Flexible Automation
<u>Technical Committee</u>	AIAA Survivability, Aerospace Design and Structures (ADSG) Group
<u>Technical Committee</u>	IEEE Control Systems Society, Manufacturing Automation and Robotic Control

➤ Representative Leadership Roles in Professional Conferences

Conference Chair

- American Carbon Society Workshop on Thermal Management, NCSU (2024)
- NSF 1st National Wireless Research Collaboration Workshop, DC (2015)

Organizing Committee

- IEEE International Conference on Electro/Information Technology (2015-present)
- ASME Dynamic Systems and Control Conference (2014)
- SPIE Conference, Smart Structures/NDE, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems (2010-2013)
- International Conf. on Cybernetics, Information Technologies, Systems & Applications (2006-2009)

Invited Speaker

- Advanced Materials Web Congress, Sweden (2021)
- Ceramic Expo, Cleveland (2016)
- International Conference on High-Temperature Ceramic Matrix Composites, Canada (2016)

7. Research Funding: Grants, Contracts, and Awards

(Total funding as PI/co-PI: \$10.3M; My share: \$7.5M)

Funding Source	PI			Co-PI			Total
	NCSU*	FSU**	UCF***	NCSU*	FSU**	UCF***	
NSF	\$50,000	N/A	\$325,630	\$914,500	\$324,335	N/A	\$1,614,465
DOD	\$2,554,160	\$1,420,799	\$338,014	N/A	N/A	N/A	\$4,312,973
DOE	N/A	N/A	N/A	N/A	N/A	\$1,194,000	\$1,194,000
NASA	\$49,000	\$5,000	N/A	N/A	N/A	N/A	\$54,000
Industry	\$115,000	\$4,127	\$859,406	N/A	N/A	\$72,946	\$1,051,479
State, University internal funds	\$161,085	\$106,000	\$390,952	\$1,280,000	N/A	\$128,750	\$2,066,787
Total	\$2,929,245	\$1,535,926	\$1,914,002	\$2,194,500	\$324,335	\$1,395,696	\$10,293,704

Note:

*NCSU - North Carolina State University, 2018-present

**FSU - Florida State University, 2013-2018

***UCF - University of Central Florida, 2007-2013

Only listed items from 2011-present due to the page limitation:

Fang, T., Xu, C. (2024-2025). *Ammonia as a carbon-free fuel for sustainable transportation and power*. Funded by the University Global Partnership Network (UGPN) Research Collaboration Fund (RCF). Total award: \$10,000. Xu is the co-PI.

Xu, C. (2023-2024). *Highly-Transparent Armor Material (SiAlON/SiON) by Hot Isostatic Sintering and Polymer-Derived Ceramic (PDC) Route*. Funded by the Office of Naval Research (ONR). Total award: \$150,000. Single PI.

Xu, C., Fang, T. (2023-2024). *A Self-Healing UHTC-reinforced Composite using a Selective Laser-induced Reaction Sintering (SLRS) Process for Extended Thermal Stability*. Funded by the Center for Additive Manufacture of Advanced Ceramics (CAMAC). Total award: \$45,000. Xu is the PI.

Xu, C. (2023). *I-Corps: Radar Absorbing Materials (RAM) for High-temperature Harsh Environment Applications*, Funded by National Science Foundation (NSF). Total award: \$50,000. Single PI.

Xu, C., Adams, J. (2023-2024). *Electromagnetic Interference (EMI) Absorbers based on Ultra-High Temperature Ceramics (UHTCs) Reinforced Ceramic Composites*, Funded by the Center for Dielectrics and Piezoelectrics (CDP). Total award: \$25,000. PI.

Xu, C. (2022). *Hypersonic Seeker Window Attachment for Hypersonic Flight Systems*, Funded by Missile Defense Agency (MDA), sub-contracted from Materials Research & Design (MR&D). Total award: \$50,000. Single PI.

Xu, C. (2022-2024). *Accelerating Delivery of a Secure Hypersonic Network (Phase II Option)*. Funded by Air Force Research Lab (AFRL), sub-contracted from Nahsai, LLC. Total award: \$420,000. Single PI.

Xu, C. (2022-2025). *Characterization of Materials' Electromagnetic (EM) Property at High Temperature and Metamaterial Design Enabling Electromagnetic (EM) Transparency*. Funded by Army Research Lab (ARL). Total award: \$225,000. Single PI.

Xu, C. (2022-2023). *Electron Beam Sintering Processing of Resilient Ultra-High Temperature Ceramics (UHTCs) Coatings on C/C Substrates for Extreme Conditions*. Funded by Naval Surface Warfare Center (NSWC). Total award: \$210,000. Single PI.

Xu, C. (2022). *Wireless Temperature Sensor for Steel Production Process*. Funded by RHI-Magnesita. Total award: \$115,000. Single PI.

Xu, C. (2022). *Electromagnetic (EM) Transparency Radome Material Made of Boron Nitride Nanotubes (BNNT) Reinforced Ceramic Composites*. Funded by Navy Sea Systems Command, sub-

- contracted from BNNT, LLC. Total award: \$80,000. Single PI.
- Xu, C. (2022). *Multifunctional Ceramic Matrix Composites (CMC) Made with Three-Dimensionally(3D) Reinforced High Volume Fractions of Boron Nitride Nanotubes (BNNT)*. Funded by the National Aeronautics and Space Administration (NASA), sub-contracted from BNNT, LLC. Total award: \$49,000. Single PI.
- Xu, C., Fang, T. (2022-2023). *3D Printing of Ultra-High Temperature Ceramics (UHTCs) using Selective Laser-induced Reaction Sintering (SLRS) Process*. Funded by the Center for Additive Manufacture of Advanced Ceramics (CAMAC). Total award: \$41,085. Xu is the PI.
- Xu, C. (2021). *Electromagnetic Property Measurement Apparatus of Ceramic Materials at High-Temperature Environments*. Funded by the US Air Force Office of Scientific Research (AFOSR) Defense University Research Instrumentation Program (DURIP). Total award: \$394,707. Single PI.
- Xu, C. (2021). *Wide-band Tunable Radar Absorbing Material (RAM) for Stealth Applications*. Funded by NCSU Chancellors Innovation Fund (CIF). Total award: \$50,000. Single PI.
- Mullany, B., Xu, C., Williams, W., El-Ghannam, A., Schmid, S., (2021). *A Center for Additive Manufacture of Advanced Ceramics (CAMAC)*. Funded by UNC Research Opportunities Initiative (ROI) award. Total: \$1,250,000 Xu is a co-PI.
- Xu, C. (2020-2023). *Effect of Pyrolysis Temperature and Dopant on the Frequency-Dependent and Temperature-Dependent Electromagnetic Properties for Ultra-High Temperature Ceramics (UHTCs) Reinforced Ceramic Composites*. Funded by the US Air Force Office of Scientific Research (AFOSR). Total award: \$553,100. Single PI.
- Xu, C. (2020). *Accelerating Delivery of a Secure Hypersonic Sensor Network (Phase II)*. Funded by Air Force Research Lab (AFRL), sub-contracted from Nahsai, LLC. Total award: \$150,000. Single PI.
- Rabiei, A., Harrysson, O.L., Ngaile, G.E., Xu, C., Horn, T.J., (2020). *MRI: Acquisition of a Large High-Temperature Vacuum Press for Advanced Materials Research, Manufacturing, and Training at NC State University*. Funded by NSF Major Research Instrumentation (MRI) Program. Total: \$914,500 (Award from NSF \$640,150; Cost-share: \$274,350. Xu is a co-PI.
- Xu, C. (2020). *Accelerating Delivery of a Secure Hypersonic Sensor Network (Phase I)*. Funded by Air Force Research Lab (AFRL), sub-contracted from Nahsai, LLC. Total award: \$15,528. Single PI.
- Liu, J. and Xu, C. (2019). *Enabling Anisotropic Thermal Conductivity Measurement at High Temperatures (up to 1400 degrees C)*. Funded by NCSU Research and Graduate Studies – FRPD Individual Program. Total award: \$10,000. Xu is the co-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 the Office of Naval Research (ONR). Total award: \$230,825. Single PI.
- 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). *Evaluate the Readability Range and Accuracy of the 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. (2017–2018). *Electromagnetic Properties of Conductive Ceramic Composites Made of Ultra-High-Temperature and Polymer-Derived Ceramics*. Funded by the Air Force Office of Scientific Research (AFOSR). Total award: \$109,920. 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 the 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 the 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 the 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 the 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 the 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 the 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 the 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.
- Gong, X., An, L. and Xu, C., (2010–2012). *Online, In-situ Monitoring Combustion Turbine using Wireless Passive Ceramic Sensors*. Funded by the 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 the National Science Foundation (NSF). Total award: \$325,630. Xu was the former PI and was switched to the co-PI because of changing schools.

8. Scholarly Activities

(Google Scholar: Citations: 3562, H-index: 32, as of 09/23/2024)

Type	Number
Book	1
Book Chapter	7
Referred Journal Publications	78
Patents	15 (issued) + 4 (applications) + 3 (disclosure)
Ph.D. Students	9 (completed) + 2 (in-progress) + 21 (on committee)
M.S. Students (with thesis)	7 (completed) + 0 (in-progress) + 8 (on committee)

➤ Book

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

➤ Book Chapters

- [1] Ajayi, T. D., Nguyen, S., Schrand, A., Xu, C. (2023) Printed Pressure Sensors/Sensors for Extreme Environments, *Resilient and Survivable Hybrid Electronics*, CRC Press - Taylor & Francis Group.
- [2] Schrand, A. M., Kolel-Veetil, M., Elston, E., Neff, C., Coburn, K., Xu, C. (2021) Printable Nano and Microparticle Formulations for Additive Manufacturing in Harsh Earth and Space Environments, *Nanotechnology in Space*, Ed. Maria Letizia Terranova, CRC Press - Taylor & Francis Group.
- [3] Xu, C. (2018). Effect of Processing Conditions on Electric and Dielectric Properties of Polymer-Derived SiC Ceramics. *Advances in Ceramics for Environmental, Functional, Structural, and Energy Applications: Ceramics*. John Wiley & Sons, Inc.
- [4] Liu, J., Xu, C. and Jackson, M. (2011). Traditional and Non-traditional Control Techniques for Grinding Processes. *Machining with Abrasives*. Springer.
- [5] Jackson, M. J., Ahmed, W. and Xu, C. (2009). Fundamentals of Machining. *Machining with Nanomaterials*. Springer.
- [6] Jackson, M. J., Evans, J., Xu, C. and Ahmed, W. (2009). Formation of Nanostructured Metals. *Machining with Nanomaterials*. Springer.
- [7] Xu, C. (2009). Persistence, Consistency, and Patience. *Tips on Getting an Academic Position*. Lulu Web Publisher.

➤ Referred Peer-Reviewed Journal Publications (total 78 papers, only 59 listed)

Only listed items from 2011-present due to the page limitation:

- [1] Sultana, F., Yang, N., Xu, C., Monroe J., El-Ghannama, A., (2024), “Synthesis and characterization of functionally graded SiC-mullite thermal material,” *Journal of Solid State Chemistry*, Vol. 330, 124414.
- [2] Wang, F., Ajayi, T., Vinod, K., Xu, C., Fang, T., (2023), “Impact and Wetting of Polysilazane Droplets on a Metal Surface,” *Colloids & Surfaces A: Physicochemical and Engineering Aspects*, 132328.
- [3] Liu, X., Liu, H., Wu, H, Zhou, Q., Liang, H., Liu, G., Duan, W., Gu, Y., Xu, C., Travitzky, N., Colombo, P., Riedel, R., (2023), “Structural Electromagnetic Absorber Based on MoS₂/PyC-Al₂O₃ Ceramic Metamaterials”, *Small*, 2300664.
- [4] Yang, N., Xu, C., (2023), “An ultrathin polymer-derived UHTCs coating on CFRP substrate: Effective electromagnetic wave absorber,” *Composites Communication*, 101713.
- [5] Jia, Y., Yang, N., Xu, S., Snyder, A.D., Patrick, J., Kumar, R., Zhang, D., Xu, C., (2023),

- “Polymer-derived SiOC reinforced with the core-shell nanophase structure of ZrB₂/ZrO₂ for stable high-temperature microwave absorption (up to 900° C).” *Scientific Reports*, 13 (1): 267.
- [6] Yang, N., Kenion, T., Xu, S., Xu, C., (2023), Dielectric Property Characterization at High Temperature (RT to 1000 °C) of BN-based Electromagnetic Transparent Materials for Hypersonic Applications, *Ceramics International*, 49 (7), 11047-11059.
- [7] Yang, N., Zhang, X., Reynolds, L., Kumah, D., Xu, C., (2023), The role of carbon content: A comparison of the nickel particle size and magnetic property of nickel/polysiloxane-derived silicon oxycarbide, *Advanced Engineering Materials*, (9), 2201453.
- [8] Yang, N., Xu, S., Zhang, D. and Xu, C., (2022), "Super-Wideband Electromagnetic Absorbing TiC/SiOC Ceramic/Glass Composites Derived from Polysiloxane and Titanium Isopropoxide with Low Thickness (< 1mm)." *Advanced Engineering Materials*, (9), 2201508.
- [9] Yang, N, Xu, S, Xu, C., (2022), Highly Electromagnetic Transparent Ceramic Composite Made of Boron Nitride Nanotubes and Silicon Oxynitride via Perhydropolysilazane Infiltration Method. *Scientific Reports*, 12, (1): 14374.
- [10] Pasagada, V.K.V., Yang, N., and Xu, C., (2022), “Electron beam sintering (EBS) process for Ultra-High Temperature Ceramics (UHTCs) and the comparison with traditional UHTC sintering and Metal Electron Beam Melting (EBM) processes,” *Ceramics International*, Vol. 48, No. 7, pp. 10174-10186.
- [11] Kenion, T., Yang, N., and Xu, C., (2022), “Dielectric and Mechanical Properties of Hypersonic Radome Materials and Metamaterial Design: A Review”, *Journal of the European Ceramic Society*, 42(1): 1-17.
- [12] Daniel, J., Nguyen, S., Chowdhury, A., Xu, S., Xu, C., (2021), “Temperature and Pressure Wireless Ceramic Sensor (Distance = 0.5 Meter) for Extreme Environment Applications”, *Sensors*, 21 (19), 6648.
- [13] Kulkarni, A. and Xu, C., (2021), “A Deep Learning Approach in Optical Inspection to Detect Hidden Hardware Trojans and Secure Cybersecurity in Electronics Manufacturing Supply Chains,” *Frontiers in Mechanical Engineering*, 7: 709924.
- [14] Chowdhury, A. Jia, Y., and Xu, C., (2021). “Synergistic Effect of the Mesoporosity-Turbostratic Carbon on the Six-fold Piezoresistivity Improvement of Pristine Polymer Derived SiC Pyrolyzed at High Temperature,” *Open Ceramics*, Vol. 6. No. 100108.
- [15] Jia, Y., Mehta, S., Li, R., Chowdhury, A., Horn, T. and Xu, C., (2021), “Additive Manufacturing of ZrB₂-ZrSi₂ ultra-high temperature ceramic composites using an electron beam melting process”, *Ceramic International*. 47, 2, 2397-2405.
- [16] Jia, Y., Ajayi, T., Wahls, B., Ramakrishnan, K. R., Ekkad, S. and Xu, C., (2020), “Multifunctional Ceramic Layer System for Enhanced Thermal Protection and Electromagnetic Interference Shielding for Carbon Fiber Reinforced Polymer,” *ACS Applied Materials & Interfaces*, 12(52), 58005-580017.
- [17] Jia, J., Ajayi, T., Roberts, M., Chung, C-C. and Xu, C., (2020), “Ultra-High Temperature Ceramic-Polymer Derived SiOC Ceramic Composites for High-Performance Electromagnetic Interference Shielding,” *ACS Applied Materials & Interfaces*, 12, 41, 46254-46266.
- [18] Jia, J., Ajayi, T., Ramakrishnan, K. R., Negi, A., Liu, J., Ekkad, S. and Xu, C., (2020), “A skin layer made of cured polysilazane and yttria-stabilized zirconia for enhanced thermal protection of carbon fiber reinforced polymers (CFRPs)”, *Surface and Coating Technology*, Vol. 404, 126481.
- [19] Smith, J., Xu, C., Deng, Y., Manjunatha, K.A., Agarwal, V., (2020), “Wireless Sensing and Communication Capability from In-core to the Monitoring Center,” INL/EXT-20-59435.
- [20] Arinez, JF., Chang, Q., Gao, RX., Xu, C., Zhang, J., (2020), “Artificial Intelligence in Advanced Manufacturing: Current Status and Future Outlook,” *ASME Transaction, JMSE Keynote Paper for the 100th Anniversary Special Issue of MED*, Vol. 142, No. 11, pp. 110804-110820.
- [21] Jia, Y, Chowdhury, A., Xu, C., (2020), Complex Impedance Spectra of Polymer Derived SiC Annealed at Ultrahigh Temperature. *Journal of the American Ceramic Society*. Vol. 103, No. 12,

- pp. 6860-6868.
- [22] Chowdhury, A., Xu, C., (2020), Impedance Spectroscopy Study on the Two-Phase to Three-Phase Transformation in Polymer Derived SiC Pyrolyzed at High Temperature”, *Procedia Manufacturing*. Vol. 49, pp. 9-15.
- [23] Jia, Y., Ajayi, T., Xu, C., (2020), “Dielectric properties of polymer-derived ceramic reinforced with boron nitride nanotubes,” *Journal of the American Ceramic Society*. 103: 5731-5742.
- [24] Jia, Y., Chowdhury, A. and Xu, C. (2020). Electromagnetic Property of Polymer Derived SiC-C Solid Solution Formed at Ultra-High Temperature, *Carbon*, Vol. 162, pp. 74-85.
- [25] Yang, J-Y., Zhang, W., Xu, C., Liu, J., Liu, L., and Hu, M., (2020), “Strong Electron-Phonon Coupling Induced Anomalous Phonon Transport in Ultrahigh Temperature Ceramics ZrB₂ and TiB₂”, *International Journal of Heat and Mass Transfer*. Vol. 152, 119481.
- [26] Chowdhury, A., Wang, K., Jia, Y., Xu, C., (2020), Electrical Conductivity and Structural Evolution of Polymer Derived SiC Ceramics Pyrolyzed from 1200°C to 1800°C, *ASME Transaction, Journal of Micro- and Nano-Manufacturing (JMNM)*. Vol. 8, No. 2, JMNM-19-1047.
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- [45] 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.
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- [48] 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.
- [49] **(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.
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- [54] 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.
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- Nanocomposites: High-Performance Anode Materials for Li-ion Batteries. *Journal of Materials Chemistry*, 21, 18186-18190.
- [57] 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.
- [58] 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.
- [59] 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.

➤ **Representative Full-Length Peer-Reviewed Conference Papers**

✓ **Teaching- and Mentoring- Related**

- [1] Mousavinezhad, S., Xu, C., (2019). *Teaching and Learning of Electrical and Computer Engineering Courses with High Mathematical Contents*, ASEE Annual Conference & Exposition.
- [2] Mousavinezhad, S., Xu, C., (2019). *Science and Engineering Courses, Theory and Practice: An Example*, ASEE Annual Conference & Exposition.
- [3] Xu, C., Mousavinezhad, S., (2017). *Computing in Circuits and Systems*, ASEE Annual Conference & Exposition.
- [4] Mousavinezhad, S., Xu, C., (2017). *ECE teaching and learning: Challenges in teaching digital signal processing*, ASEE Annual Conference & Exposition.
- [5] Xu, C. and Mousavinezhad, H. (2016). *Computer and Information Technology Tools in Signals & Systems*. ASEE Annual Conference & Exposition, New Orleans, CA.
- [6] Xu, C., Wentworth, S. and Mousavinezhad, H. (2016). *Teaching and Learning of Engineering Topics with Software Tools*. ASEE Annual Conference & Exposition, New Orleans, CA.
- [7] Xu, C., Mousavinezhad, H. (2015). *Computer-Aided Design (CAD) of Recursive/Non-Recursive Filters*. ASEE Annual Conference & Exposition. Seattle, WA.

✓ **Research- Related**

- [8] Kotriwar, Y., Kumar, D., Xu, C., Deng, Y., Smith, J., (2023), *Passive wireless RFID sensor for high-temperature applications*, The American Society for Nondestructive Testing (ASNT) Research Symposium, June 26-30, Columbus, OH.
- [9] Chandrasekaran, S., El-Ghannama, A., Monroe, J.A. and Xu, C., (2022), *Thermo-mechanical properties of SiC-Mineral Binder Composites for Space Applications*, ASME IMECE International Mechanical Engineering Congress and Exposition (IMECE), October 30 - Nov 3rd, Columbus, OH.
- [10] Abouelella, H., Xu, C., Murty, K., (2022), *Strain Rate Sensitivity Studies of commercial FeCrAl Alloy*, 2022 TMS Annual Meeting & Exhibition, February 27 – March 3, 2022, Anaheim, CA.
- [11] Ajayi, T., Jia, Y., Xu, C. (2021). *Multifunctional ceramic composite system for simultaneous thermal protection and electromagnetic interference (EMI) shielding for carbon fiber reinforced polymer composites (CFRP)*, Proceedings of the American Society for Composites 36th Technical Conference, September 19 – 21, College Station, TX.
- [12] Wang, F., Ajayi, T., Vinod, K., Xu, C. and Fang, T., (2021), *Impacting and Wetting Dynamics of Single Polysilazane Droplet on Inconel Surface*, ICLASS 2021, 15th Triennial International Conference on Liquid Atomization and Spray Systems, Edinburgh, UK.
- [13] **(Invited)** Chowdhury, M., Xu, C., (2019), *Impedance Spectroscopy Study on the Two-phase to Three-phase Transformation in Polymer Derived SiC Pyrolyzed at High Temperature*, Proceedings of the CIRP 2019 TES Conference, Cleveland, OH.
- [14] 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.
- [15] 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, Charlotte, NC.
- [16] 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.
- [17] Freese, D., Shao, G. and Xu, C. (2013). *Polymer-Derived Ceramic Sensors for Temperature Measurement in Harsh Environment*. ASME Turbo Expo. Antonio, TX.
- [18] **(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.
- [19] 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.
- [20] 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.
- [21] 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.
- [22] 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.
- [23] 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.
- [24] Shao, G., Xu, C. and An, L. (2010). *Carbon Nanofiber Reinforced Polymer Derived Ceramic Nanocomposites*. Material Science and Technology. Houston, TX.
- [25] 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.
- [26] 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.
- [27] 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.
- [28] 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.
- [29] 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.
- [30] 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– Combustion Dynamics, Orlando, FL.
- [31] **(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.

➤ **Representative Peer-Reviewed Conference Presentations and Invited Presentations**

- [1] **(Invited)** Xu, C., (2023). *Characterization of Material’s Electromagnetic (EM) and infrared (IR) Properties at High Temperature and Metamaterial Design Enabling Transparency*, **National Academies of Sciences, Engineering, and Medicine (NASEM), Defense Materials, Manufacturing and Infrastructure (DMMI) Standing committee**, “High-Temperature Electromagnetic Materials: A Meeting of Experts,” Washington D.C.
- [2] Xu, C., (2022). *Dielectric Property Characterization of two Commercial BN and two Synthesized BNNT/SiCN Plates from Room Temperature to 1000 °C*, 18th DoD Electromagnetic Windows Symposium, Newark, Delaware.
- [3] Xu, C., (2021). *Next-Generation Radar Absorbing Material (RAM) for Stealth Applications*, NCSU Chancellor’s Innovation Fund (CIF) Award Presentation.
- [4] Xu, C., (2021). *Technology Overview and Market Review on High-Temperature Sensor System for Extreme Environment Applications*, Technical Advisory Committee Presentation for RHI Magnesita.
- [5] 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, OR.
- [6] 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.
- [7] Xu, C. (2018). *Multifunctional Ceramic Materials for Extreme Environment Applications*, U.S. Army Research Laboratory, Aberdeen Proving Ground (APG), Maryland.
- [8] Xu, C., Daniel, J. (2018). *Wireless Temperature Sensor for High-Temperature Environments (up to 1000C) using RF Techniques with 0.5-meter Sensing Distance*, 41st Annual Conference on Composites, Materials, and Structures, Cocoa Beach, FL.
- [9] Xu, C. and Peebles, J. (2017). *Non-Destructive Testing of Composite Materials at High Temperature (2000°C)*, Material Measurements Working Group, Dayton, OH.
- [10] Xu, C., Ajayi, T. and Morales, J. (2017). *Thermal and Oxidation Stability of BNNT and BNNT Composites*. Presentation at NASA Langley.
- [11] 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.
- [12] 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.
- [13] 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.
- [14] 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.
- [15] **(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.
- [16] 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.

9. Technological Innovation

➤ Patents Issued

- [1] Xu, C. *Nanoparticle-Reinforced Composites and Methods of Manufacture and Use*. U.S. Patent No. 10,214,801 B2. Issued on February 26, 2019.
- [2] Xu, C. *Ceramic Composite Materials and Methods*. U.S. Patent No. 10,214,455 B2. Issued on February 26, 2019.
- [3] Xu, C., *Methods for Aligning Fibers with An Electrical Field and Composite Materials*. U.S. Patent No. 10,252,475 B2. Issued on April 9, 2019.
- [4] Xu, C. and Schrand, A., *Polymeric Ceramic Precursors, Apparatuses, Systems, and Methods*. U.S. Patent No. 10,384,393 B2. Issued on August 20, 2019.
- [5] Xu, C. *Three-Dimensional Multi-Reinforced Composites and Methods of Manufacture and Use Thereof*. U.S. Patent No. 10,836,135 B2. Issued on November 17, 2020.
- [6] Xu, C., Schrand, A., Soto, R., *Temperature and Pressure Sensors and Methods*. U.S. Patent No. 10,845,211 B2. Issued on November 24, 2020.
- [7] Xu, C. *Ceramic Composite Materials and Methods*. U.S. Patent No. 10,927,045 B2. Issued on February 23, 2021.
- [8] Xu, C. and Daniel, J., *Wireless Temperature Sensors and Methods*. U.S. Patent No. 10,969,282 B2. Issued on April 6, 2021.
- [9] Xu, C. and MacDonald, J., *Metamaterials, Radomes including Metamaterials, and Methods*. U.S. Patent No. 11,011,834 B2. Issued on May 18, 2021.
- [10] Xu, C. *Three-Dimensional Multi-Reinforced Composites and Methods of Manufacture and Use Thereof*. U.S. Patent No. 11,254,092 B2. Issued on February 22, 2022.
- [11] Xu, C. and Nickerson, W., *Hybrid Multifunctional Composite Material*. U.S. Patent No. 11,325,867 B2. Issued on May 10, 2022.
- [12] Xu, C. and Nickerson, W., *Hybrid Multifunctional Composite Material and Method of Making the Same*. U.S. Patent No. 11,505,502 B2. Issued on November 22, 2022.
- [13] Xu, C. and MacDonald, J., *Metamaterials, Radomes including Metamaterials, and Methods*. U.S. Patent No. 11,811,136 B2. Issued on November 7, 2023.
- [14] Xu, C. *Ceramic Composites and Methods of Making and Using the Same*. U.S. Patent No.: 12,006,267 B2. Issued on June 11, 2024.
- [15] Xu, C., Schrand, A., Soto, R., *Temperature and Pressure Sensors and Methods*. U.S. Patent No. 12,007, 252 B2. Issued on June 11, 2024.

➤ Patent Applications

- [1] Xu, C. and Schrand, A., *Temperature and Pressure Sensors and Methods*. International Patent Application. Publication No. WO 2018/182815 A1. Publication date on October 04, 2018.
- [2] Xu, C. *Ceramic Composite Materials, Articles and Methods*. U.S. Patent Application No. 17/490,164. Filed on September 30, 2021.
- [3] Xu, C. *Polymer-Derived Ceramic Reinforced with Boron Nitride*. U.S. Patent Application No. 17/658,141. Filed on April 6, 2022.
- [4] Xu, C. *Ultrathin Polymer-Derived Ultra High Temperature Ceramic (UHTC) Coating*. U.S. Patent Application No. 63/535,686. Filed on August 31, 2023.

➤ Invention Disclosures

- [1] NCSU-20093. *Aligned Carbon Nanotube/Carbon (CNT/C) Composites with Exceptionally High Electrical Conductivity at Elevated Temperature*. Submitted on November 12, 2019.
- [2] NCSU-20223. *Additive Manufacturing of Complex Geometries of UHTC-Based Ceramics using Electron Beam Melting (EBM) Process*. Submitted on April 10, 2020.
- [3] NCSU-D2024-0054. *An Ultrathin Polymer-derived UHTCs Coating on CFRP Substrate: Effective Electromagnetic Wave Absorber*. Submitted on September 18, 2023.

10. Student Mentoring

➤ Doctoral Dissertations

Ph.D. completed as Chair (total = 9)

Name	Degree	Graduation	Chairman
Kimball, S.	Ph.D.	2024	Xu, C.
Ajayi, T.	Ph.D.	2021	Xu, C.
Chowdhury, A.	Ph.D.	2020	Xu, C.
Ju, L.	Ph.D.	2018	Xu, C. (co-Chair: Hellstrom, E.)
Zhao, R.	Ph.D.	2014	Xu, C.
Liu, J.	Ph.D.	2012	Xu, C.
Idahosa, U.	Ph.D.	2010	Xu, C. (Chair: Basu, S.)
Tang, Y. (<i>Female</i>)	Ph.D.	2009	Xu, C.
Allen, R.	Ph.D.	2009	Xu, C.

Student: Kimball, S.
 Title: Enhancing Electromagnetic and Thermal Performance of Ceramics through Advanced Additive Manufacturing Techniques
 Status: Founder and Owner of a small business

Student: Ajayi, T.
 Title: Tunable Multi-functional Properties of Polymer Derived Silicon Carbon Nitride (SiCN) Ceramic Composites for Advanced Aerospace Applications
 Status: Lam Research, CA

Student: Chowdhury, A.
 Title: Study on the Electrical and Dielectric Properties of Polymer Derived SiC Ceramics Pyrolyzed at High Temperatures
 Status: KLA-Tencor, Milpitas, CA

Student: Ju, L.
 Title: Hybrid Multifunctional Composite Material by co-curing Lay-up Process for Enhanced Surface Durability
 Status: Professor overseas

Student: Zhao, R.
 Title: Modeling and Contour Control of Multi-axis Linear Driven Machine Tools
 Status: Google, LLC

Student: Liu, J.
 Title: Experimental Study and Modeling of Mechanical Micro-machining of Particle Reinforced Heterogeneous Materials
 Status: Alcon, CA

Student: Idahosa, U.
 Title: Combustion Dynamics and Fluid Mechanics in Acoustically Perturbed Non-Premixed Swirl-Stabilized Flames
 Status: GE Global Research Center, Niskayuna, NY

Student: Tang, Y.
 Title: Integrated Servomechanism and Process Control for Machining Processes
 Status: Professor at Embry-Riddle Aeronautical University, Daytona Beach, FL

Student: Allen, R.
 Title: Robust Estimation and Adaptive Guidance for Multiple UAVs' Cooperation
 Status: LoneStar, Inc.

Ph.D. in progress as Chair (total = 2)

Name	Degree	Expected Graduation	Chairman
Joyce, L.	Ph.D.	2025	Xu, C.
Maier, N.	Ph.D.	2025	Xu, C.

Ph.D. as Committee Member (total = 21)

Name	Degree	Graduation	Chairman
Rahman, W.	Ph.D.	in progress	Peters, K.
Chen, W.	Ph.D.	in progress	Su, H.
Dominguez, I.	Ph.D.	in progress	Su, H.
Amoako, E.	Ph.D.	in progress	Horn, T.
Gray, A.	Ph.D.	in progress	Yuan, F.
Chacko, Z.	Ph.D.	in progress	Rabiei, A.
Onuorah, W.	Ph.D.	in progress	Ware, H.
Sarka, S.	Ph.D.	in progress	Rabiei, A.
Walaa Enab	Ph.D.	2024	Philip Bradford (College of Textiles)
Kim, J.	Ph.D.	2022	Peters, K.
Yeng, S.	Ph.D.	2022	Stefanski, L. (Statistics)
Xu, S.	Ph.D.	2022	Reich, B.; Yang, S. (Statistics)
Lyathakula, K.	Ph.D.	2021	Yuan, F.
Lall, A.	Ph.D.	2021	Rabiei, A.
Hu, H.	Ph.D.	2020	Zheng, X. & Hammond, R. (Economics)
Hosani, M. Y. A.	Ph.D.	2013	Qu, Z.
Shao, G.	Ph.D.	2013	An, L.
Huang, K.	Ph.D.	2012	Sohn, Y.
Chen, Y.	Ph.D.	2011	An, L.
Li, C.	Ph.D.	2011	An, L.
Plaisted, C.E.	Ph.D.	2007	Leonessa, A.

➤ Master's Theses

M.S. completed as Chair (total = 7)

Name	Degree	Graduation	Chairman
Morales, J.	M.S.	2021	Xu, C.
Mehta, S.	M.S.	2020	Xu, C.
Ajayi, T.	M.S.	2018	Xu, C. (Co-Chair: Okoli, O.)
Odevale, V.	M.S.	2016	Xu, C.
Hernandez, M. (<i>Minority</i>)	M.S.	2012	Xu, C.
Deane, E. (<i>Minority</i>)	M.S.	2011	Xu, C.
Knipe, K.	M.S.	2010	Xu, C.

Student: Morales, J.
 Thesis: Manufacturing Boron Nitride Nanotube (BNNT) Reinforced Polymer Derived Ceramic (PDC) Composites for Space Applications
 Status: Oak Ridge National Lab, TN

Student: Mehta, S.
 Thesis: Additive Manufacturing Ultra-High Temperature Ceramic (UHTC) Composites Using Electron Beam Melting Process
 Status: Endera Motors

Student: Ajayi, T.
 Thesis: Boron Nitride Nanotubes (BNNTs) Reinforced-Polymer Derived Ceramic (PDC) Nanocomposites for Mechanical and Thermal Applications
 Status: Lam Research, CA

Student: Odewale, V.
 Thesis: Additive Manufacturing of Freeform Ceramic Material using Polymer-Derived Ceramics
 Status: Professor overseas

Student: Hernandez, M.
 Thesis: Process Optimization Toward the Development of an Automated CNC Monitoring System for a Simultaneous Turning and Boring Operation
 Status: Honda Motor Co.

Student: Deane, E.
 Thesis: Multi-sensor Optimization of the Simultaneous Turning and Boring Operation
 Status: Siemens Corporation

Student: Knipe, K.
 Thesis: Structural Analysis and Active Vibration Control of Tetraform Space Frame for use in Micro-scale Machining
 Status: N/A

M.S. as Committee Member (total = 8)

Name	Degree	Graduation	Chairman
Anandram, A.	M.S.	in progress	Ware, H.
Jimenez, L.	M.S.	in progress	Buckner, G.
Vamvakias, C.	M.S.	2024	Fang, T.
Carbiener, C.	M.S.	2017	Clark, J.
Pascioni, K.	M.S.	2017	Cattafesta, L.
McKee, J.	M.S.	2013	Gou, J.
Mutter, N.	M.S.	2012	Gordon, A.
Torrance, M.	M.S.	2012	Kapat, J.

M.S. non-thesis supervised (a representative incomplete list)

Name	Graduation	Name	Graduation
Solomon, J.	in progress	Tulapurkar, P.	in progress
Reid, M.	in progress	Deshpande, S.	2023
Pillariseti, S.	2022	DiGruccio, M.	2022
Stanley, J.	2022	Dongre, S.	2021
Zhao, S.	2021	Chen, R.	2021
Weiden, C.	2021	Kulkarni, A.	2021
Pasagada, K.	2021	Daniel, J.	2018
Bazyler, B.	2018	Sun, X.	2016
Giesecke, D.	2012	Li, J.	2012
Joslin, A.	2010	Barnes, G.	2009

➤ **Honor-In-Major (HIM) Undergraduate Thesis**

Honor-In-Major (HIM) Undergraduate (UG) Thesis completed as Chair (total = 1)

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

Honor-In-Major (HIM) Undergraduate (UG) Thesis completed (on Committee) (total = 4)

Name	Degree	Graduation	Chairman
Burkett, M.	HIM UG	2015	Zeng, C.
Hodges, J.	HIM UG	2012	Kapat, J.
Wright, D.	HIM UG	2010	Chew, L.
Robinson, J.	HIM UG	2009	Ham, C.

➤ **Supervised Undergraduate Researcher (a representative incomplete list)**

Name	Year	Name	Year
Bauer, A.	2022-2023	Solomon, J.	2022-2024
Reid, M.	2022-2024	Tucker, W.	2023-2024
Kannan, K.	2023	Forsgard, A.	2023
Kennedy, J.	2023	Morton, C. (<i>Female</i>)	2023
DiGruccio, M. (<i>Minority</i>)	2022	Joyce, L.	2021-2022
Kenion, T.	2021-2022	Lawson, A.	2021
Guynn, M. (<i>Female</i>)	2021	Mueller, B. (<i>Female</i>)	2020
Harwood, H. (<i>Female</i>)	2021	Choi, J.	2020-2021
Roberts, M.	2021	Pratt, W.	2019-2020
Justin, D.	2016-2017	Macdonald, J.	2016
Rubin, S.	2016	Fajardo, T.	2016
Hood, S. (<i>Female</i>)	2016	Morales, J.	2016
Simal, B. (<i>Female</i>)	2014-2015	Htchinson, J.	2015
Duckett, M.	2015	Swain, M.	2014
Albarracin, B.	2013	Spags, A. (<i>Minority</i>)	2012-2013
Harris, K.	2012-2013	Zuanetti, B.	2012-2013
Mayhew, D.	2012-2013	Gilmore, J.	2011-2012
Carreiro, J.	2011-2012	Meanor, M.	2010-2011
Giesecke, D.	2010-2011	Walls, K.	2010
Hernandez, M. (<i>Minority</i>)	2010	Coy, L. (<i>Female</i>)	2009
Deane, E., (<i>Minority</i>)	2009-2010	Mak, A.	2008-2009
Collins, S. (<i>Minority</i>)	2008-2010	Clapp, R.	2008
Joseph, L., (<i>Minority</i>)	2008		

➤ **Supervised Post-Doctoral Scholars**

Name	Duration	Topic
Ghimire, J.	2023-Present	Material’ electromagnetic properties at high temperatures
Rajpoot, S. (<i>Female</i>)	2023-Present	Highly Transparent Ceramic Armor Material
Ni, Y. (<i>Female</i>)	2020-2023	Electromagnetic Absorbing Ceramic Composites
Jia, Y.	2018-2020	Wide-Band Microwave-Absorbing Ceramic Composites
Wang, K.	2016-2017	Semiconductor-conductor transition of SiC ceramics
Yang, J.	2012-2016	Strong and ultra-flexible SiCN nanocomposites
Ji, Y.	2010-2011	Modeling and Control of Feed Drive System

11. Teaching Effectiveness

➤ Representative Recognition for Teaching and Mentoring at National and University Level

– 2015, Mac E. VanValkenburg Teaching Award, IEEE Education Society

The Mac E. VanValkenburg Teaching Award is a prestigious award from the IEEE Education Society named in honor of Mac Elwyn VanValkenburg, a renowned electrical engineering educator and author. The award recognizes and celebrates outstanding teaching in engineering fields. It is one of the highest honors in engineering education. It reflects the IEEE Education Society’s commitment to promoting teaching excellence and ensuring the development of future engineers through high-quality education. I was selected as the only recipient for that year.

– 2012, Teaching Incentive Program (TIP) Award, University of Central Florida (UCF)

The University of Central Florida Teaching Incentive Program (UCF-TIP) is a faculty recognition and reward initiative to promote excellence in teaching at UCF. The primary goal of UCF-TIP is to acknowledge and reward faculty members who demonstrate outstanding teaching performance and significantly contribute to the university’s mission of providing high-quality education. The UCF-TIP award is competitive, and only a limited number of faculty members receive this recognition yearly.

– 2008, published the textbook: “Intelligent Systems: Modeling, Optimization and Control.” CRC Press, Taylor & Francis.

This textbook was a pioneering work in the artificial intelligence (AI) and machine learning (ML) field, offering comprehensive insights into advanced modeling and optimization techniques for intelligent systems — well ahead of its time, aligning with today's hot topics in AI/ML. The textbook has been sold globally, educating manufacturing engineers across the US, France, Germany, Russia, Spain, China, and Japan, and significantly shaping both academic instruction and practical applications in engineering education for nearly two decades.

➤ Summary of CourseEval Metrics:

Course Number	Course Title	Semester	Enrollment	Xu Rating	Dept. Mean
MAE 495/534	Special Topics: Mechatronics	SP 2024	18	4.6	N/A
MAE 495/534	Special Topics: Mechatronics	SP 2023	18	4.3	4.4
MAE 315	Vibration: Dynamics of Machines	FA 2022	85	4.5	4.2
MAE 495/534	Special Topics: Mechatronics	SP 2022	19	4.9	N/A
MAE 208	Engineering Dynamics	SP 2022	85	4.2	4.4
MAE 410	Modern Manufacturing Processes	FA 2021	40	No numerical evaluations for these semesters due to COVID-19 impacts.	
MAE 496/534	Special Topics: Mechatronics	SP 2021	7		
MAE 208	Engineering Dynamics	SP 2021	86		
MAE 315	Vibration: Dynamics of Machines	FA 2020	91		
MAE 208	Engineering Dynamics	SP 2020	54		
MAE 315	Vibration: Dynamics of Machines	FA 2019	55	4.6	4.2
MAE 208	Engineering Dynamics	SP 2019	47	4.5	4.3
MAE 208	Engineering Dynamics	FA 2018	42	4.7	4.2