

Curtis R. Taylor, Ph.D.

Associate Professor
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Department of Mechanical and Aerospace Engineering
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Summary

Dr. Curtis R. Taylor, Ph.D. is an Associate Professor of Engineering Education, Mechanical and Aerospace Engineering at the University of Florida (UF). Dr. Taylor seeks to train and inspire the next generation of engineers. He teaches undergraduate and graduate courses in solid mechanics and design. Dr. Taylor's research seeks to develop advanced manufacturing capabilities and to better understand how students learn engineering through the use of digital technologies. Before joining Florida, he was an Assistant Professor at the Virginia Commonwealth University (VCU) in Richmond, Virginia.

A recipient of a B.S. degree in mechanical engineering from the University of Maryland (1998), Dr. Taylor furthered his education as a National Science Foundation (NSF) Integrated Graduate Education, Research, and Training (IGERT) Fellow, earning both his M.S. (2002) and Ph.D. (2005) in physics (microelectronics-photonics) from the University of Arkansas. Prior to his academic pursuits, he served as an information technology/engineering project manager at Capital One Financial Corporation in Richmond, Virginia.

Dr. Taylor's academic and professional trajectory includes research appointments with esteemed entities such as the U.S. Air Force, United Technologies Corporation, and the National Center for Electron Microscopy at Lawrence Berkeley National Lab.

Professor Taylor uses his expertise, knowledge, and talents to serve the University and the larger community. He strives to inspire and motivate students of all ages to pursue careers in science and technology.

Research Interests: Advanced Manufacturing; Mechanical Behavior of Materials; Engineering Education

Education

UNIVERSITY OF ARKANSAS, Fayetteville, AR
Ph.D. in Physics/Electrical Engineering (interdisciplinary studies)--2005
National Science Foundation IGERT Fellow
Dissertation Title: *Investigation of Nanoindentation for the Directed Self-Assembly of Nanostructures*

UNIVERSITY OF ARKANSAS, Fayetteville, AR
M.S. in Physics/Electrical Engineering (interdisciplinary studies) with Electronics Manufacturing Certificate--2002

UNIVERSITY OF MARYLAND, College Park, MD
B.S. in Mechanical Engineering with Honors—1998
Minor in Total Quality Management

Executive and Leadership Training

Institute for Academic Leadership, Florida State University, 2016
State University System of Florida Department Chairs Workshop

Masters of Business Administration and Professional Coursework

- Strategic Communication
- Technological Entrepreneurship
- Executive Presence

Professional Experience

- *Associate Professor*, Mechanical and Aerospace Engineering, 2014-present
University of Florida, Gainesville, FL
 - o Manages and performs research in advanced manufacturing and mechanical behavior of materials.
 - o Teaches undergraduate and graduate courses in engineering mechanics.
- *Associate Professor*, Engineering Education (*joint faculty*), 2019-present
University of Florida, Gainesville, FL
 - o Manages and performs research in the application of digital technologies (e.g. virtual reality, augmented reality, haptics, artificial intelligence) to enhance the learning of science and engineering

- *Associate Dean for Student Affairs*, Herbert Wertheim College of Engineering, 2015-2023
University of Florida, Gainesville, FL

The Associate Dean provides leadership for excellence in engineering education in the Herbert Wertheim College of Engineering (HWCOE) through developing, implementing, supporting, and assessing curricular and co-curricular programs. The Associate Dean is a 12-month administrative role. The Associate Dean is responsible for serving as the college liaison regarding undergraduate student and career development activities throughout the university. The Associate Dean reports to the Dean of the HWCOE and is responsible for undergraduate student service activities in the College and supervising staff involved in these areas. These responsibilities pertain to over 8,000 undergraduates and 2,000 graduate students across 11 departments, 15 majors; management of budgets in excess of \$2M; supervision of 15 full-time staff members; and directly contributing to the management of 100+ student support services faculty and staff.

Undergraduate curricular programs:

- Developing, implementing, supporting, and assessing dual degree and similar programs including:
 - Gator Engineering @Santa Fe Degree Program
 - Gator Engineering @State College of Florida Degree Program (established 2016)
 - New College of Florida (established 2018)
 - University of the Virgin Islands
 - University of the West Indies (established 2019)
 - First Year Engineering Program Courses – Introduction to Engineering, Introduction to Research
 - Engineering Honors Program
- Developing and implementing interventions to increase 4- and 5-year graduation rates
- Developing and implementing interventions to increase enrollment, retention, and graduation rates of underrepresented students
- Meeting with faculty members and coordinating with university units to resolve student grievances and concerns, and improve teaching
- Assessment of college-wide engineering education outcomes including collection, analysis, and generation of reports regarding admissions, enrollment, retention, graduation rate, experiential learning (i.e., undergraduate research, study abroad, internships, etc.), benchmarking surveys, career placement, and various reports. These assessments and reports are presented for the Florida Board of Governors (BOG), Accreditation Board for Engineering and Technology (ABET), American Society of Engineering Education (ASEE), National Science Foundation (NSF), U.S. News and World Report, Engineering Workforce Commission, and other organizations.
- Assist with the College's on-going ABET process

Undergraduate co-curricular programs:

- **Academic advising and counseling for engineering students, with two foci:** 1) developing and implementing an effective advising program for first-year students and 2) guiding the Engineering Advising Council community of advisors and faculty coordinators

- **Implementing and coordinating Inclusive Excellence programs to support student success**
- **Implementing and coordinating HWCOE student health and wellness activities**
- **K-12 Outreach and Pre-college Programs** including Gator Engineering Outreach, Imagine UF, SECME, GatorTrax
- **Transition and Retention:**
 - Transfer student admissions
 - Engineering orientation programs including Preview for engineering students, the New Student Convocation, and the New Student Welcome
 - HWCOE Center for Student Excellence
 - First-year retention programs, retention programs for underrepresented students (women, racial minorities, LGBTQ, disabled, veterans), the general engineering population, and transfer students
 - Successful Transition and Enhanced Preparation for Undergraduates Program (STEPUP)
 - Engineering Living and Learning Community Residential Program
 - Student recognition programs, including the HWCOE Undergraduate Scholarship Program, the Gator Engineering Attribute Awards Program, HWCOE Faculty, Staff, and Student Awards Ceremony, and UFIC International Student Awards Program
 - Tutoring Services
 - Herbert Wertheim College of Engineering and Citigroup Mentoring Programs
- **Experiential Learning:**
 - Undergraduate research programs, including the Emerging Scholars Program, Horatio Algers Scholars, Pressly Scholars, and Fernandez Family Scholars Programs
 - Undergraduate study abroad programs and international partnerships, including the Global E3 Institute of International Education and Global Innovation Network
 - Career Services
 - Engineering student organizations and design teams: serve as liaison for the over 87 student organizations including the Benton Engineering Council. Assist in developing and delivering a uniform professional development program for all student organizations.

Graduate Student Co-Curricular Programs:

- Implementing and coordinating inclusive excellence programs to support student success
- Implementing and coordinating HWCOE student health and wellness activities

Terminal semester activities:

- Graduation processing and certification
- Honors processing
- Director of Graduation events: Order of the Engineer ceremony and Engineering Commencements

The Associate Dean is expected to contribute to the national and international reputation of the University of Florida in engineering education through:

- **Disseminating best practices and advances in the engineering profession**
- **Research**
 - Fostering research in engineering education and leading proposals to fund research
- **Professional Service**
 - Providing professional service to the engineering community
- **Industry**
 - Serving as a liaison to understand industry needs in engineering education
 - Serving as Chair of Education Committee – HWCOE Industrial Advisory Board
- **International Partnerships**
 - Establishing international partnerships with highly reputable institutions for scholarly experiences, faculty and student exchange

Budget management responsibilities:

- Managing Engineering Student Affairs budget
- Collaborating with the College's Advancement Office in seeking external sources of funding
- *Inclusive Excellence Leader--Campus Diversity Liaison*, University of Florida, 2018-present
 - Provide leadership to the campus and Herbert Wertheim College of Engineering in strategy development, best practices, and training in inclusive excellence
 - Responsible for assessment and data analysis of inclusive excellence initiatives in the Herbert Wertheim College of Engineering
- *Assistant Professor*, Mechanical and Aerospace Engineering, 2008-2014
University of Florida, Gainesville, FL
 - Center for Manufacturing Innovation and Nanoscience Institute for Medical and Engineering Technology
 - Micro- and nano-scale manufacturing and mechanical behavior of materials
- *Assistant Professor*, Mechanical Engineering, 2005-2008
Virginia Commonwealth University, Richmond, VA
 - Established and directed NanoManufacturing (NanoMan) Research Lab
- *Faculty Fellow*, United States Air Force Research Lab, 2007-2008
Wright-Patterson Air Force Base, Dayton, OH
 - Performed research in the development of quantum computing architectures and circuitry via controlled self-assembly of III-V quantum structures
- *Research Associate*, National Center for Electron Microscopy, 2004-2005
Lawrence Berkeley National Lab, Berkeley, CA
 - Performed transmission electron microscopy (TEM) characterization via conventional and dual-beam focused ion beam (FIB) techniques

- o Analyzed mechanical properties of materials using nanoindentation
- *Research and Teaching Assistant*, Department of Mechanical Engineering, 2002-2005
University of Arkansas, Fayetteville, AR
 - o Filed provisional patent on directed self-assembly technique
 - o Studied directed self-assembly of quantum dots via nanoindentation
 - o Directed research of three undergraduates
- *Research Assistant*, High Density Electronics Research Center, 2000-2001
University of Arkansas, Fayetteville, AR
 - o Responsible for mechanical design and low temperature material selection for new superconducting radio frequency (RF) filter
- *Project Manager*, 1999-2000
Capital One Financial Services Inc., Richmond, VA
 - o Managed software development and hardware maintenance for telephony applications

Consulting

- TestMasters Inc., Instructor, Fundamental of Engineering Exam Review Course (2006-2019)
- NanoCuffs Inc. (2012-2014)

Teaching Experience

Overall Instructor Rating = 4.5+/5.0 (all courses); highest ratings in (i) *respect and concern for students*, (ii) *enthusiasm for subject*, (iii) *communication of ideas and information*

Courses Taught at University of Florida

Prof. Taylor primarily teaches large (100-350 students) courses at the sophomore, junior and senior level and graduate level courses. The premise of the Prof. Taylor's teaching philosophy is *learning by doing*. The communication of technical information and student engagement is facilitated through in-class group problem solving, gaming/competitions, and experiments.

EEL 4924C Electrical Engineering Design 2 (Spring 2022)

Dr. Taylor served as faculty advisor for the electrical engineering design 2 senior design project team--electromechanical design of nanoscale tool-tips. The project involved the design of electromechanical nanoscale tool-tips that could be autonomously interchanged to perform multiple nanoscale semiconductor fabrication processes including feature writing, machining, imaging, and deposition. Students utilized a formal iterative design process that included design conceptualization, multi-physics computational modeling, semiconductor processing, prototyping, and testing.

CHM 2045 General Chemistry 1 (STEPUP) (Summer 2019, 2017)

CHM 2045 is an accelerated course to prepare incoming students for success in chemistry. The class size is approximately 40 students and meets for 1 hour, four days per week. CHM2045

serves to teach: the scientific method, skills for problem solving, general chemistry knowledge, and a connection to the principles that govern the natural world.

**IDH 2930 Honors Common Read - Think and Grow Rich
(Fall 2017)**

This course seeks to engage students in exploring their personal goals and developing an actionable plan for their education at UF and their career beyond. Prior to class students will read one chapter a week in the book “Think and Grow Rich” and participate in lively discussion during class. Each student is encouraged to keep a journal to track their thoughts and ideas throughout the course. Assignments consist of weekly readings, posting to online class discussion/idea boards, short essays or questionnaires, and a final presentation.

**EGM 2511 Engineering Statics
(Fall 2010)**

EGM 2511 is a 3-hour per week lecture-based sophomore-level undergraduate course that is required for all mechanical and civil engineering students, and is an elective course for other engineering disciplines. The class size was approximately 140 students. This course teaches fundamental concepts of forces and how to ensure that structures and objects are in static equilibrium.

**EGM 3520 Mechanics of Materials
(Fall 2008, Spring 2009, Fall 2009, Spring 2011, Spring 2012, Fall 2012, Fall 2014-2
sections)**

EGM 3520 is a 3-hour per week lecture based sophomore-level undergraduate course that is required for all mechanical and civil engineering students, and is an elective course for other engineering disciplines. The class size varies from approximately 120-250+ students. The purpose of the course is to provide students with the means of analyzing and designing various machine and load bearing structures within a margin of safety.

**EML 4220 Vibrations
(Spring 2013, Spring 2014, Spring 2015—2 sections, Fall 2015)**

EML 4220 is a 3-hour per week lecture based junior and senior-level undergraduate course that is required for all mechanical engineering students, and is an elective course for other engineering disciplines. The class section size varies from approximately 80-120 students. This course introduces students to analytical, experimental, and numerical treatment of vibration phenomena.

**EGM 6934 Nanomechanics Simulation and Experimental Methods
(Fall 2009, Fall 2011, Fall 2013)**

Prof. Taylor developed this graduate level course with Dr. Youping Chen in the MAE department to introduce fundamental computational and experimental techniques for the study of nanoscale mechanics of materials. The course was team taught (50/50) with Dr. Chen. This class met 3 hours per week and had ~12 students enrolled. One significant outcome of this course was the publication of work from a class project in the American Physical Society (APS) Journal of Applied Physics (Deformation Mechanisms in Silicon Nanoparticles, Journal of Applied Physics, 2011) on the nanomechanics of silicon nanoparticles with 6 students in the class.

**EML 6934 Nanomechanics and Nanoscale Characterization of Materials
(Fall 2008)**

Dr. Taylor developed this graduate level course to equip each student with fundamental knowledge of the increasingly important field of nanomechanics (i.e. nanoscale contact mechanics, deformation, and fracture) and nanoscale characterization principles. This class met 3 hours per week and had 11 students enrolled. This is a very unique course, and nationally it is estimated that fewer than 6 universities offer such a course with any regularity.

**EGM 6936 Graduate Seminar
(Fall 2012, Spring 2013, Fall 2013)**

EGM 6936 is a 1-hour per week course that is required for mechanical and aerospace engineering Ph.D. students. This course traditionally involved students sitting through invited research seminars with very little interaction. In Spring 2013, Dr. Taylor revamped the content to engage students in making technical presentations in addition to research seminar attendance. The positive effect on students is reflected in the increased evaluation ratings for this course (from 3.91 to 4.4).

Integrated Product and Process Design Coach (IPPD) (2014-2015)

Dr. Taylor served as Faculty Coach for the 2014-2015 IPPD team working with client MedTronics Inc. The team was coached for 1-3 hours per week.

Courses Taught at Virginia Commonwealth University*Undergraduate Courses*

- Engineering Statics
- Mechanics of Materials
- Materials Science for Engineers

Graduate Courses

- Quantum Theory for Nano Engineering
- Advanced Characterization of Materials

New Courses Developed and Taught:

- o IDH 2930 Honors Common Read - Think and Grow Rich (Fall 2017)
- o EGM 6934 (Fall 2009)—Nanomechanics Simulation and Experimental Methods
This course introduced fundamental computational and experimental techniques for the study of nanoscale mechanics of materials. This class met 3 hours per week and had 12 students enrolled. One significant outcome of this course was the publication of a peer-reviewed journal article on the nanomechanics of silicon nanoparticles by 6 students in the class.
- o EGRM 609 (Fall 2007)--Advanced Characterization of Materials was developed at VCU to provide a much-needed graduate course in techniques for materials characterization across material systems and scale boundaries (macro-nano scale).
- o ENGR 692 (Spring 2007)--Quantum Theory for Nano Engineering was developed at VCU to provide engineering graduate students with the fundamentals of

quantum mechanics and its applications to the study and engineering of nanotechnology and nanoscale scientific research.

- *Integration of Research and Education:* Research in nanomanufacturing was implemented into “EGRM 309 - Materials Science for Engineers” and “EGM 3520 – Mechanics of Materials” course via a nanomanufacturing module, which included theory and classroom use of atomic force microscopy, nanoindentation for hardness and fracture toughness characterization of thin films and nanostructures, and an introduction to transmission electron microscopy. Lectures were also provided, which introduced nanomechanics and nanofabrication using scanning probes.
- *Technology in Education:* Implemented use of Wimba Live Classroom webcasting software that allowed for webcasting of several international experts from Purdue University, U.S. Air Force Research Lab, and the University of Cambridge (London, England) as guest lecturers in EGRM 609 Characterization of Materials course. Wimba Live Classroom is also used once per week throughout the semester to provide virtual recitation sessions for students.

Faculty Peer Review and Mentoring

Dr. Taylor developed a new course (EML 6934) with Dr. Youping Chen in the MAE department to introduce fundamental computational and experimental techniques for the study of nanoscale mechanics of materials. The course was team taught (50/50) with Dr. Chen. Prof. Taylor also served as a peer reviewer and mentor for teaching methodology to Dr. Chen in this course.

Advising and Mentoring

Current Graduate Students:

- Breuna Wilson, Ph.D. Candidate; 2022-2026

Current Undergraduate Researchers:

- Tianjun Wang
- James Acosta

Former Graduate Students:

- Yifan Zhang, Ph.D.; 2016-2020
 - Dissertation: *Tribological Studies on Shape Memory Photonic Crystals*
- Yongliang Ni, Ph.D.; 2013-2018
 - Dissertation: *Investigation of the Shape Memory Mechanisms of a Series of Polymer Macroporous Photonic Crystals*
- Edward McCumiskey, Ph.D.; 2008-2013
 - Dissertation: *Visualizing Subsurface Deformation in Three Dimensions Via Representative Transmission Electron Microscope Tomography*
- Bijoyraj Sahu, Ph.D.; 2008-2013

- o Dissertation: *Design, Fabrication, and Characterization of a Scanning Probe Microscopy Cantilever with an Integrated Electrothermally Actuated Microgripper for Automated Tool-tip Exchange*
- Jared Hann, M.S. student; 2010-2012
 - o Thesis: *Nanoscale Stress Field Interactions in Purview of Nanomechanical Fabrication Methods*
- Jean-Michel Boccard, M.S. (Universite de Franche-Comte, France), 2010
 - o Thesis: *Design, Fabrication, and Characterization of a New Plasmonic Metamaterial Gas Sensor*
- Ankit Sharma, M.S. (non-thesis), 2010
- Edward McCumiskey, M.S.; 2006-2008
 - o Thesis: *Nanomechanics of CdSe Nanocomposite Films*
- Dongshan Yu, M.S., 2007-2009
 - o Thesis: *Controlled Synthesis of ZnO Nanowires Towards the Fabrication of Solar Cells*

Former Post-Doctoral Scholars

- Dr. Abir Bhattacharya, Ph.D., Assistant Professor, Department of Metallurgical & Materials Engineering, Indian Institute of Technology Jodhpur
- Dr. Tarek Trad, Ph.D., Professor, Department of Chemistry, Sam Houston State University

Former Undergraduate Scholars Advised

Dr. Taylor has supervised and mentored over 40 undergraduate students (25 underrepresented/minority students) in various research activities. These students include two presidents of Tau Beta Pi Florida Alpha. These undergraduates have won a high number of research awards. Their success is due in part through Dr. Taylor's mentorship and coaching. A complete list of students is found below.

Honors Theses and Undergraduate Research Projects

| Name | Program | Date | Awards/Graduate School |
|------------------|------------------------|-------------|-------------------------------|
| Roxette Garcia | Undergraduate Research | 2021-2022 | |
| Natalie Franklin | Undergraduate Research | 2018-2022 | |
| James Acosta | Undergraduate Research | 2020-2022 | <i>Fernandez Scholar</i> |
| Sam Nawy | Undergraduate Research | 2018-2020 | |
| Kyle LeBlanc | Undergraduate Research | 2015-2016 | <i>Cal-Berkeley</i> |
| Jason Bice | NSF REU | 2013-2015 | <i>Purdue University</i> |

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|---------------------|--|-------------|---|
| Richard Meaux | Undergraduate Research | 2013-2014 | |
| Khaalid McMillan | Undergraduate Research | 2013-2014 | |
| Arnaldo Pastrana | Undergraduate Research | 2013 | |
| Mallory Daly | University Scholars Program | 2013 | <i>University Scholar</i> |
| Nagid Brown | NSF REU | 2012-2014 | |
| Derick Ortiz | Undergraduate Research (individual study 3 credits) | 2012-2013 | |
| Mel Tatar | Undergraduate Research | 2013-2014 | |
| Diana Jimenez | Undergraduate Research | 2013-2014 | |
| Eric Moale | Undergraduate Research (individual study 3 credits) | 2013 - 2014 | |
| Luis Alvarez | Undergraduate Research (individual study 3 credits) | 2009-2013 | Gates Millennium Fellowship, Mass. Inst. of Tech. (MIT) 2013 |
| Mina El-Harab Hanna | Undergraduate Research | 2010-2013 | National Science Foundation Fellowship, Stanford 2013 |
| Domenique Lumpkin | Undergraduate Research | 2011-2013 | GEM Fellowship, Purdue 2013 |
| Christian Cousin | Undergraduate Research | 2013 - 2014 | UF MAE |
| Bailey Shawbitz | Undergraduate Research | 2013 - 2014 | |
| Ebony Blaize | UF Student Science Training Program | 2013 | |
| Eric Hou | UF Student Science Training Program | 2013 | |
| Daniel Ross | Undergraduate Research | 2011-2013 | |
| Deanna Gierzak | Undergraduate Research | 2012 | |
| Harold Graffe | Undergraduate Research | 2012 | |
| Andrew Simpson | Undergraduate Research | 2012 | |
| Jonathan Klevan | Undergraduate Research | 2012 | |

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|------------------------|--|-------------|---|
| Contessa Middleton | Undergraduate Research | 2011 | |
| Christopher Cantaloube | Undergraduate Research (individual study 3 credits) | 2010-2011 | |
| Joshua Simpson | Undergraduate Research | 2009-2011 | Attributes of a Gator Engineer Awardee |
| Adish Padhani | Undergraduate Research (individual study 3 credits) | 2010-2011 | |
| Anjelica Warren | Undergraduate Research | 2009-2010 | Best Poster Pi Tau Sigma Research Symposium |
| Jonathan Stratton | Undergraduate Research | 2009 | |
| Diego Moreno | Undergraduate Research (individual study 3 credits) | 2009-2010 | |
| Lisa Morin | Undergraduate Research | 2009-2010 | 1st Place Poster NanoFlorida Conference |
| Rich Winslow | Senior Honors Thesis | 2008-2009 | UC-Berkeley 2009- 2014 |
| Nikolai Eroshenko | Undergraduate Research | 2005 -2008 | Harvard University 2008-2014 |
| Ade Aiyelawo | Undergraduate Research | 2005 -2008 | |
| Jonathan Koddek | Undergraduate Research | 2006-2008 | |
| Malcolm Bressendorf | Undergraduate Research | 2005 - 2006 | Columbia University 2008-2014 |

Student Academic Advising

- Served as VCU academic advisor to more than 30 mechanical engineering students

Student Organizations Advised

- Dr. Taylor serves as Faculty Advisor for the following student organizations (2015-present):
 - Engineering Ambassadors (EAs)
 - Benton Engineering Council (BEC)
 - Engineering Student Advisory Council (ESAC)

- Tau Beta Pi - Dr. Taylor serves as Faculty Advisor for the Tau Beta Pi Florida Alpha Chapter (from 2008-present). He has served as the Chief Advisor of Tau Beta Pi from 2010-2014. Tau Beta Pi is the oldest and most prestigious national honor society for all engineering disciplines. Over 150 engineering students at UF were involved in a variety of social and service activities each year. This role involved oversight of all finances and membership and assisting in retreat planning, officer training, team-building, developing a mission statement, conflict resolution, and various outreach activities. Dr. Taylor served as the Keynote speaker during the annual banquets for 2008 and 2009. *During his time of advising, the chapter was named the national R.C. Mathews Outstanding Chapter for 2011-2012 and 2008-2009, hosted the 2011 Southern District Tau Beta Pi Conference in Gainesville, and received the Tau Beta Pi Chapter Performance Scholarship for outstanding service 2008-2011.*
- National Society of Black Engineers (NSBE) - Dr. Taylor served as Faculty Advisor for the HWCOE NSBE Chapter (from 2016-2018).
- Sigma Phi Epsilon Faculty Fellow - Dr. Taylor served as faculty fellow and worked with the chapter in a wide range of areas, from providing individuals with academic support to working with the vice president of member development to oversee the Balanced Man Program (from 2016-2017).
- Dr. Taylor served as the UF Honors Program Faculty Mentor for Hume Hall 3rd Floor students (~60) (2015).

K-12 Outreach and Service

- Host and Speaker of 2023 SECME National Competition
- Partner and host for *Mirror Image* and *Made for More* middle school student success programs, Summer 2021, Spring 2022
- Outreach with Engineering Ambassadors to Gainesville High School, November 2018-19
- UF Harn Museum Art in Engineering program (2016-present); Co-Director
- Research Advisor to Helena Jiang, Buchholz High School, Gainesville, FL, 2017-2020
 - Project: *Fabrication and Characterization of Novel Shape Memory Polymer Chromogenic Sensors*
 - 2020 Top 40 Regeneron Science Talent Search for research project; 2019 Junior Science Engineering and Humanities Symposium Presidential Scholar Nomination Award
 - Office of Naval Research Naval Science Award
 - Most Outstanding Exhibit in Computer Science, Engineering, Physics, or Chemistry from Yale Science and Engineering Association Award
 - 1st Place 2018 Florida Regional Science Fair senior division of chemistry
 - Chosen to represent the region in the Florida State Science Fair and the International Science and Engineering Fair in 2018
- University of Florida Student Science Training Program (US-SSTP), 2013-2015, 2017 Advisor of research for two high school students each summer

- Lab Host for the Annual Florida Junior Science, Engineering and Humanities Symposium (JESHS) (2011 - 2015)
- Research Advisor to Morgan Monroe, Episcopal High School, Jacksonville, FL, 2011
 - Project: *Improving Piezoelectric Nanogenerators: Nucleation of Nanocatalysts for the Synthesis of Ni-doped Zinc Oxide Nanowires*
 - 1st Place 2011 Florida Regional Science Fair
 - Chosen to represent the region in the Florida State Science Fair and the International Science and Engineering Fair in Los Angeles, CA in May 2011
- UF Harn Museum *Art in Engineering* program exhibition of the HapNan teaching system (2011-2012)
- Host and speaker for University of Florida College of Engineering Brooklyn middle school visit; excerpts broadcast on local WCJB TV NEWS 20 (2010)
- Advisor to six high school students working on nanotechnology research as part of Richmond High School Summer Research Program (RAPME)
- Served as mentor and senior thesis advisor for Richmond Community High School senior Malcolm Bressendorf
- NanoQuest advisor for ten elementary and middle school-aged home school students
- Presented lecture on the statics and design of truss structures to Charles City High School (Charles City, VA) physics class

Awards and Honors

- 2023 Award of Recognition as Speaker for Air Force ROTC DET 150 Commissioning
- 2020 University of Florida Career Influencer Award Finalist
- 2019 Inductee and Charter Member of the Arkansas Academy of Materials Science and Engineering
- 2019 Outstanding Support of Women in Engineering, Society of Women Engineers, Herbert Wertheim College of Engineering
- 2016 Exemplary Service to the National Society of Black Engineers
- 2012 University of Florida Anderson Scholar Faculty Honoree
- Certificate of Appreciation for Symposium Organizer, American Society of Mechanical Engineers, Manufacturing Science and Engineering Conference, 2012
- Certificate of Appreciation for Track Chair, American Society of Mechanical Engineers, Manufacturing Science and Engineering Conference, 2012
- 2011 American Society of Engineering Education New Faculty Research Award (Southeast Region)
- Selected for presentation in the Outstanding Contributions to Mechanical Engineering Education at the 2009 American Society of Engineering Education (ASEE) Annual Conference and Exposition
- 2009 ASEE Professional Interest Council I Best Paper Award
- 2009 ASEE Mechanical Engineering Division Best Paper Award
- 2009 Certificate of Appreciation, McKnight Scholars Program
- Selected by President of Virginia Commonwealth University as University Nominee (1 of 2) for the 2008 Virginia Outstanding Faculty (Rising Star) Award Sponsored by the State Council of Higher Education for Virginia

- ASEE and United States Air Force Summer Faculty Fellow (2007)
- National Science Foundation (NSF) IGERT Fellowship (2000-2005)
- National Science Foundation (NSF) Graduate Research Fellowship - Honorable Mention (1999)
- National Engineering Honor Society (Tau Beta Pi)
- Mechanical Engineering Honor Society (Pi Tau Sigma)
- Outstanding Academic Achievement Award, University of Maryland (1998)
- Nomination by President William Clinton and Admission to the United States Naval Academy (1994)

Research and Innovation

Research Interests

Nanotechnology/Nanomaterials; Mechanical Behavior of Materials; Engineering Education

Broadening Participation in Engineering Education

Broadening participation in science, technology, engineering, and mathematics (STEM) is critical for the United States' economic competitiveness, national security, and moral standing in the world. Dr. Taylor's work focuses on raising awareness and developing interventions to address barriers to access and equity in engineering education through:

- 2-year and 4-year college partnerships
- recruitment, retention, and excellence programs

Theoretical frameworks that are studied and applied include self-esteem, self-efficacy, character development, and metacognition. I have led partnerships with three institutions and bridge programs:

Programs

- Partnerships
 - Gator Engineering at Santa Fe
 - University of the Virgin Islands
 - University of the West Indies
- Engineering Bridge Programs
 - Successful Transition and Enhanced Preparation for Undergraduates Program (STEPUP)
 - Rising Doctoral Institute (established 2022)
 - Black Male Initiative

Dissemination and Recognitions

- **Organizer**, led 2-day University of Florida Summit on *Ensuring Access* on awareness and interventions to address 10-year trend in declining Black student enrollment included deans of all colleges, July 20-21, 2021
- **Invited Speaker**, *IDEAS – Inclusion, Diversity, Equity, and Access in STEM*, Presented to the Manatee County School District Principals, January 15, 2020, Manatee Technical College, Bradenton, FL

- **Invited Speaker**, *IDEAS – Inclusion, Diversity, Equity, and Access in STEM*, Presented to the Sarasota County School District Principals, January 15, 2020, Sarasota Board of Education, Sarasota, FL
- **Invited Speaker**, *STEPUP—A Program of Engineering Excellence*, Engaging National Leaders in Undergraduate Student Success, Texas A&M University, February 20, 2018

Author

- Curtis Taylor and Toshi Nishida, 2019. *American Society for Engineering Education Diversity Recognition Application and Self-Study* (data analysis, strategic and management plans); HWCOE Bronze Recognition awarded in 2019
- S Roberts, FT Najafi, CR Taylor. 2019. *A Retrospective on Undergraduate Engineering Success for Underrepresented and First-Year Students*. American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 15-19, 2019, Tampa, Florida.
- Jeremy A. Magruder Waisome, Juan E. Gilbert, Stephen E. Roberts, Darryl B. McCune and Curtis Taylor. 2017. *Building Communities through the Creation of Dialogues*. American Society for Engineering Education (ASEE) Zone II Conference, March 2-5, 2017, San Juan, Puerto Rico.

Proposals

- PI Taylor, Co-PI Fuentes \$1.9M (08/2022 – 08/2025) Collaborative Research: Racial Equity: Ensuring Access to Engineering Through an Equity-Focused Community College Transition Model, National Science Foundation (unfunded)
- PIs (Stephanie Adams, Mayra Artilles Fonseca, Juan Cruz, et al.) Co-PIs (Curtis Taylor and Toshikazu Nishida) \$10,000 (08/2022 – 08/2023) Collaborative Research: Rising Doctoral Institute, National Science Foundation

The HapNan Interactive Learning Environment

Nanotechnology is a relatively new, exciting, and growing area of research in which governments, educators and researchers alike, are interested in attracting K-12 and undergraduate students to pursue future careers. In order for the U.S. to remain competitive in the 21st century it must attract, retain, and educate students in STEM fields--specifically in nanotechnology. However, learning how things interact and behave at the nano-scale can be difficult for students to understand and conceptualize, as objects at this scale are not directly observable or accessible in the classroom environment. Traditional methods of teaching are also potentially limited in their engagement of students, whom have a diversity of learning styles. To address these issues, Dr. Taylor partnered with UF Art and Music faculty (James Oliverio) at the Digital Worlds Institute (www.digitalworlds.ufl.edu) to develop the "HapNan (Haptics and Nanotechnology)" Interactive Learning Environment. It is a new way to teach K-12 students about science and nanotechnology through the design and development of virtual reality environments that allow for physical interaction (touch or haptics). Involvement of multiple senses in learning is thought to play a significant role in transitioning from concrete to abstract thinking and may reduce the cognitive load and thereby support greater information processing and retention*. By using a joystick-like controller called the Falcon, the user - ideally children between 5 and 17 years old - controls exploration with a virtual reality environment. The Falcon mimics the high power atomic force microscope that is used in nanoscience to obtain images of material surfaces. This instrument has the ability to observe features as small as atoms. The Falcon is like the needle

on a record player, and lets the user feel the grooves, bumps, and tiny features on the object at the nanoscale. In addition, the joystick is equipped with 3 orthogonal motors that allow the user to feel the unique nanoscale forces and interaction.

The first prototype of the learning environment was produced in 2008 and a second prototype in 2011. The interactive learning environment includes 10 levels of scale, from the global scale down to the atomic scale, that provide animated haptic exploration scenarios and quizzes at each level for students to exhibit their understanding of key learning objectives.

**S. Loucks-Horsley, Kapitan, R., Carlson, M., Kuerbis, P., Clark, R., Melle, G., Sache, T., & Walton, E., "Elementary school science for the '90s," Alexandria, VA: Association for Supervision and Curriculum Development. 1990. *J. Sweller, "Cognitive load theory, learning difficulty and instructional design," Learning and Instruction, vol. 4, pp. 295-312, 1994.*

Software

- HapNan 3.0 Metaverse - soft electromagnetic actuators for wearable haptic devices for virtual and augmented reality platforms (under development)
- HapNan 2.0 Educational Software Developed, 10/2013
- HapNan 1.0 Educational Software Developed, 10/2012

Exhibitions/Performances

- Miami Museum of Science, Miami, FL, January – March 2014
- South Florida Science Center and Aquarium, West Palm Beach, FL, April – May 2013
- UF Harn Museum, *Art in Engineering* HapNan Display/Kiosk, October 11, 2012
- Season 3, LiveVibe TV appearance, November 17, 2011, "What's HAPNAN? Arts and Sciences in the Digital Age" interview and discussion of the HapNan project.

Awards/Reviews of the HapNan Environment

- 2015 Book Chapter—*Engaging Learners Through Rational Design of Multisensory Effects*
- Selected for presentation in the Outstanding Contributions to Mechanical Engineering Education at the 2009 American Society of Engineering Education (ASEE) Annual Conference and Exposition
- 2009 ASEE Professional Interest Council I Best Paper Award
- 2009 ASEE Mechanical Engineering Division Best Paper Award
- National Science Foundation (NSF) Educational Opportunities Using the Cyberinfrastructure and Virtual Reality Engineering Education Grant (Awarded ~ \$200,000; 2009-2012)

Patents/IP

A20697, Option, Broadband Laser-Responsive Smart Coatings Enabled by Graphene Oxide-Reinforced Shape Memory Polymers, FY2023

PCT Patent Application, World Intellectual Property, International Publication No. WO2022061353A2 on March 24, 2022

Title: MICROPOROUS DRY ADHESIVE FILMS, METHODS OF MAKING, AND METHODS OF USE

Peng Jiang, Yifan Zhang, Calen Leverant, and Curtis Taylor

U.S. Patent No.: 11,027,483**Title: VALVE INCORPORATING TEMPORARY PHRASE CHANGE MATERIAL****Date of Patent: June 8, 2021**

Curtis Taylor, Wallace G. Sawyer, Thomas Angelini, Joshua Muse, Meghan Hughes, Tapomoy Bhattacharjee, Kyle Schulze

U.S. Provisional Patent Application Serial No. 63/079,101, filed September 16, 2020**Title: MICROPOROUS DRY ADHESIVE FILMS, METHODS OF MAKING, AND METHODS OF USE**

Peng Jiang, Yifan Zhang, Calen Leverant, and Curtis Taylor

U.S. Patent Application US20200400581A1, published on December 24, 2020**Title: CHROMOGENIC MATERIALS, METHODS OF MAKING CHROMOGENIC MATERIALS, AND METHODS OF USE**

Peng JIANG, Ruo Chen LIU, Rao FEI, Wei ZHANG, Sin-Yen LEO, Calen LEVERANT, Helena JIANG, Curtis TAYLOR, and Yifan ZHANG

PCT Patent Application, World Intellectual Property, International Publication No. WO2020027871A2 on February 6, 2020**Title: CHROMOGENIC MATERIALS, METHODS OF MAKING CHROMOGENIC MATERIALS, AND METHODS OF USE**

Peng JIANG, Ruo Chen LIU, Rao FEI, Wei ZHANG, Sin-Yen LEO, Calen LEVERANT, Helena JIANG, Curtis TAYLOR, Yifan ZHANG

PUBLICATIONS

1. Curtis Taylor, *Celebrating Black History – Charles M. Lovings (BSEE '68)*, HWCOE Alumni Spotlight, interview and article, February 17, 2021 (<https://www.eng.ufl.edu/newengineer/alumni-spotlight/celebrating-black-history-charles-m-lovings-bsee-68/>)
2. Kevin Lyons, Ajay Malshe, Kamlakar Rajurkar, and Curtis Taylor. Guest Editorial. *J. Manuf. Sci. Eng.* Jun 2010, 132(3): 030301 (1 page) <https://doi.org/10.1115/1.3463643>

Books, Contributor of Chapter(s)

1. Reese, D. D., Pawluk, D. T. V., & Taylor, C. R. (2015). *Engaging learners through rational design of multisensory effects*. In S. Tettegah, & S. U. Noble (Eds.), *Emotions, Technology, and Design*. New York: Elsevier.
2. Tarek M. Trad, Rose M. Alvarez, Edward J. McCumiskey, Curtis R Taylor, *Capped CoFeO Nanoparticles: Non-Hydrolytic Synthesis, Characterization, and Potential Applications as Magnetic Extractants and In Ferrofluids*. *Advances in Nanomaterials and Nanostructures: Ceramic Transactions* (2011), vol. 229, pp. 155-162, John Wiley & Sons, Inc.

Refereed Abstracts

1. Mina A. Hanna(g), **Curtis R. Taylor**, Bei Chen(&), Hae-Sun La(&), Joshua J. Maraj(&), Cody R. Kilar(&), Bradley J. Behnke(&), Michael D. Delp(&), and Judy M. Muller-Delp(&). 2013. Structural Remodeling of Coronary Resistance Arteries: Effects of Age and Exercise Training (1079.24). *The FASEB Journal*. 28(1). April 2014.
2. Mina Hanna(g), John N Stabley, Danielle J McCullough, James M Dominguez, III, Judy M Muller-Delp, Bradley J Behnke, **Curtis R Taylor** and Michael D Delp. 2012. Effects of spaceflight on vasoconstrictor and mechanical properties of mouse cerebral arteries (1b660). *The FASEB Journal*. 26(1). April 2012.

Editor

- **Guest Editor**—Journal of Manufacturing Science and Engineering, Special issue on Nanomanufacturing, 2010

Journal Articles

(g) *indicates student advised*

1. O'Bryan, Christopher, Ni, Yongliang (g), **Curtis Taylor**, Angelini, Thomas, Schulze, Kyle. 2024. Collagen Networks under Indentation and Compression Behave Like Cellular Solids, *Langmuir* (accepted for publication)
2. Kathryn E. Shaffer, Edward J. McCumiskey, Brandon A. Krick, Jeffrey J. Ewin, **Curtis R. Taylor**, Christopher P. Junk, Gregory S. Blackman, W. Gregory Sawyer, and Angela A. Pitenis, 2024. Atomic Force Microscopy of Transfer Film Development
3. Back Choi(&), Bethy Kim(&), Jason Bice(g), **Curtis Taylor**, and Peng Jiang(&). 2022. Inverse DVD-R grating structured SPR sensor platform with high sensitivity and figure of merit. *Journal of Industrial and Engineering Chemistry*. (7 pgs) <https://doi.org/10.1016/j.jiec.2022.09.022>
4. Baek B. Choi, Jae Hyeon Jo, Jason Bice (g), **Curtis Taylor**, Peng Jiang, Sung Jong Yoo. 2021. Monitoring electrochemical methanol oxidation and CO coverage using Pt deposited SPR sensor platform. *International Journal of Energy Research*, Volume 45, Issue 13, pp. 19535-19546. Online 19 July 2021. <https://doi.org/10.1002/er.7047>
5. Calen J. Leverant, Yifan Zhang (g), Maria A. Cordoba, Sin-Yen Leo, Nilesh Charpota, **Curtis Taylor**, and Peng Jiang. 2021. Macroporous Superhydrophobic Coatings with Switchable Wettability Enabled by Smart Shape Memory Polymers, *Advanced Materials Interfaces*, 8(13), 2002111. <https://doi.org/10.1002/admi.202002111>
6. Yifan Zhang (g), S. Tori Ellison, Senthilkumar Duraivel, Cameron D. Morley, **Curtis R. Taylor**, Thomas E. Angelini. 2021. 3D printed collagen structures at low concentrations supported by jammed microgels, *Bioprinting*, Volume 21, e00121. <https://doi.org/10.1016/j.bprint.2020.e00121>
7. Bhattacharya, Abir, O'Bryan, Chris, Ni, Yongliang (g), **Taylor, Curtis**, and Angelini, Thomas. 2020. Hydrogel Compression and Polymer Osmotic Pressure, *Biotribology*, Volume 22, 100125. <https://doi.org/10.1016/j.biotri.2020.100125>
8. Yifan Zhang, Xingyi Lyu, Yongliang Ni, Diyang Li, Sin-Yen Leo, Yinong Chen, Peng Jiang, and **Curtis R. Taylor**. 2020. Switchable Friction Coefficient on Shape Memory

- Photonic Crystals, *MRS Advances* 5 (14-15), 757-763.
<https://doi.org/10.1557/adv.2020.182>
9. Gu, Zhuxiao; Kothary, Pratik; Sun, Chih-Hung; Gari, Abdullateef; Zhang, Yifan (g); **Taylor, Curtis**; Jiang, Peng. 2019. Evaporation-Induced Hierarchical Assembly of Rigid Silicon Nanopillars Fabricated by a Scalable Two-Level Colloidal Lithography Approach. *ACS Applied Materials & Interfaces*, 11(43), 40461-40469
<https://doi.org/10.1021/acsami.9b12388>
 10. Jovan Tatar (g), **Curtis R. Taylor**, H. R. Hamilton. 2019. A Multiscale Micromechanical Model of Adhesive Interphase between Cement Paste and Epoxy Supported by Nanomechanical Evidence, *Composites Part B: Engineering*, Volume 172, 1 September 2019, pp 679-689. <https://doi.org/10.1016/j.compositesb.2019.05.038>
 11. Leverant, Calen; Leo, Sin-Yen; Cordoba, Maria; Zhang, Yifan (g); Charpota, Niles; **Taylor, Curtis**; Jiang, Peng. 2018. Reconfigurable Anti-Counterfeiting Coatings Enabled by Macroporous Shape Memory Polymers. *ACS Applied Polymer Materials*, 1(1), pp 36-46. <https://doi.org/10.1021/acsapm.8b00021>
 12. Ni, Yongliang(g); Zhang, Yifan (g); Leo, Sin-Yen; Fang, Yin; Zhao, Mingzhen; Yu, Long; Schulze, Kyle; Sawyer, Wallace; Angelini, Thomas; Jiang, Peng; **Taylor, Curtis**. 2018. Unconventional Shape Memory Mechanisms of Nanoporous Polymer Photonic Crystals: Implications for Nanooptical Coatings and Devices, *ACS Applied Nano Materials*, 1(11), pp. 6081-6090. <https://doi.org/10.1021/acsanm.8b01105>
 13. Brian Wingender, Yongliang Ni (g), Yifan Zhang (g), **Curtis Taylor**, and Laurie Gower. 2018. Hierarchical Characterization and Nanomechanical Assessment of Biomimetic Scaffolds Mimicking Lamellar Bone via Atomic Force Microscopy Cantilever-Based Nanoindentation, *Materials*, 11(7), 1257. <https://doi.org/10.3390/ma11071257>
 14. Jovan Tatar, Christa E. Torrence, John J. Mecholsky, Jr., **Curtis R. Taylor**, H. R. Hamilton. 2018. Effects of Silane Surface Functionalization on Interfacial Fracture Energy and Durability of Adhesive Bond Between Cement Paste and Epoxy, *International Journal of Adhesion and Adhesives*, 84, pp. 132-142. <https://doi.org/10.1016/j.ijadhadh.2018.02.009>
 15. Jovan Tatar, Natassia R. Brenkus, Ghatu Subhash, **Curtis R. Taylor**, H. R. Hamilton. 2018. Characterization of Adhesive Interphase between Epoxy and Cement Paste via Raman Spectroscopy and Mercury Intrusive Porosimetry, *Cement and Concrete Composites*, Vol. 88, pp. 187-199. <https://doi.org/10.1016/j.cemconcomp.2018.01.012>
 16. Sin-Yen Leo, Wei Zhang, Yifan Zhang, Yongliang Ni (g), Helena Jiang, Cory Jones, Peng Jiang, Vito Basile, **Curtis Taylor**. 2018. Chromogenic Photonic Crystal Sensors Enabled by Multi-Stimuli-Responsive Shape Memory Polymers, *Small*, 14(12), 1703515. <https://doi.org/10.1002/sml.201703515>
 17. Christopher O'Bryan, Tapomoy Bhattacharjee, Sean Niemi, Sidhika Balachandar, Nicholas Baldwin, S. Tori Ellison, **Curtis R. Taylor**, W. Gregory Sawyer, and Thomas E. Angelini. 2017. Three-Dimensional Printing with Sacrificial Materials for Soft Matter Manufacturing, *MRS Bulletin* 42(8), p. 571-577. <https://doi.org/10.1557/mrs.2017.167>
 18. Leo, Sin-Yen; Ni, Yongliang(g); Xu, Can; Zhang, Yifan(g); Dai, Yuqiong; Qi, Pengxu; Basile, Vito; **Taylor, Curtis**; Jiang, Peng. 2017. Programmable Macroporous Photonic Crystals Enabled by Swelling-Induced All-Room-Temperature Shape Memory Effects,

Advanced Functional Materials, 27(41), 1703522
<http://dx.doi.org/10.1002/adfm.201703522>

19. Yin Fang, Sin-Yen Leo, Yongliang Ni(g), Junyu Wang, Bingchen Wang, Long Yu, Zhe Dong, Yuqiong Dai, Vito Basile, **Curtis Taylor**, and Peng Jiang. 2017. Reconfigurable Photonic Crystals Enabled by Multi-Stimuli-Responsive Shape Memory Polymers Possessing Unconventional Room Temperature Shape Processability, *ACS Applied Materials and Interfaces*, 9(6), pp. 5457-5467. <http://dx.doi.org/10.1021/acsami.6b13634>
20. Kyle J. LeBlanc(g), Sean R. Niemi, Alexander I. Bennett, Kathryn L. Harris, Kyle D. Schulze, W. Gregory Sawyer, **Curtis Taylor**, Thomas E. Angelini. 2016. Stability of High Speed 3D Printing in Liquid-Like Solids, *ACS Biomaterials Science and Engineering*, 2(10), 1796-1799. <http://dx.doi.org/10.1021/acsbiomaterials.6b00184>
21. Y. Fang, Y.L. Ni(g), S.Y. Leo, B. Wang, V. Basile, **C. Taylor**, P. Jiang. 2015. Direct Writing of Three-Dimensional Macroporous Photonic Crystals on Pressure-Responsive Shape Memory Polymers, *Applied Materials and Interfaces* 7(42), 23650-23659. <http://dx.doi.org/10.1021/acsami.5b07220>
22. Y. Fang, S.Y. Leo, Y.L. Ni(g), L. Yu, P.X. Qi, B.C. Wang, V. Basile, **C. Taylor** and P. Jiang. 2015. Optically Bistable Macroporous Photonic Crystals Enabled by Thermoresponsive Shape Memory Polymers, *Advanced Optical Materials*. 3(11), 1509-1516. **[selected as front cover of the journal]** <http://dx.doi.org/10.1002/adom.201500277>
23. Yin Fang, Yongliang Ni(g), Baek Choi, Sin-Yen Leo, Jian Gao, Beverly Ge, **Curtis Taylor**, Vito Basile, and Peng Jiang. 2015. Chromogenic Photonic Crystals Enabled by Novel Vapor-Responsive Shape Memory Polymers. *Advanced Materials*. 27(24), pgs. 3696-3704. <http://dx.doi.org/10.1002/adma.201500835>
24. Yin Fang, Yongliang Ni(g), Sin-Yen Leo, **Curtis Taylor**, Vito Basile, and Peng Jiang. 2015. Reconfigurable Photonic Crystals Enabled by Novel Pressure-Responsive Shape Memory Polymers. *Nature Communications*. 6:7416 <http://dx.doi.org/10.1038/ncomms8416>
25. D. Craciun, G. Socol, E. Lambers, E. J. McCumiskey(g), **C. R. Taylor**, C. Martin, N. Argibay, P. Ionescu, D. Pantelica, and V. Craciun. 2015. Optical and mechanical properties of nanocrystalline ZrC thin films grown by pulsed laser deposition, *Applied Surface Science*. 352, 28-32. <http://dx.doi.org/10.1016/j.apsusc.2015.01.076>
26. Sahu, B.(g), Riddle R., Ross D., Sheplak M., Leang K.K., **Taylor. C.R.** 2015. Design and Analysis of Scanning Probe Microscopy Cantilevers with Microthermal Actuation. (*IEEE*) *Journal of Microelectromechanical Systems*. 24(6), 1768-1781. <http://dx.doi.org/10.1109/JMEMS.2015.2438825>
27. Gabriela Dorcioman(&), Gabriel Socol(&), Doina Craciun(&), Nicolas Argibay(&), Eric Lambers(&), Mina Hanna(g), **Curtis Taylor**, Valentin Craciun(&). 2014. Wear tests of ZrC and ZrN thin films grown by pulsed laser deposition. *Applied Surface Science*. 306:33-36. <http://dx.doi.org/10.1016/j.apsusc.2013.12.048>
28. Mina A. Hanna(g), **Curtis R. Taylor**, Bei Chen(&), Hae-Sun La(&), Joshua J. Maraj(&), Cody R. Kilar(&), Bradley J. Behnke(&), Michael D. Delp(&), and Judy M. Muller-Delp(&). 2014. Structural Remodeling of Coronary Resistance Arteries: Effects of Age and Exercise Training, *Journal of Applied Physiology*. 117(6):616-623. <http://dx.doi.org/10.1152/jappphysiol.01296.2013>

29. Doina Craciun(&), Gabriel Socol(&), Aurelian C Galca(&), Mina Hanna(g), **Curtis R Taylor**, Eric Lambers(&), Valentin Craciun(&). 2014. Pulsed laser deposition of nanocrystalline SiC films. *Applied Surface Science*. 306: 66-69. <http://dx.doi.org/10.1016/j.apsusc.2014.01.201>
30. D. Craciun(&), G. Socol(&), N. Stefan(&), G. Dorcioman(&), M. Hanna(g), **C. R. Taylor**, E. Lambers(&), and V. Craciun(&). 2014. The effect of deposition atmosphere on the chemical composition of TiN and ZrN thin films grown by pulsed laser deposition. *Applied Surface Science*. 302:124-128. <http://dx.doi.org/10.1016/j.apsusc.2013.10.095>
31. Edward McCumiskey(g), Nicholas Rudawski(&), Gregory Sawyer(&), and **Curtis Taylor**. 2013. Three-Dimensional Visualization of Nanoscale Structure and Deformation. *Journal of Materials Research*. 28(18): 2637-2643. <http://dx.doi.org/10.1557/jmr.2013.245/>
32. Raul E. Riveros(g), Jared N. Hann(g), Hitomi Yamaguchi(&), and **Curtis R. Taylor**. 2013. Nanoscale Surface Modifications by Magnetic Field-Assisted Finishing. *Journal of Manufacturing Science and Engineering*. 135(5):051013. <http://dx.doi.org/10.1115/1.4025190>
33. Viswanath Sankar(&), Justin C. Sanchez(&), Edward McCumiskey(g), Nagid Brown(g), **Curtis R. Taylor**, Gregory J. Ehlert(&), Henry A. Sodano(&), and Toshikazu Nishida(&). 2013. A Highly Compliant Serpentine Shaped Polyimide Interconnect for Front-end Strain Relief in Chronic Neural Implants. *Frontiers in Neurology*. 4(124):1-10. <http://dx.doi.org/10.3389/fneur.2013.00124>
34. Shashank Sawant(g), Naigang Wang(&), Mina Hanna(g), **Curtis Taylor**, and David Arnold(&). 2013. Fabrication, Characterization, and Modeling of Fully-Batch-Fabricated Piston-Type Electrodynamic Microactuators. *Journal of Microelectromechanical Systems*. PP(99): 1-10. <http://dx.doi.org/10.1109/JMEMS.2013.2271293>
35. V. Craciun(&), E. J. McCumiskey(g), M. Hanna(g), and **C. R. Taylor**. 2013. Very Hard ZrC Thin Films Grown by Pulsed Laser Deposition. *Journal of the European Ceramic Society*. 33: 2223–2226. <http://dx.doi.org/10.1016/j.jeurceramsoc.2013.01.001>
36. **Curtis R. Taylor**, Mina Hanna(g), Bradley J. Behnke(&), John N. Stabley(&), Danielle J. McCullough(&), Robert T. Davis III(&), Payal Ghosh(&), Anthony Papadopoulos(&), Judy M. Muller-Delp(&), and Michael D. Delp(&). 2013. Spaceflight-Induced Alterations in Cerebral Artery Vasoconstrictor, Mechanical and Structural Properties May Contribute to Elevations in Cerebral Perfusion and Intracranial Pressure. *The FASEB Journal*. 27: 2282-2292. <http://dx.doi.org/10.1096/fj.12-222687>
37. L. Ladani(&), E. Harvey(g), S. F. Choudhury(&), and **C. Taylor**. 2013. Effect of Varying Test Parameters on Elastic-Plastic Properties Extracted by Nanoindentation Tests. *Experimental Mechanics*. 3(8): 1299-1309 <http://dx.doi.org/10.1007/s11340-013-9732-7>
38. D. Craciun(&), N. Stefan(&), G. Socol(&), G. Dorcioman(&), E. McCumiskey(g), M. Hanna(g), **C. Taylor**, G. Bourne(&), E. Lambers(&), K. Siebein(&), and V. Craciun(&). 2012. Very Hard TiN Thin Films Grown by Pulsed Laser Deposition. *Applied Surface Science*. 260: 2-6. <http://dx.doi.org/10.1016/j.apsusc.2011.11.128>
39. Ning Zhang(g), Qian Deng(g), Yu Hong(g), Liming Xiong(g), Shi Li(g), Matthew Strasberg(g), Weiqi Yin(g), Yongjie Zhou(g), **Curtis R. Taylor**, Gregory Sawyer(&), and Youping Chen(&). 2011. Deformation Mechanisms in Silicon Nanoparticles. *Journal of Applied Physics*. 109: 063534. <http://dx.doi.org/10.1063/1.3552985>

40. Justin A. Blaber(g), Dipankar Ghosh(g), Ghatu Subhash(&), Edward J. McCumiskey(g), and **Curtis Taylor**. 2011. Determination of Post-Yield Hardening Response in a ZrB₂ Ceramic. *Scripta Materialia*. 65:962-965.
<http://dx.doi.org/10.1016/j.scriptamat.2011.08.020>
41. T. Trad(p), K. Donley(&), D. Look(&), K. Eyink(&), D. Tomich(&), and **C. Taylor**. 2010. Low Temperature Deposition of Zinc Oxide Nanoparticles via Zinc-Rich Vapor Phase Transport and Condensation. *Journal of Crystal Growth*. 312: 3675-3679.
<http://dx.doi.org/10.1016/j.jcrysgro.2010.08.062>
42. Dongshan Yu(g), Tarek Trad(p), James T. McLeskey(&), and **Curtis R. Taylor**. 2010. ZnO Nanowires Synthesized by Vapor Phase Transport Deposition on Transparent Oxide Substrates. *Nanoscale Research Letters*. 5: 1333-1339.
<http://dx.doi.org/10.1007/s11671-010-9649-3>
43. Ajay P. Malshe(&), Kamalakar P. Rajurkar(&), Kumar Virwani(&), **Curtis Taylor**, David Bourell(&), and Valliappa Kalyanasundaram(&). 2010. Tip-Based Nanomanufacturing using Physical, Electrical, Chemical and Thermal Processes. *CIRP Annals – Manufacturing Technology*. 59: 628-651. <http://dx.doi.org/10.1016/j.cirp.2010.05.006>
44. E. McCumiskey(g), N. Chandrasekhar(&), and **C. Taylor**. 2010. Nanomechanics of CdSe Quantum Dot-Polymer Nanocomposites Films. *Nanotechnology*. 21: 225703.
<http://dx.doi.org/10.1088/0957-4484/21/22/225703>
45. B. Sahu(g), K. Leang(&), and **C. Taylor**. 2010. Microfabricated Actuators for Nanoscale Manipulation, Assembly, and Manufacturing Processes. *Journal of Manufacturing Science and Engineering*. 132: 030917-1. <http://dx.doi.org/10.1115/1.4001662>
46. **C. Taylor**, E. Marega(&), E. Stach(&), G. Salamo(&), L. Hussey(&), M. Munoz(&), and A. Malshe(&). 2008. Directed Self-Assembly of Quantum Structures by Nanomechanical Stamping Using Probe Tips. *Nanotechnology*. 19: 015301.
<http://dx.doi.org/10.1088/0957-4484/19/01/015301>
47. V. Radmilovic(&), **C. Taylor**, Z. Lee(&), A. Tolley(&), D. Mitlin(&), and U. Dahmen(&). 2007. Nanoindentation Properties and the Microstructure of Grain Boundary Precipitate-Free-Zones (PFZs) in an AlCuSiGe Alloy. *Philosophical Magazine*. 87: 3905-3919.
<http://dx.doi.org/10.1080/14786430601153414>
48. **C. Taylor**, E. Stach(&), A. Malshe(&), and G. Salamo(&). 2005. Nanoscale Dislocation Patterning by Ultralow Load Indentation. *Applied Physics Letters*. 87: 073108.
<http://dx.doi.org/10.1063/1.2009825>
49. **C. Taylor**, R. Prince(&), L. Riester(&), G. Salamo(&), S. Oh Cho(&), and A. Malshe(&). 2005. Characterization of Ultra-Low-Load (μN) Nanoindentations in GaAs (100) Using a Cube Corner Tip. *Journal of Smart Materials and Structures*. 14: 963-970.
<http://dx.doi.org/10.1088/0964-1726/14/5/034>

Refereed Conference Proceedings

1. S Roberts, FT Najafi, **CR Taylor**. 2019. *A Retrospective on Undergraduate Engineering Success for Underrepresented and First-Year Students*. American Society for Engineering Education (ASEE) Annual Conference & Exposition, June 15-19, 2019, Tampa, Florida.

2. Jovan Tatar, Christa Torrence, John J. Mecholsky, **Curtis R. Taylor**, H. R. Hamilton. 2017. Improvement in Epoxy-Cement Paste Adhesive Bond Durability Through Silane Surface Functionalization. Fifth International Conference on Durability of Fiber Reinforced Polymer (FRP) Composites for Construction and Rehabilitation of Structures (CDCC 2017).
3. Jeremy A. Magruder Waisome, Juan E. Gilbert, Stephen E. Roberts, Darryl B. McCune and **Curtis Taylor**. 2017. *Building Communities through the Creation of Dialogues*. American Society for Engineering Education (ASEE) Zone II Conference, March 2-5, 2017, San Juan, Puerto Rico.
4. Claudia Pagano^(f), and **Curtis R. Taylor**. 2013. Nanomechanical Property Analysis of Silica Aerogels. *The ASME 2013 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE)*. 5 pgs. <https://doi.org/10.1115/DETC2013-13271>
5. Argibay, Nicolas, Krick, Brandon A., Harris, Kathryn L., Ewin, J. J., Pitenis, A. A., McCumiskey, E. J., **Taylor, C.**, & Sawyer, W. G. *Exploring the Practical Limits of Wear of Polymer Composite Systems*. 5th World Tribology Congress held September 8-13, 2013, Torino, Italy.
6. Jared N. Hann^(g), Raul E. Riveros^(g), Hitomi Yamaguchi^(&), and **Curtis R. Taylor**. 2012. Extension of a Microscale Indentation Fracture Model to Nanoscale Contact in Purview of Mechanical Nanofabrication Processes. *Proceedings of the ASME Manufacturing Science and Engineering Conference (MSEC)*. 6 pgs.
7. Raul Riveros^(g), Jared Hann^(g), Hitomi Greenslet^(&), and **Curtis Taylor**. 2011. Nanoscale Surface Modifications by Magnetic Field-Assisted Finishing. *Proceedings of the American Society of Mechanical Engineering (ASME) 2011 International Manufacturing Science and Engineering Conference*. 6 pgs.
8. Bijoyraj Sahu^(g), Robert Riddle^(g), Kam Leang^(&), and **Curtis Taylor**. 2011. Design and Fabrication of an Automatic Nanoscale Tool-Tip Exchanger for Scanning Probe Microscopy. *Proceedings of the American Society of Mechanical Engineering (ASME) International Manufacturing Science and Engineering Conference*. 4 pgs.
9. David Jackson^(&), Dianne Pawluk^(&), and **Curtis R. Taylor**. 2011. Development of Haptic Virtual Reality Gaming Environments for Teaching Nanotechnology. *Proceedings of the American Society for Engineering Education ASEE Annual Conference & Exposition*, June 26-29, 2011, Vancouver, BC, Canada. 7 pgs.
10. Dianne Pawluk^(&), Marcia Hoffman^(&), Maria McClintock^(&), and **Curtis R. Taylor**. 2009. Development of a Nanoscale Virtual Environment Haptic Interface for Teaching Nanotechnology to Individuals who are Visually Impaired. Outstanding Contributions to Mechanical Engineering Education, *2009 American Society for Engineering Education (ASEE) Annual Conference & Exposition*. 6 pgs.
11. **Curtis Taylor** and Kam Leang^(&). 2008. Design and Fabrication of a Multifunctional Scanning Probe with Integrated Tip Changer for Fully Automated Nanofabrication. *Proceedings of the 23rd Annual American Society of Precision Engineering (ASPE) Annual Meeting and 12th ICPE*. 4 pgs.
12. **Curtis Taylor**, Eric Stach^(&), Euclides Marega^(&), Gregory Salamo^(&), and Ajay Malshe^(&). 2006. Directed Self-Assembly of Quantum Dots by Nanostamping. *Proceedings of the*

4th International Symposium on Nanomanufacturing (ISNM). 4 pgs.

13. Martin Munoz(&), Lindsay Hussey(&), Durig Lewis(&), **Curtis Taylor**, Euclides Marega(&), and Ajay Malshe(&). 2006. Raman Spectroscopy of InAs/GaAs Quantum Dots Patterned by Nanoindentation. *Bulletin of the American Physical Society*. BAPS.2006.MAR.P35.2. <http://meetings.aps.org/link/BAPS.2006.MAR.P35.2>. 1 pg.
14. **Curtis R. Taylor**, Ajay Malshe(&), Eric Stach(&), Euclides Marega(&), and Gregory Salamo(&). 2006. Mechanically Biased Self-Assembly of Quantum Dots. *Materials Research Society (MRS) Proceedings*. 921: 0921-T07-07. <http://dx.doi.org/10.1557/PROC-0921-T07-07>
15. **Curtis Taylor**, Eric Stach(&), Ajay Malshe(&), and Gregory Salamo(&). 2006. Nanoindentation-assisted Self-Assembly of Quantum Dots. *Proceedings of the American Society of Mechanical Engineers (ASME) International Conference on Manufacturing Science & Engineering*. 4 pgs.
16. **Curtis R. Taylor**, Eric A. Stach(&), Ajay P. Malshe(&), and Gregory Salamo(&). 2005. Analysis of Nanoscale Deformation in GaAs(100): Towards Patterned Growth of Quantum Dots. *Materials Research Society (MRS) Proceedings*. 864: E5.7. <http://dx.doi.org/10.1557/PROC-864-E5.7>
17. **Curtis Taylor**, Robin Prince(&), Ajay P. Malshe(&), Laura Riester(&), Gregory J. Salamo(&), and Seong Oh Cho(&). 2002. Investigation of Ultralow-load Nanoindentation for the Patterning of Nanostructures. *Proc. SPIE 4936, Nano- and Microtechnology: Materials, Processes, Packaging, and Systems*. 4936: 424. <http://dx.doi.org/10.1117/12.476103>
18. **Curtis Taylor**, Hameed Naseem(&), and William Brown(&). 2002. Characterization of Adhesives for Low Temperature Microelectronics and Photonics Packaging. *Symposium on Polymers for Microelectronics at Winterthur*. 5 pgs.
19. Mark W. Rowland(&), and **Curtis Taylor**. 1998. Aerospace Fiber Optic Manufacturing. *Proceedings, Integrated Manufacturing Process and Control Technologies, American Helicopter Society 54th Annual Conference*. 4 pgs.

Presentations at Professional Conferences and Meetings

a. International

1. *Lan, M. F. (&), Nishida, T. (&), **Taylor, C. R.**, & Wu, C. Y(&). *Barriers to mental health care: Perception gaps between Engineering doctoral students and faculty*. 32nd International Congress of Psychology, Prague, Czech Republic, July 18-23, 2021.
2. *Yifan Zhang(g) and **Curtis Taylor**. "Switchable Friction Coefficient on Shape Memory Photonic Crystals". Materials Research Society 2019 Fall Meeting, Boston, Massachusetts USA, December 1-6, 2019.
3. *Yifan Zhang(g), Xingyi Lyu(&), Diyang Li(&), Peng Jiang(&), **Curtis Taylor**. "Switchable Friction Coefficient on Shape Memory Photonic Crystals". American Society of Mechanical Engineers (ASME) IMECE 2019, Salt Lake City, Utah, November 11-14, 2019.

4. **Curtis Taylor**. *Soft Matter Additive Manufacturing*, Osnabrück University of Applied Sciences, Osnabrück, Germany, May 3, 2019.
5. *Jennifer Choi(&), Jovan Tatar(g), **Curtis Taylor**, Asad Hayatdavoudi(&). *Application of Nanoindentation to Petroleum Engineering: Characterization of Mechanical Properties of Salt*. McNair's Scholars' Oral Research Presentations Symposium, University of Louisiana at Lafayette, Lafayette, LA, April 25, 2017.
6. **Curtis Taylor**. *Shape Memory Behavior of Pressure-Sensitive Photonic Crystal Polymers Determined by Material Composition and Structural Geometry*, Symposium: CM5: Mechanically Coupled Properties, Phenomena and Testing Methods in Small-Scale and Low-Dimensional Systems S, Materials Research Society Spring Meeting 2017, April 17-21, 2017.
7. *Jovan Tatar(g), Christa Torrence(&), John J. Mecholsky(&), **Curtis R. Taylor**, H. R. Hamilton. *Improvement in Epoxy-Cement Paste Adhesive Bond Durability Through Silane Surface Functionalization*, 5th International Conference on Durability of Fibre Reinforced Polymer (FRP) Composites for Construction & Rehabilitation of Structures, Sherbrooke, QC, CANADA, July 19-21, 2017.
8. *Jovan Tatar(g), Christa E. Torrence(&), John J. Mecholsky(&), Jr., **Curtis R. Taylor**, H. R. Hamilton(&). *Effects of Silane Surface Functionalization on Interfacial Fracture Energy and Durability of Adhesive Bond Between Cement Paste and Epoxy*, American Concrete Institute (ACI), Fall 2016 Convention, Philadelphia, PA.
9. *Yongliang Ni(g) and **Curtis Taylor**. *Contact Mechanical Investigation of a Novel Reconfigurable Polymeric Shape Memory Photonic Crystal*, ASME Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS) Conference, Stowe, Vermont USA, September 28-30, 2016.
10. *Jovan Tatar(g), **Curtis Taylor**, Trey Hamilton(&). *Nanomechanical Characterization of Epoxy-Cement Paste Interface by Atomic Force Microscopy and Nanoindentation*, American Concrete Institute Fall Convention, Denver, CO USA, November 8-12, 2015.
11. **Curtis Taylor**. *Shape Memory Behavior of Pressure-Sensitive Photonic Crystal Polymers Determined by Material Composition and Structural Geometry*, Symposium: CM5: Mechanically Coupled Properties, Phenomena and Testing Methods in Small-Scale and Low-Dimensional Systems S, Materials Research Society Spring Meeting 2017, April 17-21, 2017.
12. **Curtis Taylor**. *ZZ1.04 Three-Dimensional Visualization of Energetic Beam and Nanomechanical Defect Formation*, Symposium ZZ: Advanced Characterization Techniques for Ion-Beam-Induced Effects in Materials, Materials Research Society Spring Meeting 2014, San Francisco, CA USA, April 21-23, 2014.
13. **Curtis Taylor**. *BBB4.01 Development of a Scanning Probe Microscopy Cantilever with Integrated Tip Exchange*, Symposium BBB: Advances in Scanning Probe

Microscopy for Material Properties, Materials Research Society Spring Meeting 2014, San Francisco, CA USA, April 21-23, 2014.

14. *G. Socol(&), D. Craciun(&), G. Dorcioman(&), N. Stefan(&), C. Martin(&), M. Hanna(&), **C. R. Taylor**, and V. Craciun(&). *Structure and Composition of Titanium Carbo-Nitrides Thin Films Grown by Pulsed Laser Deposition*, Symposium B: Stress, structure, and stoichiometry effects on the properties of nanomaterials II, E-MRS Fall Meeting 2013, Warsaw (Poland), September 16-19, 2013.
15. *V. Craciun(&), G. Socol(&), D. Craciun(&), N. Stefan(&), E. J. McCumiskey(g), M. Hanna(&), **C. R. Taylor**, A. Pitenis(&), N. G. Rudawski(&), G. Bourne(&). *Pulsed Laser Deposition of Hard and Adherent Transitional Metals Carbo-nitrides*, Symposium : V Laser materials interactions for micro and nano applications, E-MRS Spring Meeting, Strasbourg (Germany), May 27-31, 2013.
16. *V. Craciun(&), G. Socol(&), D. Craciun(&), G. Dorcioman(&), E. J. McCumiskey(g), M. Hanna(&), **C. R. Taylor**, J. Ewin(&), N. G. Rudawski(&), G. Bourne(&). *Hard and Adherent ZrC Thin Films Grown by Pulsed Laser Deposition*, Symposium : S Protective coatings and thin films, E-MRS Spring Meeting, Strasbourg (Germany), May 27-31, 2013.
17. *Nicolas Argibay(&), Brandon A Krick(&), Kathryn L Harris(&), JJ Ewin(&), AA Pitenis(&), EJ McCumiskey, **C. Taylor**, W.G. Sawyer(&). *Exploring the Practical Limits of Wear of Polymer Composite Systems*, 5th World Tribology Congress, Torino, Italy, September 8-13, 2013.
18. A. A. Pitenis(&), *E. McCumiskey(g), B. A. Krick(&), J. J. Ewin(&), **C. R. Taylor**, W. G. Sawyer(&). *In Situ Time-Lapsed Atomic Force Microscopy of Polymeric Nanocomposite Transfer Film Evolution*, Society of Tribologists and Lubrication Engineers Annual Exhibition and Meeting, St. Louis, Missouri USA, May 6-10, 2012.
19. *M. Hanna(&), J.N. Stabley(&), D.J. McCullough(&), J.M. Dominguez III(&), J. Delp(&), B.J. Behnke(&), **C.R. Taylor**, M. Delp(&). *The Effects of Space Flight on the Vasoconstrictor and Mechanical Properties of Cerebral Arteries*, Experimental Biology 2012, San Diego, CA USA, April 21, 2012.
20. A. Haynes(&), *M. Hanna(&), B. Chen, P. Ghosh(&), **C.R. Taylor**, M. Delp(&), J. Delp(&). *Exercise Training Reverses Age-Related Remodeling of Coronary Resistance Arterioles*. Experimental Biology 2012, San Diego, CA USA, April 21, 2012.
21. *Edward McCumiskey(g), W. Gregory Sawyer(&), Kurt G. Eyink(&), and **Curtis R. Taylor**. *Patterned Nanofeatures Enable 3-D Transmission Electron Tomography of Interfacial Deformation Mechanisms in Nanolaminates*, Symposium GG: Mechanical Behavior of Metallic Nanostructured Materials, Materials Research Society (MRS) Fall Meeting 2012, Boston, MA USA, November 25-30, 2012.
22. **Curtis Taylor**. Low Temperature Physical Synthesis of ZnO Nanostructures, 2011

- Villa Conference on Interactions Among Nanostructures (VC-IAN), Las Vegas, Nevada, USA, April 21-25, 2011.
23. *Jared Hann(g) and **Curtis Taylor**. *The Effect of Nanoscale Contact Stress Field Interactions on Fracture and Deformation of Silicon in Purview of Mechanical Nanofabrication Processes*, Materials Research Society (MRS) Fall Meeting 2011, Symposium FF, Boston, MA, November 30, 2011.
 24. *David Jackson(g), Dianne Pawluk(&), and **Curtis R. Taylor**. *Development of Haptic Virtual Reality Gaming Environments for Teaching Nanotechnology*, Mechanical Engineering Division, 2011 American Society for Engineering Education ASEE Annual Conference & Exposition, Vancouver, BC, Canada, June 26-29, 2011.
 25. *Bijoyraj Sahu(&), Robert Riddle(&), Kam Leang(&), and **Curtis Taylor**. *Development of an Automated Tool-Tip Exchanger for Tip-based Nanomanufacturing*, American Society of Mechanical Engineering (ASME) 2011 International Manufacturing Science and Engineering Conference, MSEC2011, Corvallis, Oregon, USA. June 13-17, 2011.
 26. ***Curtis Taylor**, Edward McCumiskey(g), Natarajan Chandrasekhar(&). *Mechanical Characterization of Quantum Dot-Polymer Nanocomposite Films for Organic Electronic Devices via Nanoindentation*, 2010 Villa Conference on Interactions Among Nanostructures (VC-IAN), Santorini, Greece, June 21-25, 2010.
 27. *Tarek M. Trad(p), **Curtis R. Taylor**, *Dongshan Yu(g). *ZnO nanoparticles: Low-temperature synthesis, characterization, and utilization in composite polymer/metal oxide solar cells*, Nanotechnology and the Environment: Emphasis on Green Nanotechnology, Spring 2010 American Chemical Society National Meeting & Exposition, San Francisco, CA, March 21-25, 2010.
 28. **Curtis Taylor**. *Nanoscale Patterning and Characterization of Nanostructures via Probe Tips*, 2009 Villa Conference on Interactions Among Nanostructures (VC-IAN), St. Thomas, Virgin Islands USA, September 6-11, 2009.
 29. **Curtis Taylor**. *Nanofabrication and Measurement Using Nanoscale Tips*, 59th General Assembly of College International pour la Recherche en Productique (CIRP), STC-E, Boston, MA USA, August 23-29, 2009.
 30. ***Curtis Taylor**, Dianne Pawluk(&), Marcia Hoffman(&), Maria McClintock(&). *Development of a Nanoscale Virtual Environment Haptic Interface for Teaching Nanotechnology to Individuals who are Visually Impaired*, Outstanding Contributions to Mechanical Engineering Education, 2009 ASEE Annual Conference & Exposition, Austin, Texas USA, June 14-17, 2009.
 31. **Curtis Taylor**. *Synthesis of ZnO Nanoparticles Using a Low Temperature Vapor Phase Transport Process*, Symposium on Quantum Dots, Particles, and Nanoclusters, SPIE Photonics West, San Jose, CA USA, January 24-29, 2009.

32. *Edward McCumiskey(g), Natarajan Chandrasekhar(&), and **Curtis Taylor**. *Mechanical Characterization of Quantum Dot-Polymer Nanocomposite Films for Organic Electronic Devices via Nanoindentation*, Processing and Engineering Applications, ASME International Mechanical Engineering Congress and Exposition, Lake Buena Vista, Florida, November 13-19, 2009.
33. *Tarek M. Trad(p), Kyle Donley(&), David C. Look(&), Kurt Eyink(&), and **Curtis R. Taylor**. *Synthesis of ZnO Nanoparticles Using a Modified Vapor Phase Transport Process*, Symposium I, Materials Research Society Spring Meeting, March 26-28, 2008.
34. **Curtis Taylor**. *Exploration of Nanomechanical Surface Engineering by Probe Tips for Low-Volume Fabrication of Quantum Electronics*, 2007 NanoMaterials for Defense Applications Symposium, San Diego, CA USA, April 23-26, 2007.

b. National

1. *Lan, M. F. (&), Nishida, T. (&), **Taylor, C. R.**, & Wu, C. Y(&). *I don't have time for my wellbeing! Engineering doctoral student mental health needs and barriers to seeking help*. In K. Hatfield (Chair), Student, staff, and faculty mental wellbeing [Panel presentation] at the 2021 American Society of Civil Engineers (ASCE) National Civil Engineering Department Heads Conference (Virtual), June 14, 2021.
2. **Curtis Taylor**. *Nurturing Healthy Engineers (student mental health)*. 2020 American Society of Civil Engineers (ASCE) National Civil Engineering Department Heads Conference (Virtual), June 25, 2020.
3. **Curtis Taylor (Invited Speaker)**. *STEPUP—A Program of Engineering Excellence, Engaging National Leaders in Undergraduate Student Success*, Texas A&M University, February 20, 2018.
4. **Curtis Taylor**. *Soft Matter Manufacturing: Writing in the Granular Gel Medium, Mini-Workshop on 3D Manufacturing*, University of Nevada, Las Vegas (UNLV), April 14-15, 2016.
5. *Katherine Siegel(&), Jovan Tatar(g), **C.R. Taylor**, and H. R. Hamilton(&). *Nanoindentation Measurement of Epoxy-Cement Paste Adhesion Strength*, NSF Research Experience for Undergraduates (REU), Gainesville, FL, June 8, 2014.
6. **Curtis Taylor**, James Oliverio(&), and Dianne Pawluk(&). *Use of Haptics in a Virtual Reality Environment for Learning of Nanotechnology—Exploration of the Nanoworld*, National Science Foundation EEC 2012 Awardees Conference, Arlington, VA, March 4-6, 2012.
7. ***Curtis Taylor**, James Oliverio(&), and Dianne Pawluk(&). *Use of Haptics in a Virtual Reality Environment for Learning of Nanotechnology*, National Science Foundation EEC 2011 Awardees Conference, Arlington, VA, March 13-15, 2011.

8. *Hitomi Greenslet(&) and **Curtis Taylor**. *Magnetic Field Assisted Nanomachining of Ultraprecision Surfaces*, National Science Foundation (NSF) CMMI Grantees Conference, Atlanta, GA, January 4-7, 2011.
9. **Curtis Taylor**. *Tip-Based Nanofabrication and Characterization*, Nanomanufacturing for Energy Symposium, 242nd American Chemical Society (ACS) Fall 2011 National Meeting and Exposition, Denver, Colorado USA, August 28 – September 1, 2011.
10. ***Curtis Taylor**, James Oliverio(&), and Dianne Pawluk(&), *Use of Haptics in a Virtual Reality Environment for Learning of Nanotechnology*, National Science Foundation EEC 2010 Awardees Conference, Arlington, VA, January 1, 2010.
11. ***Curtis Taylor** and Kam Leang(&), *A Novel Multifunctional SPM Probe with Modular Quick-Change Tips for Fully Automated Probe-Based Nanomanufacturing*, NSF CMMI Awardees Conference, Honolulu, HI, June 22-25, 2009.
12. **Curtis Taylor** *Nanomechanical Surface Engineering and Probes for Cell Mechotransduction Studies*, National Science Foundation (NSF) Bio-Nano Manufacturing Grand Challenges for 2020 Workshop, Washington, DC, April 14-16, 2008

d. State

1. **Curtis Taylor**. *Experimental Techniques for Understanding the Nanomechanical Behavior of Materials*, Department of Mechanical Engineering Colloquium, University of Central Florida, Orlando, FL, March 4, 2022.
2. **Curtis Taylor (Invited Speaker)**. *IDEAS – Inclusion, Diversity, Equity, and Access in STEM*, Presented to the Manatee County School District Principals, Manatee Technical College, Bradenton, FL, January 15, 2020.
3. **Curtis Taylor (Invited Speaker)**. *IDEAS – Inclusion, Diversity, Equity, and Access in STEM*, Presented to the Sarasota County School District Principals, Sarasota Board of Education, Sarasota, FL, January 15, 2020.
4. *Jason Bice(g) and **Curtis Taylor**. *Nanomechanical Characterization of Calcium Alginate Hydrogels for 3D Printed Organ Tissues*, NanoFlorida 2014 - The 7th Annual Nanoscience Technology Symposium, Miami, FL, September 25-26, 2014.
5. *Yongliang Ni(g) and **Curtis Taylor**. *Nanomechanical Analysis of an Ultralow Pressure Triggered Photonic Crystal Shape Memory Polymer*, NanoFlorida 2014 - The 7th Annual Nanoscience Technology Symposium, Miami, FL, September 25-26, 2014.
6. **Curtis Taylor**. *Three-Dimensional Electron Microscopy of Nanoscale Structure and Deformation*, NanoFlorida 2013 Conference, University of Florida, Gainesville, FL, September 29-30, 2013.

7. **Curtis Taylor**. *Tip-Based Nanoscale Fabrication and Characterization for Energy Efficient Products and Manufacturing*, NanoFlorida 2011 Conference, Florida International University, Miami, Florida, September 30-October 1, 2011.
 8. *Mina Hanna(&) and **Curtis R. Taylor**. *Nanomechanical Properties of Ultrathin Epitaxial Scandium Oxide*, NanoFlorida 2011 Conference, Florida International University, Miami, Florida, September 30-October 1, 2011.
 9. *Lisa Morin(&), James Oliverio(&), and **Curtis Taylor**. *Experiencing the Nano-World: Touch Based Virtual Exploration of Nanoscale Features*, 2nd Annual NanoFlorida Conference, University of Central Florida, Orlando, FL, September 25-27, 2009. (1st Place poster award)
 10. *Elizaveta Oleynik(&), Edward McCumiskey(g), and **Curtis Taylor**, *Nanomechanical Characterization of Ultrathin Films*, 2nd Annual NanoFlorida Conference, University of Central Florida, Orlando, FL, September 25-27, 2009.
 11. **Curtis Taylor**, *Nanoscale Mechanics and Manufacturing via Scanning Probes*, The Florida Education Fund's Twenty-Fourth Annual McKnight Fellows Meeting and Twelfth Annual Graduate School Conference, Tampa, Florida, October 24-26, 2008.
 12. *Eroshenko, N. (&), Rao, R. (&), and **Taylor, C.** *Differential Behavior of Mouse Embryonic Fibroblasts on Substrates of Varying Mechanical Properties*, 5th Annual Colonial Academic Alliance Research Conference, Harrisonburg, VA, April 20-21, 2007.
- e. Local
1. **Curtis Taylor**, Physics Education – A Platform for Success and the Issue of the Missing Physicist, UF Physics Colloquium, University of Florida, April 7, 2022.
 2. **Curtis Taylor (Organizer)**, led 2-day University of Florida *Summit on Ensuring Access on awareness and interventions to address 10-year trend in declining Black student enrollment included deans of all colleges*, July 20-21, 2021 (virtual summit).
 3. **Curtis Taylor**, The Power of Diverse Teams, HWCOE Department of Materials Science and Engineering Colloquium, University of Florida, January 28, 2021.
 4. **Curtis Taylor**, Nanotechnology: Science and Benefits of Small Volumes, Institute for Learning in Retirement (ILR) at Oak Hammock, Gainesville, FL, August 3, 2015.
 5. **Curtis Taylor** (Keynote Speaker), Sowing Academic Excellence in Engineering, The Successful Transition and Enhanced Preparation for Undergraduates Program (STEPUP) 20th Year Anniversary, University of Florida, July 27, 2014.
 6. **Curtis Taylor**, An Engineering and Arts Collaboration with Digital Worlds Institute, University of Florida College of Engineering Colloquium, November 1, 2013.

7. *Anjelica Warren(&) and **Curtis Taylor**, *Vapor-Liquid-Solid Crystal Growth of Zinc Oxide Nanowires for Novel Photovoltaic and Composite Applications*, Pi Tau Sigma Research Symposium, University of Florida, April 2, 2010 (Best Poster Award of Symposium).

Invited Talks and Colloquia

1. Curtis Taylor, *Armed with Courage – Moral Courage in Leadership*, 2023 **US Air Force Commissioning Ceremony, Reserve Officer Training Corps DET 150**, May, 10, 2023.
2. Curtis Taylor, *Physics Education – A Platform for Success and the Issue of the Missing Physicist*, **UF Physics Colloquium, University of Florida**, April 7, 2022.
3. Curtis Taylor, *Experimental Techniques for Understanding the Nanomechanical Behavior of Materials*, **Department of Mechanical Engineering Colloquium, University of Central Florida**, March 4, 2022.
4. Curtis Taylor, *The Power of Diverse Teams*, **HWCOE Department of Materials Science and Engineering Colloquium, University of Florida**, January 28, 2021.
5. Curtis Taylor, *Soft Matter Additive Manufacturing*, **Osnabrück University of Applied Sciences, Osnabrück**, Germany, May 2019.
6. Curtis Taylor, *Soft Matter Manufacturing: Writing in the Granular Gel Medium*, **Mini-Workshop on 3D Manufacturing, University of Nevada, Las Vegas (UNLV)**, April 14-15, 2016
7. Curtis Taylor, *Nanotechnology: Science and Benefits of Small Volumes*, **Institute for Learning in Retirement (ILR) at Oak Hammock**, Gainesville, FL, August 3, 2015
8. Curtis Taylor (Keynote Speaker), *Sowing Academic Excellence in Engineering, The Successful Transition and Enhanced Preparation for Undergraduates Program (STEPUP) 20th Year Anniversary*, **University of Florida**, July 27, 2014
9. Curtis Taylor, *An Engineering and Arts Collaboration with Digital Worlds Institute*, **University of Florida College of Engineering Colloquium**, November 1, 2013
10. Curtis Taylor, *Effects of Spaceflight on Vasoconstrictor and Mechanical Properties of Mouse Cerebral Arteries*, **Hysitron Inc. Open House Seminar**, July 17, 2012
11. Curtis Taylor, *Tip Based Nanomanufacturing and Nanomechanics*, **Université De Franche-Comté (Besançon, France)**, Departmental Seminar, October 22, 2011
12. Curtis Taylor, *Nanomanufacturing for Energy Efficient Products and Industrial Productivity*, **University of Michigan**, Fall Mechanical Engineering Seminar, October 4, 2011
13. Curtis Taylor, *Nanomanufacturing at the University of Florida: Building Things Small*, College of Science and Mathematics, **University of the Virgin Islands**, September 7, 2009
14. Curtis Taylor, *Nanoscale Surface Energy Modulation via Probes*, Department of Material Science and Engineering Seminar Series, **University of Florida**, November 21, 2008
15. Curtis Taylor, *Nanoscale Surface Energy Modulation via Probes*, **National University of Singapore**, October 2008.

16. Curtis Taylor, *Nanoscale Surface Energy Modulation via Probes as a Route Towards Controlled Nanomanufacturing*, Department of Materials Engineering Seminar Series, **Purdue University**, February 22, 2008
17. Curtis Taylor, *Nanomechanical Surface Engineering Modulation via Probes: Towards Nanomanufacturing of Quantum Electronics*, Department of Mechanical and Aerospace Engineering Seminar Series, **University of Florida**, January 31, 2008
18. Curtis Taylor, *Nanomechanical Surface Engineering by Probe Tips as a Route to Nanomanufacture Quantum Electronics*, **Massachusetts Institute of Technology (MIT)**, Boston, MA; Manufacturing Lecture Series, March 13, 2007
19. Curtis Taylor, *Exploration of Nanomechanical Surface Engineering by Probe Tips for the Fabrication of Quantum Electronics*, (Invitation only) **DARPA Workshop** on Tip-Based Nanofabrication, San Francisco, CA, November 15-17, 2006.
20. Curtis Taylor, *Nanomanufacturing: Building Things Extremely Small*, Department of Manufacturing Engineering Technology, **Virginia State University**, Petersburg, VA. October 27, 2006
21. Curtis Taylor, *Building the Foundation to Impact, Revitalize, and Empower*, National Society of Black Engineers Annual Banquet, **Virginia Commonwealth University**, April 2006
22. Curtis Taylor, *Directed Self-Assembly of Quantum Dots by Nanoindentation*, **Virginia Commonwealth University** Physics Department Colloquium, September 9, 2005
23. Curtis Taylor, *Directed Self-Assembly of Quantum Dots by Nanoindentation*, **General Electric (GE) Global Research Center**, April 2005
24. Curtis Taylor, *Nanoscale Surface Patterning of Quantum Dots*, Physics Department Colloquium, **Rochester Institute of Technology**, Rochester, New York, October 29, 200
25. Curtis Taylor, *Nanoscale Surface Patterning of Quantum Dots*, National Center for Electron Microscopy, **Lawrence Berkeley National Lab**, Berkeley, California, July 2004

Funded Grants and Contributions

- Bill and Susan Gattle Mentorship Program, May 2023-May 2024
Design of Herbert Wertheim College of Engineering Mentoring Curriculum
Amount awarded: \$10,000
- L3 Harris Technologies, March 2021 – March 2022
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$30,000
- Texas Instruments, August 2021 – May 2022
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$10,000

- Exxon Mobil, August 2021 – May 2022
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$15,000
- Northrop Grumman, August 2021 – April 2022
First Year Engineering Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$15,000
- UF Provost Creative Campus Scholar-in-Residence, 2020-2021
Engineering Wellness Dialogues and Needs Assessment
Mei-Fang Lan (Principal Investigator)
Curtis Taylor (Co-Principal Investigator)
Toshikazu Nishida (Co-Principal Investigator)
Amount awarded: \$10,000
- L3 Harris Technologies, March 2020 – March 2021
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$30,000
- Texas Instruments, August 2020 – May 2021
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$15,000
- Exxon Mobil, August 2020 – May 2021
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$5,000
- National Science Foundation CMMI, 2016-2020
Scalable Nanomanufacturing of Reconfigurable Photonic Crystal
Peng Jiang (Principal Investigator)
Curtis Taylor (Principal Investigator)
Amount Awarded: \$449,787 total (\$224,893 Jiang; \$224,893 Taylor)
- Northrop Grumman, August 2019 – April 2020
First Year Engineering Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$15,000
- L3 Harris Technologies, March 2019 – March 2020
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$30,000

- Exxon Mobil, August 2019 – May 2020
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$15,000
- Texas Instruments, August 2019 – May 2020
Successful Transition and Enhanced Preparation for Undergraduates Program
(STEPUP)
Curtis Taylor (Principal Investigator)
Amount awarded: \$10,000
- University of Florida International Center, Summer 2019
UF in Osnabruck
Curtis Taylor (Principal Investigator)
Amount awarded: \$4,485
- Northrop Grumman, August 2018 – April 2019
First Year Engineering Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$15,000
- Texas Instruments, August 2018 – May 2019
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$10,000
- Texas Instruments, August 2018 – May 2019
Imagine UF K-12 Outreach Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$8,000
- L3 Harris Technologies, March 2018 – March 2019
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$20,000
- Northrop Grumman, August 2017 – April 2018
First Year Engineering Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$15,000
- Texas Instruments, August 2017 – May 2018
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$10,000
- Texas Instruments, August 2017 – May 2018
Imagine UF K-12 Outreach Program

Curtis Taylor (Principal Investigator)
Amount awarded: \$8,000

- Northrop Grumman Foundation, January 2016 – January 2017
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$4,000
- Wells Fargo Foundation, March 2016 – March 2017
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$900
- L3 Harris Technologies, March 2016 – March 2017
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$3,000
- Community Foundation Grant for Brevard, September 2015 – May 2016
Engineering Freshman Transition Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$10,000
- Exxon Mobil Corp., September 2015 – May 2016
Successful Transition and Enhanced Preparation for Undergraduates Program
Curtis Taylor (Principal Investigator)
Amount awarded: \$10,000
- Hysitron Inc., 2015
Nanomechanics Laboratory
Curtis Taylor (Principal Investigator)
Thomas Angelini (Co-Principal Investigator)
W. Gregory Sawyer (Co-Principal Investigator)
David Hahn (Co-Principal Investigator)
Amount awarded: ~ \$1M+ (in-kind support)
- Medtronic Bakken Res Cte, 2014-2015
Design of a Microdebrider Declogging System
Curtis Taylor (Principal Investigator)
Amount awarded: ~ \$16,500
- European Commission International Research Staff Exchange Program (IRSES) with
Consiglio Nazionale Delle Ricerche Istituto Di Tecnologie Industriali E Automazione
(Milan, Italy), 2010-2015
Collaboration Partnership Agreement
Gloria Wiens (Principal Investigator)
Irene Fassi (Co-Principal Investigator)
Curtis Taylor (Co-Principal Investigator)

Amount awarded: ~ (\$10,122 Taylor)

- National Science Foundation CMMI REU Supplement, 2011-2014
Magnetic Field Assisted Nanomachining of Ultraprecision Surfaces,
Curtis Taylor (Principal Investigator)
Hitomi Greenslet (Principal Investigator)
Amount awarded ~ \$12,000 total (\$6,000 Taylor; \$6,000 Greenslet)
- National Science Foundation CMMI, 2010-2014
Magnetic Field Assisted Nanomachining of Ultraprecision Surfaces
Curtis Taylor (Principal Investigator)
Hitomi Greenslet (Principal Investigator)
Amount awarded: ~ \$374,176 total (\$187,088 Taylor; \$187,088 Greenslet)
- National Science Foundation EEC, 2009-2012
Use of Haptics in a Virtual Reality Environment for Learning of Nanotechnology,
Curtis Taylor (Principal Investigator)
James Oliverio (Co-Principal Investigator)
Dianne Pawluk (Co-Principal Investigator)
Amount awarded: ~ \$200,000 total (\$126,351 Taylor)
- University of Florida Office of Research, 2009-2011
Guided Self-Assembly of Nanostructures via Nanostamp Driven Droplet Diffusion and
Dewetting of Metal Thin Films, Research Opportunity Incentive Seed Fund
Curtis Taylor (Principal Investigator)
Andrew Rinzler, (Co-Principal Investigator)
Amount awarded: ~ \$58,509 total
- National Science Foundation (NSF) CMMI Nanomanufacturing Program, 2007-2011
A Novel Multifunctional SPM Probe with Modular Quick-Change Tips for Fully Automated
Probe-Based Nanomanufacturing
Curtis Taylor (Principal Investigator)
Kam Leang (Principal Investigator)
Awarded ~ \$290,000 total – (\$145,000 Taylor; \$145,000 Leang)
- Air Force Office of Scientific Research (AFOSR), 2007-2008
U.S. Air Force Summer Faculty Program
Curtis Taylor (Principal Investigator)
Amount awarded: ~ \$12,000 total
- National Science Foundation (NSF) CMMI Nanomanufacturing Program, 2006-2009
Collaborative Research: Mechanically Biased Self-Assembly of 2-D and 3-D Quantum
Structures Using a Novel Nanostamping Process
Curtis Taylor (Principal Investigator)
Ajay Malshe (Principal Investigator)
Amount awarded ~ \$250,000 total—(\$150,000 Taylor; \$100,000 Malshe)

- VCU Higher Education Trust Fund, 2006
Low Pressure CVD System for Nanostructure Synthesis
Curtis Taylor (Principal Investigator)
Amount awarded: ~ \$60,000 total

Research Collaborations (2013-2022)

- Dr. Mayra Artilles Fonseca, Arizona State University, AZ
- Dr. Stephanie Adams, University of Texas at Dallas, TX
- Dr. Vilma Fuentes, Santa Fe College, FL
- Dr. Sindia Rivera-Jimenez, University of Florida, FL
- Prof. James Oliverio, Music and Digital Arts and Sciences, University of Florida, FL
- Dr. Valentin Craciun, Laser Department, National Institute for Laser, Plasma, and Radiation Physics, Magurele, Romania
- Dr. Laurie Gower, University of Florida, FL
- Dr. Kurt Eyink, US Air Force Research Lab, OH
- Dr. Hitomi Greenslet, University of Florida, FL
- Dr. Kam Leang, University of Utah, UT
- Dr. Philippe Lutz, Universite de Franche-Comte, France
- Dr. Vito Basille, ITTIA, Bari, Italy
- Dr. Dianne Pawluk, Virginia Commonwealth University, VA
- Dr. Gregory Sawyer, University of Florida, FL
- Dr. Ghatu Subhash, University of Florida, FL
- Dr. Jiang Peng, University of Florida, FL
- Dr. Thomas Angelini, University of Florida, FL

Reviewer for Journals

- Polymers
- Advanced Materials
- ACS Applied Materials and Interfaces
- IOP Journal of Physics D: Applied Physics
- AIP Journal of Applied Physics
- IOP Journal of Micromechanics and Microengineering
- ASME Journal of Manufacturing Science and Engineering
- Superlattices and Microstructures
- Applied Physics Letters
- Nanoscale Research Letters
- ASME Journal of Electronic Packaging
- Journal of Engineering Materials and Technology
- Journal of Materials Science
- Applied Surface Science

Professional Affiliations

- Member and Evaluator, Accreditation Board for Engineering and Technology (ABET)
- Member, Materials Research Society (MRS)
- Member, American Society of Mechanical Engineers (ASME)
- Member, American Society of Engineering Education (ASEE)
- Link Governor, Order of the Engineer

Leadership in the Profession

a. International

Chair and Board Membership

Accreditation Board for Engineering and Technology (ABET)/American Society of Mechanical Engineering (ASME) Mechanical Engineering **Program Evaluator**
2020 - present

Chair, Minorities in Engineering Division (MIND) (500+ members), American Society for Engineering Education (ASEE), 2023-2024

Chair-Elect, Minorities in Engineering Division (MIND), American Society for Engineering Education (ASEE), 2022-2023

Chair, Research Committee on Nanomanufacturing Technology, Board on Research and Technology Development (BRTD), American Society of Mechanical Engineers. 2011-2014 The Committee facilitates the development and application of technology in areas of interest to ASME members and to the engineering profession by encouraging partnering between industry, government, and academia.

Notable accomplishments as Chair include:

- Design, deployment, and analysis of National Industrial Needs Nanomanufacturing Survey in 2012
- Publication of industrial survey article in ASME News December 2012
- National Nanotechnology Infrastructure Network (NNIN) 2012 Panel at ASME International Mechanical Engineering Congress

Executive Committee Member, Board on Research and Technology Development (BRTD), American Society of Mechanical Engineers (ASME), 2011-2013

Member, Board on Research and Technology Development (BRTD), American Society of Mechanical Engineers, 2010-2012

Conference Organizer

Co-Chair, National Association of Multicultural Engineering Program Advocates (NAMEPA) 2019 Annual Conference, University of Florida, September 2019

- Technical Chair, Micro and Nano Technologies, 2016 ASME Manufacturing Science and Engineering Conference (MSEC) June 2016
- Co-Organizer and Facilitator, Workshop on Scalable Nanomanufacturing: Benchmarks, Standards, and Metrics, August 17, 2014, Advanced Design and Manufacturing Impact Forum, ASME IDETC 2014, Buffalo, NY
- Track Chair, Micro and Nano Technologies, 2012 ASME Manufacturing Science and Engineering Conference (MSEC) June 13-17, 2012, University of Notre Dame, IN
- Co-Organizer for Symposium on Nanomaterials, Nanofabrication and Their Applications, 2012 ASME Manufacturing Science and Engineering Conference (MSEC) June 13-17, 2012, University of Notre Dame, IN
- Co-Organizer for Symposium on Nanomaterials, Nanofabrication and Their Applications, 2011 ASME Manufacturing Science and Engineering Conference (MSEC) and 2011 International Conference of Materials and Processing (ICMP) of JSME, June 13-17, 2011, Oregon State University, OR
- Organizer for the Multidisciplinary Engineering, Technology and Management (METM) Workshop, June 10-11, 2010, University of Maryland, College Park, MD
- International Organizing Committee, 2010 Villa Conference on Interaction Among Nanostructures (VCIAN-2010), June 21-25, 2010, Santorini, Greece
- Program Committee for Nano-, Bio-, Info-Tech Sensors and Systems Symposium, 2009 SPIE International Symposium on The 15th International Symposium on: Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring, March 9-12, 2009
- Organizer for Symposium on Nanomanufacturing, 2009 ASME International Manufacturing Science and Engineering Conference (MSEC), October 4-7, 2009, Purdue University, West Lafayette, IN
- Organizing Committee Member, Nano Integrated Manufacturing Committee, ASME 2008; Advanced Technology Workshop for Nanomanufactured Product Realization
- Organizer for Symposium M--*Quantum Dots: Growth, Behavior, and Applications*, 2006 Fall Material Research Society (MRS) Meeting, November 27-December 1, 2006 Boston, MA
- Organizer for Symposium on *Nano and Micro Mechanical and Related Hybrid Tools for Nanomanufacturing*, 2006 ASME International Conference on Manufacturing Science and Engineering, University of Michigan, Ann Arbor, MI

Session Chair

ASME Manufacturing Science and Engineering Conference (MSEC) June 13-17, 2012, University of Notre Dame, IN

ASME Manufacturing Science and Engineering Conference (MSEC) and 2011 International Conference of Materials and Processing (ICMP) of JSME, June 13-17, 2011, Oregon State University

Villa Conference on Interaction Among Nanostructures (VCIAN-2011), April 21-25, 2011, Las Vegas, NV, 2011

Villa Conference on Interaction Among Nanostructures (VCIAN-2010), June 21-25, 2010, Santorini, Greece, 2010

Villa Conference on Interaction Among Nanostructures (VCIAN-2009), September 6-11, 2009, St. Thomas, Virgin Islands, 2009

ASME International Manufacturing Science and Engineering Conference (MSEC), October 4-7, 2009, Purdue University, West Lafayette, IN

b. National*Chair and Board Membership*

Diversity and Culture of Inclusion (DCI) Board member for the National Science Foundation Internet of Things for Precision Agriculture (IoT4Ag) Engineering Research Center (ERC), November 2020 – present

President, Arkansas Academy of Materials Science and Engineering, 2020-2021

President-elect, Arkansas Academy of Materials Science and Engineering, 2019-2020

Industrial Advisory Board, University of Arkansas, Microelectronics-photonics Program, 2009-2010

Co-organizer for the National Science Foundation--Partnership for Innovation Nanotechnology Initiative for implementation of state-wide nanotechnology course curriculum among Virginia Tech, U. Virginia, Old Dominion, George Mason, VCU, and College of William and Mary (2006)

Board member: State of Virginia, Department of Education, Perkins Federal Grant State Plan Committee for K-12 Career and Technical Education (2007-2008)

National Panelist and Proposal Reviewer

National Science Foundation (NSF) Engineering Research Centers (ERC) Review Panelist 2019—Provides review and recommendation for funding of National Engineering Research Centers

National Science Foundation (NSF) Review Panelist for Nanoscale Engineering Research Centers (Site Visit), 2018—Provides review and recommendation for funding of National Centers

National Science Foundation (NSF) Review Panelist for Nanoscale Engineering Research Centers (Reverse Site Visit), April 2012—Provides review and recommendation for funding of National Centers (\$55M to 3 Centers)

National Science Foundation (NSF) Review Panelist for Division of Civil, Mechanical and Manufacturing Innovation (CMMI) Nanomanufacturing program, 2008 - 2012

Reviewer for the Electronic/Photonic Materials Program, Division of Materials Research, National Science Foundation, 2007-2009

Selected panelist and reviewer for site visit to the Nanoscale Science and Engineering Center for High-Rate Nanomanufacturing at Northeastern University, May 27-29, 2008

University Governance and Service

- Board of Directors, University of Florida University Athletic Association (UAA) (2022 – present)
- Member, University of Florida Provost Important Research Group on Academic Integrity, (2020 – 2023)
- Member, University of Florida College of Agriculture and Life Sciences, Associate Dean Search, 2023
- Member, HWCOE Deans Search Committee, 2022
- Member, University of Florida Title IX Committee (2019-2023)
- Chair, HWCOE Addressing Student Needs Taskforce (during pandemic), 2020
- Campus Diversity Liaison, University of Florida Office of the Chief Diversity Officer (2018-present)
- Co-Chair, Herbert Wertheim College of Engineering Inclusion, Diversity, Equity, and Access Committee (2018-2023)
- Co-Organizer, Herbert Wertheim College of Engineering Celebration of Women in Engineering Reception, February 2019
- Member, University of Florida Admission Appeals Committee (2017-2019)
- Member, University of Florida Digital Worlds Institute Tenure and Promotion Committee (2016-2017)
- Member, University of Florida Advisory Council for Undergraduate Affairs (2015-present)
- Member, University of Florida Undergraduate Curriculum Committee (2015-present)
- Member, Herbert Wertheim College of Engineering Undergraduate Curriculum Committee (2015-present)
- Member, University of Florida Dean of Students Out-of-State Working Group (2016-2017)

- Member, University of Florida Associate Deans Advisory Committee (2015-present)
- Faculty Advisor, Tau Beta Pi National Engineering Honor Society, Florida Alpha Chapter (2008-present), Chief Advisor (2010-2014)
- Faculty Advisor, Engineering Ambassadors (2015-present)
- Faculty Advisor, Benton Engineering Council (2015-present)
- UF Campus Security Authority (2011-present)
- Member, University of Florida Honors Program Scholarship Committee (2016-2017)
- Member, College of Engineering Undergraduate Student Affairs Strategic Planning Committee, member 2015
- Member, College of Engineering Safety Committee, (2014-2016)
- Safety Officer, Department of Mechanical and Aerospace Engineering, (2014-2016)
- Member, Chemical Engineering Faculty Search Committee (2015-2016)
- Member, Mechanical and Aerospace Graduate Recruitment Committee (2014-2016)
- Member, Digital Worlds Director Search Committee (2014-2015)
- Member, UF Career Resource Center Advisory Board (2012-2014)
- Member, Electrical and Computer Engineering Faculty Search Committee (2014-2015)
- Chair, Mechanical and Aerospace Engineering, Seminar Committee (2011-2014)
- Member, Major Analytical Instrumentation Center Advisory Committee (2011 – 2014)
- Member, Mechanical Engineering Curriculum and Program Committee (November 2012-2016)
- Member, Engineering Leadership Institute Director Search Committee (2012-2014)
- Member, Nanoscale Institute for Medical and Engineering Technology (NIMET) Director Search Committee (2012)
- Lead Organizer, Tenure Accruing Faculty Luncheons (August 2011 – May 2012)
- Member, Manufacturing Faculty Search Committee (1 August 2011 – 2012)
- Member, Department Chair Search Committee (2011)
- University of Florida Commencement Marshal (2008-2010)
- Speaker, University of Florida College of Engineering Successful Transition through Enhanced Preparation for Undergraduates Program (STEPUP), 2008-2010, 2013
- Guest speaker at Florida Alpha Tau Beta Pi Banquet, 2009, 2010, 2011
- Member, Department of Mechanical and Aerospace Engineering, Seminar Committee (2009-2014)
- Member, Department of Mechanical and Aerospace Engineering, Statics Course Committee (2010-2014)
- Member, VCU Department of Mechanical Engineering Graduate Program Committee (2006-2007)
- Member, VCU Department of Mechanical Engineering Faculty Search Committee (2007-2008)
- Member, VCU School of Engineering Career Center Director Search Committee (2007)
- Advised three Senior Capstone Design Projects
 - Senior Design Project Advisor for *Technologies to Defeat Improvised Explosive Devices* Group (2 groups)
 - Senior Design Project Advisor for *Self-Actuating Scalpel with Integrated LED Illumination for Improved Surgical Safety* Group
- Keynote Speaker, VCU National Society of Black Engineers Awards Banquet (2005-2006)

- Guest speaker at 2006-2007 ASME Seminar Series VCU Student Section: “Nanomanufacturing: Building Things Extremely Small”, November 11, 2006
- Guest lecturer for VCU Honors Seminar Series: “Nanomanufacturing at VCU”, February 2007
- Guest speaker at Theta Tau Professional Development Seminar: “Lessons in Success and Nanomanufacturing Research”, April 2007

International Activities

- **Faculty Advisor**, Osnabrück University of Applied Sciences Study Abroad Program, Osnabrück, Germany
 - Summer 2019
- **Principal Investigator**, Brazil Scientific Mobility Program, Institute of International Education
 - Host of Research Assistants Gabriella Maria Da Silva Coelho and Lucas Barros June 2015 – August 2015
- **Principal Investigator**, European Commission International Research Staff Exchange Program (IRSES) with Consiglio Nazionale Delle Ricerche Istituto Di Tecnologie Industriali E Automazione (Milan, Italy)-Collaboration Partnership Agreement (Sept. 2013-2018)
- **Principal Investigator**, European Commission International Research Staff Exchange Program (IRSES) with Université De Franche-Comté (Besançon, France). (Sept. 2013-2018)
- **International Short-Term Scholar with Gazi University (Ankara, Turkey)**
 - Host and collaborator with Dr. Ahmet Taskesen, Assist. Professor, Gazi University, Faculty of Technology, Department of Manufacturing Engineering, August 12, 2013 – December 31, 2013
- **Co-Principal Investigator/Partner**, European Commission International Research Staff Exchange Program (IRSES) with Consiglio Nazionale Delle Ricerche Istituto Di Tecnologie Industriali E Automazione (Milan, Italy).
 - Host of Claudia Pagano (Research Fellow) Summer 2011 and Fall 2012. Resulted in one joint publication (*Claudia Pagano, and Curtis R. Taylor. 2013. Nanomechanical Property Analysis of Silica Aerogels. The ASME 2013 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE).*)
- **Co-Principal Investigator/Partner**, European Commission International Research Staff Exchange Program (IRSES) with Université De Franche-Comté (Besançon, France).

- o Host and M.S. Thesis Advisor: Jean-Michel Boccard, M.S. (Université De Franche-Comté, France), 2010
 - Thesis: “Design, Fabrication, and Characterization of a New Plasmonic Metamaterial Gas Sensor” (work performed at UF summer 2010).
- **National Science Foundation East Asia and Pacific Summer Institutes for U.S. Graduate Students**
 - o Summer 2008, Thesis Advisor for Edward McCumiskey (advised Ph.D. student) Summer visit and formal collaboration with Singapore Institute of Materials Research and Engineering resulted in 1 journal publication with N. Chandrasekhar (*E. McCumiskey(g), N. Chandrasekhar, and C. Taylor. 2010. Nanomechanics of CdSe Quantum Dot-Polymer Nanocomposites Films. Nanotechnology. 21: 225703*)

References

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