

Arvind Agarwal

Curriculum Vitae

Distinguished University Professor and Chair
Mechanical and Materials Engineering
Director, Advanced Materials Engineering Research Institute (AMERI)
College of Engineering and Computing
Florida International University

Executive Summary

Dr. Arvind Agarwal is a Distinguished University Professor and Chair of the Department of Mechanical and Materials Engineering at [Florida International University](#) (FIU), Miami, FL, USA. He also serves as the Director of the Advanced Materials Engineering Research Institute (AMERI). He served as Associate Dean of Research, College of Engineering and Computing at FIU from 2015-17. Prof. Agarwal obtained his B.S from the Indian Institute of Technology (IIT) Kanpur in Materials and Metallurgical Engineering and Ph.D. in Materials Science and Engineering from the University of Tennessee at Knoxville. After his Ph.D., Prof. Agarwal worked in the industry as a Materials Scientist at [Plasma Processes Inc.](#), Huntsville, AL, USA, for three (3) years, before embarking on an academic career at FIU in 2002.

Research: Prof. Agarwal's current research interests include advanced materials processing, thermal and cold spray, surface engineering, spark plasma sintering, ultrahigh temperature ceramics, carbon nanotube (CNT), boron nitride nanotube (BNNT), and graphene reinforced composites and coatings, nanoindentation, and mechanical properties of low dimensional and biological materials. His research has been continuously funded (*\$6.8M as PI* and *\$25M as Co-PI*) for 17 years by NSF, ONR, AFOSR, ARO, NASA, DOE, and industries. Currently, he also serves as Co-PI of NSF funded Engineering Center (ERC) Cell-Met in partnership with Boston University and the University of Michigan. Prof. Agarwal has published 291 technical articles, which include 237 peer-reviewed journal articles, 1 book, and 7 edited books. His research has been cited more than 10700 times (*H-index: 53*). He has delivered ~200 presentations at national and international conferences including 35 keynote/invited lectures. Prof. Agarwal is the inventor of 3 patents and 2 disclosures. His approved patent (US 10,183,754B1) titled "[Three Dimensional Graphene Foam Reinforced Composite and Deicing Systems Therefrom](#)" has been **licensed** at both National and International levels and marketed as "[deIce 477™](#)".

Teaching and Mentorship: Prof. Agarwal has mentored 34 doctoral and post-doctoral, 16 masters and 35 undergraduate researchers in his lab. He has also mentored 16 K-12 students and 6 K-12 teachers in his labs. Prof. Agarwal has taught 6 graduate and 3 undergraduate courses. He has also conducted several short-term courses and workshops in the USA and internationally for working professionals and engineers. His students and mentees are employed as faculty members, national lab scientists, and senior engineers in the industry within the USA and other countries (China, India, Turkey). Prof. Agarwal has also served as a mentor to several assistant professors at FIU, and three of them have won the NSF-CAREER award.

Administration: Prof. Agarwal has extensive experience in academic and research administration. He served as *Graduate Program Director* of MME (2004-2008) and *Associate Dean for Research* for CEC (2015-2017). Since 2012, he serves as *Director of Advanced Materials Engineering Research Institute* (AMERI) at FIU, which has more than 25 faculty users and 50 Ph.D. students in the area of nanotechnology, materials characterization and materials processing. Currently, Prof. Agarwal serves as the *Chairperson of the Mechanical and Materials Engineering* department since October 2017. In a mere 2 years of his tenure as MME Chair, the 4-year FTIC graduation rate had increased from 9% in 2017 to 22% in 2019. He has taken the lead to redesign undergraduate curriculum, upgraded teaching labs, and created a series of online courses to improve the 4-year graduation rate. Prof. Agarwal has also been able to hire 4 T/TT faculty and embarked on the aggressive recruitment of graduate students. He has created a National Industrial Advisory Board (NIAB) which has 7 industrial partners who have provided support for senior design projects and MME activities.

Service: Prof. Agarwal has served his profession at national, international, and domestic levels. Prof. Agarwal has been active in professional societies (ASM, TMS, ACerS) and has organized more than 15 symposia in the field of surface engineering, nanomaterials, and biomaterials. He has served on several committees, including Advanced Materials Editorial Committee, ASM/IIM Visiting Lecture Award, J. of Thermal Spray Technology Best Paper Award, and Surface Engineering committee. He is the Founding Faculty Advisor of the FIU Materials Advantage (MA) student chapter. FIU MA Chapter was awarded (i) Chapter of Excellence (7 times), and (ii) *Worlds Materials Day Award* (6 times) in the last 12 years worldwide. Prof. Agarwal has advised more than 200 students and helped them transition to a leadership role through MA. Several of his advisees have become professors and started a new MA chapter in their universities resulting in a ripple effect. Prof. Agarwal serves as a reviewer for more than 50 leading journals in the area of materials engineering, nanotechnology, and biomaterials.

Prof. Agarwal has served on several FIU committees at the University, College, and department level. A few of these committees are Chairs Advisory Council, Honorary Award Committee, VP Research Advisory Council, College Curriculum Committee, CEC Faculty Council, CEC T&P Committee, and several faculty search & screen committees.

Honors and Awards: Prof. Agarwal has received several honors and awards both at the national level and within FIU. This includes the National Science Foundation's (NSF) prestigious *CAREER award* in 2006, *Defense Tech Connect Award* for Top 15% Technologies (2018), and *Nanomaterials and Energy Prize (Best Journal Paper)* in 2017. He received *FIU President's Council Outstanding Professor* (now renamed as *World's Ahead Professor*) in 2010 for sustained excellence in research, teaching, and service. Prof. Agarwal is also a recipient of the FIU Faculty *Excellence in Research Award* (2008) and *Excellence in Mentorship Award* (2010). Recently, he was honored by *Provost's Mentorship Award* for Graduate students in March 2018. Prof. Agarwal was honored as an elected *Fellow of ASM International* in 2012.

Global and International Recognition

- Keynote and Invited speaker at major national and global conferences on advanced materials, cold spray, and nanotechnology in Japan, Spain, Italy, and India.
- Chair, Advanced Manufacturing Committee, Canada Foundation for Innovation, 2017.
- Prof. Agarwal serves as an expert for several European, Asian, and Canadian funding agencies which include:
 - European Science Foundation
 - German Science Foundation
 - Swiss National Science Foundation
 - Austrian Science Fund (FWF)
 - Georgian National Science Foundation
 - DST (India)-UKIERI Thematic Partnerships
 - Research Science Council (RSC), Hong Kong
 - Israeli Ministry of Science, Technology, and Space
 - King Abdulaziz City for Science and Technology (KACST), Saudi Arabia.
 - Natural Sciences and Engineering Research Council of Canada (NSERC)
- Prof. Agarwal serves as the Editorial Board member of 6 international journals in the field of materials science and engineering.
- Prof. Agarwal has an active research collaboration with more than 12 researchers internationally (Switzerland, Germany, France, UK, India, Australia, China, Czech Republic).

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ARVIND AGARWAL, FASM

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EDUCATION

- Ph.D. Dec 1999, Materials Science and Engineering, University of Tennessee, Knoxville, USA
- M. S. Jan 1995, Materials and Metallurgical Engineering, Indian Institute of Technology (IIT) Kanpur, India.
- B. S. May 1993, Materials and Metallurgical Engineering, IIT Kanpur, India.

PROFESSIONAL APPOINTMENTS

- Aug 2019 onward, Distinguished University Professor, Mechanical and Materials Engineering, Florida International University
- Oct 2017 onward, Chair, Mechanical and Materials Engineering, Florida International University
- Aug 2015- Oct 2017, Associate Dean for Research, College of Engineering and Computing, Florida International University (FIU), Miami, FL, USA
- Aug 2011 onward, Professor, Dept. of Mechanical and Materials Engineering, Florida International University, Miami, FL, USA
- February -July 2014, Professor, Dept. of Applied Mechanics, Indian Institute of Technology (IIT) Delhi, India (*on leave of absence from FIU*)
- July 2012- Jan 2014 and Aug 2014 onward, Director, Advanced Materials Engineering Research Institute (AMERI) and Motorola Nanofabrication Lab, College of Engineering and Computing, Florida International University, Miami, FL, USA
- Aug 2007-July 2011, Associate Professor, Dept. of Mechanical and Materials Engineering, Florida International University, Miami, FL.
- July 2004- June 2008, Graduate Program Director, Dept. of Mechanical and Materials Engineering, Florida International University, Miami, FL.
- Nov 2002 –July 2007, Assistant Professor, Dept. of Mechanical and Materials Engineering, Florida International University, Miami, FL.
- Jan 2001-Nov 2002: Adjunct Professor and Member of Graduate Faculty in the Department of Chemical Engineering and Materials Science at the University of Alabama in Huntsville.
- Dec 1999 – Nov 2002, Materials Scientist, Plasma Processes Inc. Huntsville, AL

RESEARCH INTERESTS

- Nanocomposites and Coatings
- Thermal Spray, Cold Spray, and Surface Engineering
- Spark Plasma Sintering
- Nanoindentation and In-situ Nanomechanics
- Graphene, Boron Nitride, and Carbon Nanotube Composites
- Ultrahigh Temperature Ceramics
- Nano-scale Properties of Biological Materials
- Nano and Macro-scale Tribology
- Near Net Shape Processing and Rapid Prototyping
- Laser Materials Processing and Pulsed Electrode Surfacing

HONORS AND AWARDS

- **Distinguished University Professor:** is the highest recognition available to Full Professors of the University. These Professors are the leaders of FIU and set the example for research, scholarship, creative activities, teaching, and service excellence, October 2019, Miami.
- **2018 Tech Connect Defense Innovation Award:** This award recognizes the top 15% technology submissions to Defense TechConnect Summit & Expo. This award was given to Aluminum-BNNT composites developed at FIU, Tampa, Florida, October 2018.
- Provost's Award for Mentoring Graduate Students, FIU, March 2018
- Nanomaterials and Energy Prize (**Best Paper in the journal**), Institute of Civil Engineers (ICE), UK, October 2017
- **Excellence in Review Award**, Carbon journal, 2013-14.
- **Fellow**, ASM International 2012.
- NSF **CAREER Award** 2006-2011.
- FIU President's Council **Outstanding Professor of the Year 2010** for sustained excellence in teaching, research, and service, October 2010. FIU has more than 1000 professors at the University.
- FIU Faculty **Excellence in Mentorship** Award, October 2010.
- FIU President's Council Outstanding Professor of the Year 2009 (**Top 3 Finalist**): FIU has more than 1000 professors in the University, September 2009. The award is given to recognize sustained excellence in the areas of research, teaching, and service.
- **Faculty Advisor of the Year** 2009-2010, Student Organization Council, Florida International University, April 2010.
- FIU Faculty **Excellence in Research** Award, September 2008.
- FIU President's Council Outstanding Professor of the Year 2008 (**Top 3 Finalist**): FIU has more than 1000 professors in the entire University, September 2008. The award is given to recognize sustained excellence in the areas of research, teaching, and service.
- FIU Excellence in Faculty Scholarship Award, April 2008
- Executive **Dean's Research Award**, College of Engineering and Computing, FIU, April 2007.
- Paper Ranked # 1 (most downloaded) in Materials Science and Engineering: R journal published by Elsevier Science, April-June, 2007.

- *Faculty Advisor of the Year* 2006-2007, Student Organization Council, Florida International University, 2007.
- *Faculty Advisor of the Year* 2004-2005, Student Organization Council, Florida International University, 2005.
- The Minerals, Metals, and Materials Society (*TMS*) *Young Leader* Internship Award 2004.
- *ASM/IIM Visiting Lectureship Award* 2004.
- Member of the selection board for awarding the best paper in J. Thermal Spray Technology
- Nominated by Vice President of University of Tennessee for Certificate of Merit for Academic Proficiency for 1998 and 1999.
- Honorary Student member of Sigma Xi The Scientific Research Society USA, 1999
- Honorary Student member of Phi-Kappa-Phi, USA, 1998.

ADMINISTRATIVE EXPERIENCE

(1) Director, AMERI (Fall 2012 onward)

AMERI is an open-access user facility used by 25 faculty members and more than 50 graduate students and several industries and universities in South Florida. AMERI has a staff of 8 people which include an Assistant Director, two doctoral-level scientific officers, 2 MS level engineers, 2 BS level engineers, and one administrative staff. AMERI is a core-recharge center facility at FIU. Prof. Agarwal has directed this institute successfully and grown its **revenue from \$30K to \$160K in 5 years**. Some of the significant achievements and activities under his leadership are as follows:

- Development of a business model as a recharge center to generate operational funds
- Work with FIU Office of Research and Economic Development (ORED) to develop a rate tool for internal and external users as per Federal guidelines
- Develop a relationship with local Miami chamber of commerce, Bio-Florida, and other Florida organizations to get more business for AMERI
- Helping local small businesses in South Florida to incubate using AMERI facilities
- Develop protocols for external industrial users to use AMERI
- Strategic investment in buying new equipment and major upgrades for AMERI
- Establishing safety training and equipment access policy for AMERI users, which includes more than 50 doctoral students.
- Created online facility management and invoicing system for efficient use of tools
- Created an External Industrial Advisory Board to advise AMERI's operation
- Grant enabler for three (3) active NSF ERCs and current active \$10M grants
- AMERI is a significant facility that has enabled faculty recruitment in several departments in CEC and other colleges in FIU.

(2) Associate Dean for Research, CEC (August 2015-October 2017)

As Associate Dean for Research for College of Engineering and Computing at FIU, which has 106 tenured/tenure-track faculty, Prof. Agarwal led the college to grow its research profile and displayed financial understanding, prudent decision making and man-management in a large organization. Some of his significant activities included the following:

- Manage annual research expenditure of \$25M

- Managing his own research with more than \$1M active in grants
- Mentoring ~ 30 junior faculty in all departments of engineering and computer science to be successful in securing external funding
- Organized CAREER proposal workshop and panel discussion
- The patent workshop was conducted for Ph.D. students, postdocs, and faculty to increase the culture of innovation.
- Develop a strategy to improve the research profile of the college by maintaining an active check on the research trends of federal agencies
- Spending indirect cost returns on strategic areas such as:
 - New faculty travel support
 - Grant writing workshop,
 - Critical equipment repair
 - Cost-share for faculty grants in strategic areas
- Coordinated closely with Office of Economic Research and Development (ORED) for establishing policies for cost-share in grant submission and limited opportunity proposal submission
- Coordinated closely with Office of Economic Research and Development (ORED) to hire Post-Docs in CEC to meet State's Pre-emerging Research University metrics
- Co-ordinated efforts for FIU-CEC participate in three (3) NSF- Engineering Research Center (ERC) proposals. Two (2) ERCs proposals have been awarded to FIU as a partner, which includes several faculty members from MME, BME, Physics, and Diversity.
- Coordinated college-wide initiatives on cybersecurity, virtual reality, and smart infrastructure.
- Interacted regularly with a faculty member from six departments daily on complex issues related to laboratory space, grants cost share, grants submission, equipment repair, and conflict management.
- Worked with other Associate Deans in the University to coordinate large initiatives.
- Worked with Vice President of Research regularly.

(3). Chairperson, Mechanical and Materials Engineering (Oct 2017 onward)

In a short period of 24 months as the Chair of the MME department, Prof. Agarwal has led several new initiatives. Some of these initiatives and achievements are listed below:

- Redesigned undergraduate curriculum and got it approved effective Fall 2018 to improve the efficiency and graduation rate.
- Effective and intrusive advising of BS students resulted in the 4-year FTIC graduation rate of 22% in 2019 from 9% in 2017 (which is more than the double increase in a mere 2 years).
- Research awards increased from \$2.1 to \$3.2 M annually.
- PUMA: Placing Undergraduates in Mentored Activities. Every faculty member mentors 8-10 undergraduate students every semester to counsel on career, mechanical engineering as a profession, graduate school, and any other concerns.
- Established a sequence of new eight (8) online courses.
- Created a performance matrix to track the progress and graduation of doctoral students.
- Active recruitment plan for graduate students.
- Hired 4 T/TT faculty, 1 instructor, and two visiting faculty members.

- Recruited a student team to assist in improving the social media presence of the MME department to highlight news and achievements.
- Created a National Level Industrial Advisory Board to assist in MME profile and fundraising to assist MME Senior Design Projects
- Upgrade of several types of equipment in undergraduate teaching ME labs.
- Created an MME Ignite Project for fundraising from alumni and donors.

MEMBERSHIP IN BOARDS OF REVIEW AND ADVISORY ROLES

(A) National and International Advisory Committees

- Chair, Advanced Manufacturing Expert Committee, Canada Foundation for Innovation, 2017.
- Member, THERMEC Executive Committee, Las Vegas, NV, December 2-6, 2013.
- Member, Thermal Spray Society Award Committee, ASM International, 2013 onward
- INSTITUTE OF METALS LECTURER & ROBERT FRANKLIN MEHL AWARD Committee, TMS, to recognize an outstanding scientific leader by inviting him/her to present a lecture at the Society's Annual Meeting on a technical subject of particular interest to members in the materials science and application of metals program areas, Sept 2009-2012.
- Functional Surface Coatings, TMS Energy Committee, U.S. Department of Energy (DOE) Industrial Technologies Program (ITP), 2010-11
- International Advisory Committee, High-Tech Aluminas and Unfolding their Business Prospects (Aluminas -2013), Kolkata, March 7-9, 2013
- Advisory Committee, Nano Florida 2011 Conference, Miami, FL, Sept 30-Oct.1, 2011
- Technical Advisory Committee, International Symposium on Hydrogen and Energy Storage, January 14-15, 2010, IIT Kanpur, India.

(B) Research Funding Agencies

- National Science Foundation (NSF) Proposals Reviewer and Panelist-2003 onwards.
- Sandia National Lab (DOE) Proposals Reviewer and Panelist
- Army Research Office (ARO) Proposal Reviewer
- Department of Defense Experimental Program to Stimulate Competitive Research (DEPSCoR) Reviewer
- American Association for the Advancement of Science (AAAS) and King Abdulaziz City for Science and Technology (KACST) Research Proposals
- Natural Sciences and Engineering Research Council of Canada (NSERC)
- DST (India)-UKIERI Thematic Partnerships
- Research Science Council (RSC), Hong Kong
- European Science Foundation
- German Science Foundation
- Swiss National Science Foundation
- Israeli Ministry of Science, Technology, and Space
- Austrian Science Fund Proposals (FWF) Reviewer
- Georgian National Science Foundation Reviewer
- U.S. Civilian Research & Development Foundation (CRDF) Reviewer

- International Copper Association (ICA) Proposal Reviewer

(C) Editorial Board of Journals

- Editorial Board, *Surface and Coatings Technology* (Elsevier), 2012 onwards.
- Editorial Board, *Advances in Tribology* (Hindawi), 2009 onwards
- Board of Review: *Materials and Metallurgical Transactions A* (Springer), 2002-onwards
- Guest Editor, Nanomaterials Journal (MDPI, Switzerland), Special topic on “Nanomechanical Properties of Biological and Biomaterials,” 2018.
- Guest Editor, *Coatings* Journal (MDPI, Switzerland), Special topic on “Ultrahigh Temperature Coatings and Ceramics,” 2017
- *Advanced Materials & Processes* (ASM International) Editorial Committee, 2009-2015
- *JOM* Advisor, Surface Engineering (TMS), 2009-2015
- Associate Editor, *Journal of Thermal Spray Technology* (Springer), 2010-2015
- Guest Editor, *Journal of Thermal Spray Technology* (Springer), 2010-2013
- International Board of Review, *J. Materials Engineering, and Performance* (ASM International), 2002-04.

TEACHING ACTIVITIES

(i) Graduate Courses

- EMA 5605: *Materials Processing*, Spring 2020
- EMA 5106: *Thermodynamics and Kinetics of Materials*: Spring 2003, Spring 2004, Spring 2005, Fall 2005, Fall 2006, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2012, and Fall 2013
- EMA 5015: *Introduction to Nanomaterials Engineering*: Spring 2004, Spring 2006, and Spring 2007.
- EMA 5001: *Physical Properties of Materials*: Fall 2004, Spring 2012
- EMA 5507C: *Analytical Methods in Materials Science*: Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Spring 2013, Fall 2013, Spring 2016, Spring 2017, Fall 2017, Fall 2018, Fall 2019
- EMA 5295: *Principles of Composite Materials*: Fall 2003 and Spring 2009.
- EMA 5200: *Nanomechanics and Nanotribology*, Spring 2011, Spring 2013, Fall 2014, Fall 2016, Spring 2019
- EML 6935: *MME Department Graduate Seminar*: 2003-2004.

(ii) Undergraduate Courses

- EMA 4521: *Materials Science I*: Fall 2003, Summer 2004, Spring 2005, Fall 2005, and Spring 2007.
- EGN 3365: *Materials Engineering*: Summer 2005, Spring 2015, Fall 2015, and Spring 2018
- EGN 1033: *Technology, Humans and Society*, Fall 2010, Spring 2011, Fall 2011, Spring 2012, and Summer 2012
- *Special Topics for MME Undergraduate*: Several semesters

(iii) Short Course Offering

- Short Course on “Introduction to Nanotechnology and Nanomanufacturing” was conducted for professionals (17 attendees included Professors, Head of the Dept., Industrial Research Scientists, and Government Project Managers) at Charlotte on March 14, 2004, during Annual TMS Meeting.
- Short Course “Introduction to Nanotechnology and Nanomanufacturing” conducted for professionals (14 attendees) at Pittsburgh on September 25, 2005, during MS&T 2005 meeting.
- Short Course “Introduction to Nanotechnology and Nanomanufacturing” conducted for Whirlpool professionals and Lake Michigan College-Benton Harbor, MI, April 26-27, 2006.
- Short Course on “Introduction to Nanotechnology” conducted for professionals in South Florida Region (attended by FAU faculty, professional engineer, and Miami Science Museum Director) on Feb 1-2, 2008.
- A 2-week course titled “Thermal Sprayed Coatings & Composites: Science, Engineering, and Applications,” was conducted at MN National Institute of Technology, Allahabad, India under Global Initiative of Academic Network (GIAN) program of Govt. of India, June 20-July 1, 2016.
- Organized a 2-day AMERI workshop on “Micro Fabrication and Materials Analysis,” for the last 3 years. It has become an annual event in South Florida highlighted by NPR, social media and professional societies.

MENTORED STUDENTS AND POST-DOCS

(a) Doctoral Students

1. **Tapas Laha** (*Ph.D., MSE, Fall 2006*): ***Carbon Nanotube Reinforced Aluminum Based Nanocomposites by Thermal Spray Forming***, working as a Professor in the Metallurgical and Materials Engineering department at Indian Institute of Technology (IIT), Kharagpur.
2. **Kantesh Balani** (*Ph.D., MSE, Summer 2007*): ***Role of Carbon Nanotube in Fracture Toughening of Plasma Sprayed Aluminum Oxide Nanocomposite***, working as a Professor in the Metallurgical and Materials Engineering department at Indian Institute of Technology (IIT), Kanpur.
3. **Bakshi Srinivasa Rao** (*Ph.D., MSE, Summer 2009*), ***Plasma and Cold Spraying of Aluminum Carbon Nanotube Composites: Quantification of Nanotube Distribution and Multi-scale Mechanical Properties***, working as an Associate Professor in the Metallurgical and Materials Engineering department at Indian Institute of Technology (IIT), Chennai.
4. **Anup Kumar Keshri**, (*Ph.D., MSE, Summer 2010*), ***Comprehensive Process Maps to Synthesize High-Density Plasma Sprayed Carbon Nanotube Reinforced Aluminum Oxide Coatings for Improved Mechanical and Wear Properties.***, working as an Assistant Professor in the Materials Engineering department at Indian Institute of Technology (IIT), Patna.
5. **Debrupa Lahiri**, (*Ph.D., MSE, Summer 2011*), ***Hydroxyapatite-Nanotube Composites and Coatings for Orthopedic Implants***, working as an Associate Professor in the Department of Metallurgical and Materials Engineering at Indian Institute of Technology (IIT), Roorkee.

6. **Sadegh Behdad**: *Ph.D. (MSE, Fall 2015), Novel Ternary Magnesium-Tin Alloys by Microalloying*, working as a research engineer with Magic Leap (co-advised with Prof. Benjamin Boesl as Major Professor)
7. **Chris Rudolf**, (*Ph.D., Summer 2016*), *TaC-NbC Reinforced with Graphene Nanoplatelets*, working as a scientist at Naval Research Laboratory (NRL), Washington DC, (co-advised with Prof. Benjamin Boesl as Major Professor)
8. **Cheng Zhang**, (*Ph.D. Fall 2016*), *Oxidation Behavior of HfC-TaC based Ultrahigh Temperature Ceramics*, working as a post-doctoral researcher at Plasma Forming Laboratory, FIU (co-advised with Prof. Benjamin Boesl as Major Professor)
9. **Archana Loganathan**, (*Ph.D. (MSE, Fall 2019)*), Spark Plasma Sintering of 2D Nitride and Carbide based Ceramics, (co-advised with Prof. Benjamin Boesl as Major Professor)
10. **Adeyinka Idowu**, (*Ph.D. MSE, Fall 2019*), Graphene Foam-Reinforced Shape Memory Epoxy Composites, will start as Processing Engineer in Intel, Portland Oregon from Spring 2020. (co-advised with Prof. Benjamin Boesl as Major Professor)
11. Pranjal Nautiyal, (*Ph.D. MSE, expected to graduate in Summer 2020*)
12. Xiaolong Lu (*visiting Ph.D. student for two years from China, started January 2018*)
13. Ms. Francy Mayoli Casallas Caicedo, Visiting Doctoral Researcher, Sept 2017-Feb 2018, currently a Ph.D. student in Columbia

(b) Masters Students

14. **Gabriela Gonzalez** (*MS, MSE, Fall 2004*): *Characterization of Vacuum Plasma Sprayed Tantalum Carbide*, presently working as Materials and Production Engineer at Toyota.
15. **Venkata B. Pasumarthi**, (*MS, MSE, Summer 2007*): *Reaction Synthesis of MAX Phases by Plasma Spraying*, presently working as Software Engineer
16. **Sunil Anand Musali** (*MS, MSE, Fall 2007*), *Plasma Processing Maps for Ceramic Coatings using In-flight Particle Sensor*, currently working as Process Engineer/Thermal spray at F.W Gartner, Thermal Spraying Ltd., Houston, Texas.
17. **Jorge P. Tercero** (*MS, MSE, Summer 2008*), *Effect of Nanosize Reinforcement on Plasma Sprayed Hydroxyapatite's Mechanical Properties and Biocompatibility*, presently working as Technical Service Engineer in Titan America.
18. **Riken Patel**, (*MS, MSE, Summer 2009*), *An Experimental and Computational Algorithm for Near Net Shape Fabrication of Thin-Walled Ceramic Structures by Plasma Spray Forming*, presently working as Vice President of Research in A&A Thermal Spray Company.
19. **Di Wang**, (*MS, MSE, Fall 2009*), *Wear Behavior of Ultra High Molecular Weight Polyethylene-Carbon Nanotube Composite.*
20. **Cheng Zhang**, (*MS, MSE, Spring 2012*), *Photocatalytic Activity of Plasma-Sprayed Nano TiO₂ Coatings for Dye-Sensitized Solar Cell*, presently working as Post-Doctoral Research Scientist Plasma Forming Lab, FIU.

21. **Andy Nieto**, (MS, MSE, *Spring 2013*), ***Graphene Nanoplatelet Reinforced Tantalum Carbide by Spark Plasma Sintering***, presently working as Post-Doctoral Researcher at Army Research Lab, Aberdeen.
22. **Kalty Vazquez**, (MS, MSE, *Fall 2013*), ***Synthesis of Carbon Nanotubes Using High Voltage and High-Frequency Induction Fields***.
23. **Sara Rengifo**, (MS, MSE, *Spring 2015*), ***A Comparison of Graphene and Tungsten Disulfide based 2D Solid Lubricant Additives to Aluminum***. Presently working as Research Engineer at NASA Marshall, Huntsville, AL.
24. **Leslie Embrey**, (MS, MSE, *Spring 2017*), ***3D Graphene Reinforced Epoxy Composites***. Presently working as Research Engineer at Honeywell FMT, Kansas City.
25. **Louiza Fontoura**, (MS, MSE *Spring 2017*), ***Metallic Coating on Graphene Platelets***, Presently working as Neptune Research Inc., Florida
26. **Ana Exime Tyndle**, (MS, MSE, *Fall 2017*), ***Ultrasonic Processing of Aluminum-based Alloys and Composites***. presently working as a Project Engineer in Miami
27. **Sadhana Bhusal** (MS, ME, *Summer 2019*), ***A Computational Approach for Predicting Mechanical Properties of Plasma-Sprayed Ceramic Coatings from Powders to Bulk***.
28. **Jenniffer Bustillos**, (MS, MSE, *Summer 2019*), ***Titanium-Boron Nitride Nanotube Composite***, Currently a Ph.D. student at Cornell University in Materials Science and Engineering
29. **Tyler Dolmetsch** (MS, MSE, *started in Spring 2019*), ***Field Effects in Spark Plasma Sintered Ceramics***.

(c) Undergraduate Student Researchers

1. Mr. Brandon Potens (*FIU, 2003*): Plasma Engineered Nanospherical Ceramic Powders.
2. Ms. Melanie Andara (*FIU, 2004-05*): Plasma-Sprayed Hydroxyapatite -Nanotube Coatings.
3. Mr. Jorge Tercero (*FIU, 2006-07*): Plasma-Sprayed Hydroxyapatite Coatings.
4. Ms. Tanisha Richard (*FIU, 2008*): Biodegradable Polymer- Nanotube Composites.
5. Mr. Suvrat Bhargava (*Vellore Institute of Technology, India, 2008*): Splat Formation Simulation During Plasma Spraying.
6. Mr. David Axel Virzi (*FIU, 2008-10*): Synthesis of Ultrahigh Temperature Tantalum Carbide.
7. Mr. Jonathan Solomon (*University of Florida, 2009*): Wear Behavior of Plasma-Sprayed Hydroxyapatite Coatings.
8. Ms. Akanksha Bhargava (*Vellore Institute of Technology, Vellore, India, January-April 2010*): Object-Oriented Finite Element Method for Simulating Mechanical and Thermal Properties of Nanotube Reinforced Composites.
9. Mr. Sanat Ghosh (*Indian Institute of Technology, Mumbai, India, May-July 2010*): Tribology of Advanced Materials.
10. Mr. Samarth Thomas (*FIU, January 2011 onwards*): Plasma Spraying of Advanced Materials.

11. Mr. Jason Jeffrey Usher (*Drexel University, March-September 2011*), Laser Engineered Aluminum Coatings.
12. Mr. Lovish Behl (*Indian Institute of Technology, Kharagpur, May-July 2011*), Tribology of Bulk Metallic Glasses.
13. Mr. Mikael Thiesse (*INSA de Lyon, Cedex, France, May-July 2011*), Macro-scale Tribological Properties of UHMWPEPE-GNP Composites.
14. Mr. Françoise Hec (*INSA de Lyon, Cedex, France, May-July 2011*), Nano-scale Tribological Properties of UHMWPE-GNP Composites.
15. Mr. Gianni Jimenez, (*FIU, Summer 2013*), Electrical Properties of Plasma-Sprayed Sensors and Coatings.
16. Mr. Pranjal Nautiyal, (*IIT Delhi, Summer 2014*), Nanoindentation based Creep of Mg Alloys.
17. Mr. Eddy Ones, (*Brown University, Summer 2015*), Processing-Structure-Property Relationships in 3D Printed Polymers
18. Ms. Daniela Montero, (*FIU, Fall 2015 onward*), 3D Printed PLA-Graphene Scaffolds.
19. Ms. Melania Antillon, (*FIU, Summer 2016 onward*), TaC-NbC based Ultrahigh Temperature Ceramics.
20. Ms. Laura Reyes, (*FIU, Fall 2015 onward*), Green Tribology.
21. Ms. Jenniffer Bustillos, (*FIU, Summer 2016 onward*), 3D Graphene Foam Reinforced Silicone Composite.
22. Mr. Arturo Toro, (*John Hopkins University, Summer 2016, 2017, 2018*), Crystallography of Advanced Materials
23. Ms. Catalina Young, (*FIU, Spring 2017 onward*), Ultrahigh Temperature Ceramics by Spark Plasma Sintering
24. Mr. Rodolfo Fernandez, (*FIU, Fall 2017-Fall 2019*), Ultrahigh Temperature Ceramics by Spark Plasma Sintering
25. Ms. Noemi Denise, (*FIU, Spring 2018 onward*), Graphic Visualization of Graphene Foam Reinforced Composites and Advanced Materials
26. Ms. Briana Canet, (*FIU, Summer 2018 onward*), 3D Printed Biopolymers, supported by Research Experience and Mentoring (REM) program of Cell-MET NSF ERC.
27. Ms. Nicole Baca, (*FIU, Summer 2018 onward*), Multi-scale Mechanical Properties of PDMS, supported by Research Experience and Mentoring (REM) program of Cell-MET NSF ERC.
28. Mr. Miguele Cabrera, (*FIU, Spring 2019 onward*), Characterization of Advanced Ceramics, supported by PRE-CCAP.
29. Ms. Dariana Ramos, (*University of Puerto Rico, Summer 2019*), Sintering and Characterization of Advanced Materials, supported by Research Experience for Undergraduates (REU) program of PRE-CCAP.
30. Ms. Carolina Ramos, (*University of Puerto Rico, Summer 2019*), Sintering and Characterization of Advanced Materials, supported by Research Experience for Undergraduates (REU) program of PRE-CCAP.
31. Ms. Kristal Feliciano, (*University of Puerto Rico, Summer 2019*), Sintering and Characterization of Advanced Materials, supported by Research Experience for Undergraduates (REU) program of PRE-CCAP.

32. Ms. Connie Ly, (*Miami Dade College, Summer 2019*), Conductive Polymeric Composites, supported by Research Experience for Undergraduates (REU) program of PRE-CCAP. Sintering and Characterization of Advanced Materials,
33. Mr. Roy Brooks, (*Universidad Ana G. Mendez, Summer 2019*), Biopolymers, supported by Research Experience for Undergraduates (REU) program of CELL-MET NSF ERC.
34. Ms. Ariana Torres, (*University of Puerto Rico, Summer 2019*), Wearable Polymer Composite Sensors supported by Research Experience for Undergraduates (REU) program of We-Focus, NSF
35. Mr. William Schertzer, (*Georgia Institute of Technology, Summer 2019*), Wearable Polymer Composite Sensors, supported by Research Experience for Undergraduates (REU) program of We-Focus, NSF
36. Ms. Kazue Lopez, (*FIU, Fall 2017 onward*), Mechanical Properties of Soft Materials via Indentation

(d) Post-Doctoral/Visiting Scientists

1. *Dr. Yao Chen*: April 24, 2006- May 30, 2008. Currently as Professor at Soochow University, China.
2. *Dr. Tapas Laha*: January 1-July 30, 2007. Currently an Associate Professor of Materials and Metallurgical Engineering, Indian Institute of Technology (IIT) Kharagpur, India.
3. *Dr. Kantesh Balani*: July 2, 2007-June 30, 2008 and June-July 2010. Currently an Associate Professor of Materials and Metallurgical Engineering, Indian Institute of Technology (IIT) Kanpur, India.
4. *Dr. Ruben Galiano Batista*: April 18-September 30, 2008.
5. *Dr. Srinivasa Rao Bakshi*: August 15, 2009-December 1, 2010. Currently as Associate Professor of Materials and Metallurgical Engineering, Indian Institute of Technology (IIT) Madras, India.
6. *Dr. Anup Kumar Keshri*: August 17, 2010-February 28, 2011. Currently an Assistant Professor of Materials and Metallurgical Engineering, Indian Institute of Technology (IIT) Patna, India.
7. *Dr. Sybille Facca*, Orthopedic Surgeon, University of Strasbourg, France, Nov. 15, 2010-May 15, 2011
8. *Dr. Mingdong Bao*, Assistant Professor, Ningbo University of Technology, China, *May 16, 2011-May 15, 2012*.
9. *Dr. Debrupa Lahiri*, Post-Doctoral Researcher, August 2011-December 2012, Currently an Assistant Professor in Materials and Metallurgical Engineering, Indian Institute of Technology (IIT), Roorkee, India
10. *Dr. Suresh Babu Pitchuka*, Scientist, International Advanced Research Center for Powder Metallurgy and New Materials (ARCI), India, June 2012- May 2013.
11. *Dr. Ugur Cavdar*, Assistant Professor, Dept. of Machine and Metal Technologies, Celal Bayar University, Manisa, Turkey, July-September 2012.
12. *Dr. Mubarak Mujawar*, Post-Doctoral Researcher, October 2016-April 2017, Currently as a Visiting Instructor in ECE, FIU

13. *Dr. Harpreet Sidhar*, Post-Doctoral Researcher, December 2016-September 2017, Currently working as Research Engineer at ExxonMobil Upstream Research Company, Houston, TX.
14. *Dr. Lin Wang*, Post-Doctoral Researcher, January-December 2017, Currently working as Assistant Professor in China
15. *Dr. Manuel Alberteris*, Post-Doctoral Researcher, February-December 2017, Currently working as a Research Engineer in CEE, FIU.
16. *Dr. Rajesh Jha*
17. *Dr. Cheng Zhang*, Post-Doctoral Researcher, January 2017 onward, currently Senior most Research Engineer in Plasma Forming Lab, FIU.
18. *Dr. Tony Thomas*, Post-Doctoral Researcher, December 2017 onward, currently working in Plasma Forming Lab, FIU.
19. *Dr. Tanaji Paul*, Post-Doctoral Researcher, June 2019 onward, currently working in Plasma Forming Lab, FIU.
20. *Dr. Ambreen Nisar*, Post-Doctoral Researcher, February 2020 onward, will start soon in Plasma Forming Lab, FIU.

(e) **High School Teachers**

1. Ms. Carmen L. Garcia, Engineering Magnet Instructor, *Coral Park Senior High School*, Miami, Summer 2010, as a part of Research Experience for Teachers (RET) program supported by NSF.
2. Ms. Melissa Fernandez, *MAST Academy*, Miami, Summer 2010, as a part of the Research Experience for Teachers (RET) program supported by NSF. High School Teachers
3. Ms. Yvette Lopez, *Terra Environmental Research Institute*, Summer 2019, as part of the Research Experience for Teachers (RET) program supported by PRE-CCAP.
4. Mr. Christopher Estrella, *Doral Academy Preparatory School*, Summer 2019, as part of Research Experience for Teachers (RET) program supported by PRE-CCAP.
5. Mr. Lazaro Del Rio, *Coral Reef Senior High School*, Summer 2019, as part of Research Experience for Teachers (RET) program supported by PRE-CCAP.
6. Ms. Jamie Sanders, *Terra Environmental Research Institute*, Summer 2020, as part of the Research Experience for Teachers (RET) program supported by CELL-MET.

(f) **High School Summer Interns**

1. Dayan Paez- MAST Academy (Summer 2003). *Dayan graduated with a BS and MS in Mechanical Engineering from MIT in 2009.*
2. Luis Vasquez - Coral Park High School (Summer 2003)
3. Raul Galindo-Coral Gables Senior High School (Fall 2005 and Spring 2006). *Currently, Raul is a junior in the Department of Mechanical and Materials Engineering at FIU.* Francisco Vega- Killian Senior High School (Fall 2005 and Spring 2006)
4. Gautham Gopal – Fergusson High School (Summer 2006).
5. Pradeep Gopal – Fergusson High School (Summer 2006).

6. Joseph Randall Mills: Fergusson High School (Summer 2008): *Currently a freshman at the University of Central Florida, Orlando.*
7. Joaquim Ardisson: MAST Academy (Summer 2008): *Currently a freshman at Cornell University.*
8. Juan Puerta: Coral Park High School (Summer 2009): *Admitted to MIT as a freshman from 2010.*
9. Laura Salas: Coral Park High School (Summer 2010)
10. Ignacio de Socarraz-Novoa: Columbus High School (Summer 2011)
11. Ashwin Bhat- Fergusson High School (Summer 2011).
12. Nicholas Vo- Miami Lakes Educational Center, (Summer 2012)
13. Abhinav Reddi- (Summer 2012, 2013)
14. Peter McGoron- (Summer 2017)
15. Connie Ly- Fergusson High School (Summer 2018), supported by the Army Research Office's High School Apprenticeship Program (HSAP) grant. *Admitted to MIT as a freshman from 2020*
16. Marving Figuero-Terra Environmental High School (Summer, 2018).

MEMBERSHIP ON GRADUATE DEGREE CANDIDATES' COMMITTEES

Doctoral Students

1. *Yazan S. Hijazi*: Ph.D. (Electrical Eng.), Next Generation High-Density Three-Dimensional Magnetic Recording Systems, 2005.
2. *Chenxi Lu*: Ph.D. (Physics), The Correlation of Structure and Electronic Properties Near the Surface of Transition Metal Oxides, 2006.
3. *Hayri Sapmaz*: Ph.D. (Mechanical Eng.), Soot measurements in Steady and Pulsed Ethylene/Air Diffusion Flames using Laser-Induced Incandescence, 2006.
4. *Wenzong Wu*: Ph.D. (Materials Eng.), Low-Temperature Sintering Semiconducting Barium Strontium Titanate, 2007.
5. *Nishad Pathak*: Ph.D. (Materials Eng.), Synthesis, Characterization, and Study of Physical Properties of Novel $M_{N+1}AX_N$ Compounds, 2008.
6. *Shrinivas Kulkarni*: Ph.D. (Materials Eng.), Synthesis, Characterization and Study of Physical Properties of M_2AC ($M = Ti, V, Cr, Nb, Zr$) ($A = Al, S, Sn$) MAX Phases, 2008.
7. *Ray Moral*: Ph.D. (Mechanical Eng.), Hybrid Multi-Objective Optimization and Hybridized Self-Organizing Response Surface Method, 2008.
8. *Qiang Wang*: Ph.D. (Biomedical Eng.), In Vivo Biocompatibility Evaluation of Composite Polymeric Materials for Use in a Novel Biocompatibility Artificial Heart Valve, 2008.
9. *Jun Huang*: Ph.D. (Materials Eng.), Controlled Growth of Carbon Nanotubes for High-Performance Nanoelectronics, 2009.
10. *Xiaohua Li*: Ph.D. (Mechanical Eng.), Study of Carbon Nanotube Film and Shape Memory Alloys Treatment for Structural Vibration Control, 2009.
11. *Harindra Vedala*: PhD (Materials Eng.), Functionalized Carbon Nanotube Nanoelectrodes for Biomolecular Recognition, 2009.

12. *Lyci George*: Ph.D. (Materials Eng.), High-Pressure Synthesis and Thermodynamic Properties of Hydrides for Hydrogen Storage, 2010.
13. *Subrahmanyam Garimella*: Ph.D. (Materials Eng.), High-Pressure Raman Study on the Decomposition of Polycrystalline Molybdenum Hexacarbonyl, 2010.
14. *Mohammad S. Siddiqui*: Ph.D. (Materials Eng.), Vacuum Brazing of Alumina Ceramic to Titanium for Biomedical Implants Using Pure Gold as the Filler Metal, 2011.
15. *Indranil Lahiri*: Ph.D. (Materials Eng.), Carbon Nanotube-Based Systems for High Energy Efficient Applications, 2011.
16. *Kaushal Jha*: Ph.D. (Civil Engineering), An Energy-Based Nanomechanical Properties Evaluation Method for Cementitious Materials, 2012.
17. *German "Rick" Vargas*: Ph.D. (Electrical Eng.), Silicon Photonic Device For Wavelength Sensing and Monitoring, 2012.
18. *Ali Karbasi*: Ph.D. (Materials Eng.), Developing a High-Density Pt/Alumina Hermetic Feedthrough, 2012.
19. *Yuehai Yang*: Ph.D. (Physics), Mechanical and Electrical Properties of Single-Walled Carbon Nanotubes Synthesized by Chemical Vapor Deposition, (2013).
20. *Sushant Kumar*: Ph.D. (Materials Eng.), Study of Materials and Processes for Clean Energy Applications (2013).
21. *Sushma Amruthaluri*: Ph.D. (Materials Eng.), An Investigation on Biocompatibility of Bioabsorbable Polymer-Coated Magnesium Alloys (2014).
22. *Yongzhou Sun*: Ph.D. (Materials Eng.), Study of Ammonia Borane and its Derivatives: Influence of Nanoconfinement, Catalyst, and Pressure (2015).
23. *Eric Zhang*: Ph.D. (Civil Engineering), The Performance and Service Life Prediction of High-Performance Concrete in Sulfate and Acidic Environments, **completed, 2015**
24. *Rajesh Jha*: Ph.D. (Materials Eng.), Combined Computational-Experimental Design of High-Temperature, High-Intensity Permanent Magnetic Alloys with Minimal Addition of Rare-Earth Elements, **completed, 2016**
25. *Hari Kishore Adluru*: Ph.D. (Mechanical Eng.), A Novel Hip Implant Using 3D Woven Composite Material – Design and Analysis, **completed, 2016**
26. *Weiwei Lin*: Ph.D. (Materials Eng.), Creation and Evaluation of Polymer/Multiwall Carbon Nanotube Films for Structural Vibration Control and Strain Sensing Properties, **completed, 2016**.
27. *Ata Dolatmoradi*: Ph.D. (Materials Eng.), Thermally-Assisted Acoustofluidic Separation for Bioanalytical Applications, **completed, 2017**.
28. *Shadi Darvish*: Ph.D. (Materials Eng.), Thermodynamic Investigation of $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_{3\pm\delta}$, Including the Prediction of Defect Chemistry, Electrical Conductivity, and Thermo-mechanical Properties, **completed 2018**.
29. *Paniz Foroughi*: Ph.D. (Materials Eng.), Synthesis & Fundamental Mechanism Study of Nano-crystalline High Temperature & Ultrahigh Temperature Carbide & Boride Ceramics, **completed 2018**.
30. *Shichen Sun*: Ph.D. (Materials Eng.), Electrochemical Behaviors of the Electrodes for Proton Conducting Intermediate Temperature Solid Oxide Fuel Cells (IT-SOFC), **completed 2018**.

I am also an external reviewer for Ph.D. dissertations from Universities in other countries (e.g., Australia, India, Canada).

Masters Students

1. *Andres Felipe Aguirre*: MS (Biomedical Eng.), Static and Dynamic Mechanical Testing of a Polymer with Potential Use as Heart Valve Material, 2003.
2. *Karthik Trichy*: MS (Mechanical Eng.), Dielectric Properties of Refractory Composites via a Cavity Perturbation, 2004.
3. *S. Kanchibotala*: MS (Mechanical Eng.), Study on Amorphization of Ni-Ti-Ta-System and Production of NiTi-Ta Alloys through Conventional Powder Metallurgy, 2004.
4. *Bangalore Rao*: MS (Materials Eng.), Electrical characteristic of Geometrically Confined Multiwall Carbon Nanotubes Mat, 2005.
5. *Tejas Choksi*: MS (Biomedical Eng.), Modification of a Novel Polymer with Potential Use in Artificial Heart Valves: Effects on Hemocompatibility and Mechanical Properties, 2006.
6. *Bimal Pandey*: MS (Physics), Effect of Catalyst, and Carbon Source on the Growth of Carbon Nanotube Y-Junctions, 2006.
7. *Carlos Perez*: MS (Materials Eng.), Development of Silver Inks for Front End Metallization in Screen Printed High-Efficiency Silicon Solar Cells, 2007.
8. *Tao Li*: MS (Physics): Synthesis and Mechanical, Electrical and Thermal Properties of Carbon Nanotube-Alumina Nanocomposite, 2007.
9. *Sushma Amruthaluri*: MS (Materials Eng.), Synthesis of Cu-MWCNT Composite and its Electrical Conductivity Measurement, 2008.
10. *S. Boddepalli*: MS (Materials Eng.), Enhancement of Field Emission from Multistage Structure of Carbon Nanotube Arrays, 2008.
11. *Puneet Gill*: MS (Materials Eng.), Synthesis and Investigation of Highly Conductive Cu-Cr-MWCNT Composite, 2009.
12. *Suvrat Bhargava*: MS (Mechanical Eng.), Multi-Objective Optimization of the Molecular Structure of Refrigerants, 2010.
13. *Sohail Reddy*: MS (Mechanical Eng.), Multi-Objective Analysis and Optimization of Integrated Cooling in Micro-Electronics With Hot Spots, 2015.

RESEARCH INFRASTRUCTURE CREATION

Nine (9) new research laboratories have been established, which **include eight (8) research laboratories using external funding.**

1. **Plasma Forming Laboratory (PFL)**: This laboratory makes use of 40 kW DC plasma spray system to synthesize coatings, nanocomposite structures, near net shape structures, and functional materials. Basic equipment was purchased from my start-up funds, but a subsequent augmentation of facilities in PFL has been done through external research funds.
2. **Nanomechanics and Nanotribology Laboratory (NnN Lab)**: This lab utilizes state of the art Hysitron Triboindenter along with Scanning Probe Microscope (SPM) and nano DMA to evaluate nanoscale mechanical properties of materials. The support for this lab was provided by Office of Naval Research (ONR) through DURIP.

3. **Bulk Metallic Glass Forming Laboratory (BMG Lab):** A state of the art arc melting furnace with suction casting system for synthesis of bulk metallic glassy materials and alloys (*in collaboration with Prof. G. S. Dulikravich*). The support for this lab was provided by Army Research Office (ARO).
4. **High-Temperature Tribology Laboratory (HTTL):** This lab utilizes Nanovea Pin/Ball on Disk Tribometer to study the tribological properties of coatings and materials at room and high temperature (up to 800⁰C) in dry and lubricated conditions. The support for this lab was provided by Office of Naval Research (ONR).
5. **Optical Profilometry Lab (OPL):** A state of the art non-contact Nanovea optical profilometer to study the surface topography of the coatings to understand wear, mechanical properties, and microstructure. The support for this lab was provided by Office of Naval Research (ONR).
6. **Helium Pycnometry Lab:** This equipment enables measurement of the true density of most solids and slurries, using Helium gas. The support for this lab was provided by National Science Foundation (NSF).
7. **Spark Plasma Sintering Lab:** This lab is established to develop novel nanocomposites, amorphous materials, nanostructured ceramics. The support for this lab was provided by Air Force Office of Scientific Research (AFOSR) through DURIP.
8. **Ultra Low Load Mechanical Properties Estimation and Strain Visualization Lab:** This lab is established to develop study micromechanics and failure of a single fiber, tissue, and soft materials along with non-contact video extensometer and a high-speed camera. The support for this lab was provided by Air Force Office of Scientific Research (AFOSR) through DURIP.
9. **Flash Diffusivity and Dynamic Mechanical-Thermal Properties Lab:** This DURIP award was granted in January 2018. This lab is under installation to study thermal (diffusivity, conductivity) and mechanical properties of materials. The support for this lab was provided by ONR through DURIP.

LIST OF PUBLICATIONS

Summary: Total 291

Book (Authored) -1, Books (Edited) - 7, Book Chapters -4, Peer Reviewed Journal Articles - 237, Conference Proceeding Articles -27, Book Reviews-15, Patents-5.

[Citations:10710, H-index: 53 \(January 08, 2020, Source: Google Scholar\)](#)

Books (Authored)

1. **Carbon Nanotubes Reinforced Metal Matrix Composites:** Arvind Agarwal, Bakshi Srinivasa Rao and Debrupa Lahiri, CRC Press, October 2010, ISBN: 978-1-4398114-9-8. ***This book is highlighted by NanoScienceWorks (www.nanoscienceworks.org).***

Books (Edited)

2. *Biosurfaces: From the perspective of Materials Scientist and Engineer*, Eds. K. Balani, Arvind Agarwal, V. Verma, and R. Narayan, Wiley, January 2015.
3. *Thermal Spray 2012: Proceedings of International Thermal Spray Conference 2012: Air, Land, water and the Human Body: Thermal Spray Science and Applications*, edited by B.R. Marple, Arvind Agarwal, M.M. Hyland, Y.C. Lau, C.J. Li, R.S. Lima, A. McDonald, F. L. Toma, Houston, Houston, USA, 2013.
4. *Thermal Spray 2011: Proceedings of International Thermal Spray Conference 2011*, edited by B.R. Marple, Arvind Agarwal, M.M. Hyland, Y.C. Lau, C.J. Li, R.S. Lima, A. McDonald, Hamburg, Germany, 2012.
5. *Thermal Spray 2010: Global Solutions for Future Applications, Proceedings of International Thermal Spray Conference 2010, Global Solutions for Future Applications*, edited by B.R. Marple, Arvind Agarwal, M.M. Hyland, Y.C. Lau, C.J. Li, R.S. Lima, G. Montavon, Singapore, March 2011.
6. *Surface Engineering in Materials Science III*, edited by Arvind Agarwal, N. B. Dahotre, S. Seal, J.J. Moore, and C. Blue, TMS, Warrendale, PA, February 2005.
7. *Fifth Global Innovations Symposium on Materials Processing and Surfaces and Interfaces in Nanostructured Materials*, Eds: Sharmila M. Mukhopadhyay, John Smugeresky, Sudipta Seal, Narendra B. Dahotre, and Arvind Agarwal, TMS, Warrendale, PA, 2004.
8. *Surface Engineering in Materials Science II*, edited by S. Seal, N. B. Dahotre, J.J. Moore, C. Suryanarayana and Arvind Agarwal, TMS, Warrendale, PA 2003.

Book Chapters

9. "Boron Nitride Nanotubes as Fillers/Reinforcement for Polymer, Ceramic, and Metal Matrix Composites," Debrupa Lahiri and Arvind Agarwal, in *Application and Functionalization of Nanotubes and Nanosheets*, eds. I. Chen, CRC Press, USA, March 2015.
10. "Graphene Reinforced Ceramic and Metal Matrix Composites," Debrupa Lahiri and Arvind Agarwal, in *Graphene: Synthesis and Applications*, eds. W.B. Choi, CRC Press, USA, October 2011, pp. 184-227.
11. "Thermally Sprayed MAX Phase Coatings," Yao Chen and Arvind Agarwal in *MAX Phases: Microstructure, Properties and Applications*, eds., I.M. Low and Y.C. Zhou, Nova Science Publishers, New York, USA, pp. 103-12, 2011.
12. "Surface Preparation and Properties for Coating Deposition": Arvind Agarwal and Narendra B. Dahotre in *Intermetallic and Ceramic Coatings*, eds. Narendra B. Dahotre and T.S. Sudarshan, Marcel Dekker, New York, USA, February 1999, pp. 1-31.

Peer Reviewed Journal Publications

2019

1. B. Gonzalez, E. P. Issa, J. Bustillos, A. Cuellar, A. J. Rodriguez, F. G Scholl, S. Bibevski, L. E Hernandez, V. Brehier, M. Casares, K. R. Wagner, P. R Morales, J. Lopez, J. Wagner, J. Bibevski, Arvind Agarwal, and S. Ramaswamy, "Porcine Small Intestinal Submucosa

- Mitral Valve Material Responses Support Acute Somatic Growth”, *Tissue Eng. A*, doi.org/10.1089/ten.TEA.2019.0220, 2019.
2. K. Rajesh, R. M. Kumar, C. Zhang, S. Halder, M. Kumaraswamy, Arvind Agarwal, P. Roy and D. Lahiri, “Surface Modified Metallic Orthopedic Implant for Sustained Drug Release and Osteocompatibility”, *ACS Applied Biomaterials*, Vol. 2, 10, pp. 4181-4192, 2019.
 3. P. Nautiyal, C. Zhang, B. Boesl and Arvind Agarwal, “Mechanics of Street-Transfer in a Free-Standing Boron Nitride Nanotube Buckypaper at Multiple Length Scales and Elevated Temperatures”, *ACS Appl. Nanomaterials*. Vol. 2, 7, pp. 4402-4416, 2019.
 4. F M Casallas-Caicedo, E Vera-López, Arvind Agarwal, V. Drozd, A. Durigin and C Wang, “Effect of Exfoliation Method on Graphite Oxide: A Comparison Between Exfoliation by Ball Milling and Sonication in Different Media, *Journal of Physics: Conference Series*, doi:10.1088/1742-6596/1386/1/012016, 2019.
 5. S. Bhusal, C. Zhang, J. Bustillos, P. Nautiyal, B. Boesl and Arvind Agarwal, “A Computational Approach for Predicting Mechanical Properties of Plasma Sprayed Ceramic Coatings from Powders to Bulk”, *Surf. Coat. Tech.*, 201, 10.1016/j.surfcoat.2019.05.068
 6. P. Nautiyal, C. Zhang, V. Champagne, B. Boesl and Arvind Agarwal, “In-situ Creep Deformation of Cold-sprayed Aluminum Splats at Elevated Temperatures”, *Surf. Coat. Tech.*, vol. 372, pp. 353–360, 2019.
 7. T. Paul, L. Zhang, S. Biswas, A. Loganathan, M. G. Frith, J. Ilavsky, I. Kuzmenko, J. Puckette, A. K. Kalkan, Arvind Agarwal and S. Harimkar, “Quantification of Thermal Oxidation in Metallic Glass Powder using Ultra-small Angle X-ray Scattering”, *Nature Sci. Report.*, 9 (1), 6836, 2019.
 8. A. Loganathan, P. Nautiyal, B. Boesl and Arvind Agarwal, “Unraveling the Multiscale Damping Properties of 2D Layered MXene”, *Nanomaterials and Energy*, doi.org/10.1680/jnaen.18.00022, 2019.
 9. T. Thomas, C. Zhang, P. Nautiyal, B. Boesl and Arvind Agarwal, “3D Graphene Foam Reinforced Low-Temperature Ceramic with Multifunctional Mechanical, Electrical, and Thermal Properties”, *Adv. Eng. Mater.*, doi.org/10.1002/adem.201900085, 2019.
 10. X. Lu, S. Bhusal, G. He, D. Zhao, C. Zhang, Arvind Agarwal, Y. Chen, “Efficacy of Graphene Nanoplatelets on Splat Morphology and Microstructure of Plasma Sprayed Alumina Coatings”, *Surf. Coat. Tech.*, 10.1016/j.surfcoat.2019.03.018

2018

11. A. Idowu, P. Nautiyal, L. Fontoura, A. Loganathan, B. Boesl and Arvind Agarwal, “Multi-Scale Damping of Graphene Foam-Based Polyurethane Composites Synthesized by Electrostatic Spraying”, *Polymer Composites*, DOI 10.1002/pc.25178, 2018.
12. P. Nautiyal, C. Zhang, V. Champagne, B. Boesl and Arvind Agarwal, “In-situ Mechanical Investigation of the Deformation of Splat Interfaces in Cold-Sprayed Aluminum Alloy”, *Mater. Sci. Eng. A.*, vol. 737, pp. 297-309, 2018.

13. L. Fontoura, P. Nautiyal, A. Loganathan, B. Boesl and Arvind Agarwal, “Nacre inspired Graphene/Metal Hybrid by In situ Cementation Reaction and Joule Heating”, *Adv. Eng. Mater.*, doi.org/10.1002/adem.201800518, 2018.
14. P. Nautiyal, M. Mujawar, B. Boesl, and Arvind Agarwal, “In situ Mechanics of 3D Graphene Foam based Ultra-stiff and Flexible Metamaterial”, *Carbon*, vol. 137, pp. 502-510, 2018.
15. A. Pandey, A. Patel, S. Ariharan, V. Kumar, R. Sharma, S. Kanhed, V. Nigam, A. Keshri, Arvind Agarwal, K. Balani, “Enhanced Tribological and Bacterial Resistance of Carbon Nanotube, Ceria and Silver Incorporated Hydroxyapatite Biocoating”, *Nanomaterials*, vol. 8(6), 363; <https://doi.org/10.3390/nano8060363>, 2018.
16. T. Thomas, C. Zhang, A. Sahu, P. Nautiyal, A. Loganathan, T. Laha, B. Boesl and Arvind Agarwal, “Effect of Graphene Reinforcement on the Mechanical Properties of Ti₂AlC Ceramic Fabricated by Spark Plasma Sintering”, *Mater. Sci. Eng. A*, doi.org/10.1016/j.msea.2018.05.0, 2018.
17. A. Idowu, B. Boesl, and Arvind Agarwal, “3D Graphene Foam Reinforced Polymer Composites-A Review”, *Carbon*, vol. 135, pp. 52-71, 2018.
18. T. Paul, A. Loganathan, Arvind Agarwal and S. Harimkar, “Kinetics of Isochronal Crystallization in a Fe-based Amorphous Alloy,” *J. Alloy Compounds*, vol. 753, pp.679-687, 2018.
19. M. Antillon, P. Nautiyal, A. Loganathan, B. Boesl and Arvind Agarwal, “Strengthening in Boron Nitride Nanotube Reinforced Aluminum Composites Prepared by Roll Bonding,” *Adv. Eng. Mater.*, 1800122, 2018.
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280. G. S. Murty and Arvind Agarwal, "Development of Spray Coating Methods and Materials to Replace Aluminum Cladding of Aging Aircraft for Corrosion Protection," **Accession Number**: ADA470203, Final Technical Report, AFOSR, 2007.
281. Arvind Agarwal, "Multi-walled Carbon Nanotube Reinforced Aluminum Nanocomposites by Cold Kinetic Spraying," Report submitted to NSF, International Research and Education in Engineering (IREE) DMI-0634949, October 2007, <http://globalhub.org/resources/880/download/Bakshi.pdf>
282. Arvind Agarwal, "Plasma Engineered Ceramic Nanosphere," Report submitted to FIU Foundation, December 2003.
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286. Arvind Agarwal and Tim McKechnie, "Functional Gradient Thermal Barrier Coating on Aluminum," submitted to Aerojet Inc., March 2001.
287. Arvind Agarwal and Tim McKechnie, "Vacuum Plasma Spray formed FeAl structures," submitted to Chrysalis Inc., August 2001.

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Patents

1. US 14/984,331, Novel Age-hardenable Magnesium Alloys, Sadegh Behdad, Arvind Agarwal and Benjamin Boesl, Patent pending
2. US 15/182,042, Aluminum-Boron Nitride Nanotube Composites and Method for Making the Same, Pranjali Nautiyal, Chris Rudolf, Cheng Zhang, Benjamin Boesl and Arvind Agarwal, Patent pending
3. US 15/849,020, Three Dimensional Graphene Foam Reinforced Composite Coating and Deicing Systems There from, Jenniffer Bustillos, Cheng Zhang, Benjamin Boesl and Arvind Agarwal, Patent approved. (US 10,183,754 B1). Signet International Holdings Inc. has obtained exclusive license for the product as *deIce 477^T* (<http://www.signetinternationalholdings.com/graphene-3/>).
4. US 16/421,562, Shape Memory-Based Self-healing Polymer Composite Reinforced with Graphene Foam, Patent pending
5. Unique Processing Technique to Produce Graphene Foam Reinforced Low Temperature Co-fired Ceramic (LTCC) composite at High Temperature and Pressure, Patent pending

Book (under preparation)

1. **In situ Mechanics of Materials: Tools, Techniques, and Applications**, Pranjali Nautiyal, Benjamin Boesl and Arvind Agarwal, Springer, (*to be published in Summer 2020*).

PRESENTATIONS AND LECTURES

Keynote and Invited Lectures

1. Real Time Deformation Mechanisms of Advanced Nanocomposites by High-Resolution In-situ Testing, *TMS 2019*, San Antonio, TX, March 10-14, 2019. (*Invited*)
2. In-situ Mechanics of a Super-lightweight and Ultra-stiff 3D Graphene-Metal Metamaterial, Symposium: Small-scale Properties of Materials and Length-scale Phenomena, *MS&T 2018*, Columbus, OH, October 14-18, 2018. (*Invited*)
3. Reactive Wetting and Filling of Nanotubes by Molten Metals to Design Advanced Nanocomposites, Symposium: Joining of Inorganic Materials: From Macro- to Nano-length Scales, *CIMTEC 2018*, Perugia, Italy, June 4-8, 2018. (*Invited*)
4. Graphene Reinforced Ultrahigh Temperature TaC, *Workshop on Graphene/Ceramic Composites, Cuenca, Spain*, September 28-30, 2016 (*Invited*)
5. Spark Plasma Sintered TaC with Graphene, ARCI Hyderabad, India, July 2015 (*Invited*).
6. Plasma Sprayed Hydroxyapatite Coating with Carbon Nanotubes for Orthopedic Implants, College of Engineering Seminar, *University of Michigan, Dearborn*, Nov. 7, 2014. (*Invited*)

7. Plasma Sprayed Hydroxyapatite Coating with Carbon Nanotubes for Orthopedic Implants, College of Engineering Seminar, *University of Michigan, Dearborn*, Nov. 7, 2014. *(Invited)*
8. Spark Plasma Sintered Tantalum Carbide with Graphene NanoPlatelets Reinforcement, *Symposium: Advanced High-Temperature Structural Materials, The 8th Pacific Rim International Conference on Advanced Materials and Processing, Waikoloa, Hawaii*, Aug 4-9, 2013, *(Invited)*
9. Plasma Sprayed Hydroxyapatite Coating with Carbon Nanotubes for Orthopedic Implants: Thin Films and Surface Engineering, *The 8th Pacific Rim International Conference on Advanced Materials and Processing, Waikoloa, Hawaii*, Aug 4-9, 2013, *(Invited)*
10. **Keynote Lecture**: Nanotube and Graphene Platelet Reinforced Coatings and Composites, *Nano-Structured and/or Nano Reinforced Metal/Ceramic Composite Symposium, PM 2012, Powder Metallurgy World Congress, Yokohama, Japan*, October 14-18, 2012. *(could not attend)*.
11. Boron Nitride Nanotube Reinforced Metal and Ceramic Composites for Functional Applications, *Functional and Innovative Composites, MS&T 2012 Conference*, October 7-11, Pittsburgh, PA, *(Invited)*
12. Plasma Sprayed Hydroxyapatite-Carbon Nanotube Coating for Orthopedic Applications and Small Scale Mechanical Properties of Low Dimensional Nano and Biological Materials, *Indian Institute of Technology, Chennai*, August 13, 2012 *(Invited)*
13. Nanotube Reinforced Ceramic Composites via Spark Plasma Sintering, *International Workshop on Spark Plasma Sintering*, Penn State University, State College, August 24-25, 2011 *(invited)*
14. Advances in Carbon Nanotube Reinforced Metal Matrix Composites, *National Metallurgical Day-Annual Technical Meeting (NMD-ATM)*, November 14-16, 2010, Bangalore, India *(invited)*.
15. The Roadmap for Carbon Nanotube Reinforced Metal Matrix Composites, *Nanotube Reinforced Metal Matrix Composites II," MS&T 2010 Conference*, October 17-21, Houston, TX, **(Keynote Lecture)**
16. Carbon Nanotube Reinforced Metal Matrix Composites: An Overview, *National Physics Laboratory (NPL)*, New Delhi, India, August 6, 2010 *(invited)*.
17. Plasma Sprayed Ceramic-Carbon Nanotube Coatings with Tailored Mechanical Properties, *37th International Conference on Metallurgical Coatings and Thin Films (ICMCTF)*, April 26-30, 2010, San Diego, CA *(invited)*.
18. Carbon Nanotube Reinforced Ceramic Matrix Composites, Dept. of Mechanical Engineering, *Motilal Nehru National Institute of Technology (MNNIT)*, Allahabad, India, July 20, 2009 *(invited)*.
19. Nano-scale Mechanical Characterization of Manmade and Natural Materials, Dept. of Materials and Metallurgical Engineering, *Indian Institute of Technology (IIT), Kanpur*, India, July 14, 2009 *(invited)*.
20. Carbon Nanotube Reinforced Aluminum Composites via Thermal Spray, *Materials Science and Technology 2008*, Pittsburgh, PA, October 5-9, 2008 *(invited)*.

21. Introduction to Nanotechnology and its Application, New Science under the Stars event, **St. Thomas University**, Miami, October 24, 2007 (*invited*).
22. Plasma Spraying of Carbon Nanotube Reinforced Nanocomposites, “Nanomaterials: Fabrication, Properties, and Applications,” **Annual TMS Meeting, Orlando**, FL, 28 February 2007 (*invited*).
23. Plasma Sprayed Carbon Nanotube Reinforced Nanocomposites, presented at Materials and Metallurgical Engineering Department, **Indian Institute of Technology, Chennai**, January 8, 2007 (*invited*).
24. Plasma Sprayed Carbon Nanotube Reinforced Nanocomposites, presented at Materials Engineering Department, **Indian Institute of Science, Bangalore**, January 5, 2007 (*invited*).
25. Plasma Sprayed Carbon Nanotube Reinforced Nanocomposites, presented at Mechanical Engineering Department, **Indian Institute of Technology, Guwahati**, December 13, 2006 (*invited*).
26. “Near Net Shape Processing via Thermal Spray Techniques and Bulk Nanostructured Materials,” Department of Materials and Metallurgical Engineering, **Indian Institute of Technology, Kanpur, India, ASM/IIM Visiting Lectureship**, 5 August 2004 (*invited*).
27. “Bulk Composite Components Fabrication with Retained Nanostructure,” Symp Q: Mechanical Properties of Nanostructured Materials and Nanocomposites, **Fall meeting, MRS, Boston**, 1-5 Dec 2003 (*invited*).
28. “Bulk Nanostructured Components by Plasma Forming?” **American Vacuum Society, Florida Chapter, University of Central Florida, Orlando**, March 18, 2003 (*invited*).
29. “Surface Engineering, Net Shape Components, and Characterization of Advanced Materials,” **Wright State University, Dayton, OH**, April 15, 2002. (*invited*)
30. “Innovative Processing Techniques for Advanced Materials,” **Florida International University, Miami**, May 2, 2002. (*invited*).
31. “Near Net Shape Fabrication by Plasma Spray Forming,” **North Alabama Chapter ASM International, Huntsville, AL**, September 18, 2001 (*invited*).
32. “Laser Surface Engineered Titanium Diboride Coating,” Interdisciplinary Seminary Series on Biology/Biotechnology/Chemistry/Chemical & Materials Engineering/Materials Science, **the University of Alabama in Huntsville**, February 23, 2001 (*invited*).
33. “Laser Surface Engineered Titanium Diboride Coating,” **International Advanced Research Center (ARCI) for Powder Metallurgy and New Materials, Hyderabad, India**, 14 December 2000 (*invited*).
34. “Near Net Shaped Hypereutectic Al-Si Structures by Spray Forming Techniques,” **International Advanced Research Center (ARCI) for Powder Metallurgy and New Materials, Hyderabad, India**, 15 December 2000 (*invited*).

Contributed Lectures

35. “Surface Chemistry Evolution in Ti-BNNT System Processed by SPS and its Correlation to Physico-chemical and Mechanical Properties, Advances and Discoveries in Non-equilibrium Driven Nanomaterials and Thin Films — Nanocomposites, **Annual TMS Conference and Meeting**, San Diego, February 23-27, 2020, San Diego, CA.

36. Real Time Imaging of Deformation Mechanisms in Boron Nitride Nanotube-metal Matrix Composites at Multiple Length Scales, Advanced Real Time Imaging — Mechanical, *Annual TMS Conference and Meeting*, San Diego, February 23-27, 2020, San Diego, CA.
37. “Hafnium Diboride-Tantalum Diboride Solid Solutions formed by Spark Plasma Sintering”, *44th International Conference and Expo on Advanced Ceramics and Composites (ICACC 2020)*, January 26-31, 2020, Daytona Beach, Florida.
38. “Low temperature sintering of Ti6Al4V as a promising route to design Titanium based composites”, Powder Metallurgy of Light, Reactive and Other Non-ferrous Metals, *MS&T, 2019*, Sept.29-Oct. 3 – Portland, Oregon.
39. Shape Memory Behavior and Mechanical Properties of Graphene Foam-Based Epoxy Composites”, Metal and Polymer Matrix Composites IV, *MS&T, 2019*, Sept.29-Oct. 3 – Portland, Oregon.
40. Hydroxylated boron nitride nanotube reinforced polyvinyl alcohol nanocomposite films with simultaneous improvement of mechanical and thermal properties”, Metal and Polymer Matrix Composites IV. *MS&T, 2019*, Sept.29-Oct. 3 – Portland, Oregon.
41. Spark Plasma Sintered Aluminum Oxide Filter for Hot Gas Applications”, Sintering and Related Powder Processing Science and Technologies, *MS&T, 2019*, Sept.29-Oct. 3 – Portland, Oregon.
42. Facile and Scalable Fabrication of Free-Standing Reticulated 3D Graphene Foam via Freeze Drying”, Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials, *MS&T, 2019*, Sept.29-Oct. 3 – Portland, Oregon.
43. In-situ Study of Multi-Scale Deformation in Two-Photon Polymerized Microlattices”, Emergent Materials under Extremes and Decisive In-situ Characterizations, *MS&T, 2019*, Sept.29-Oct. 3 – Portland, Oregon.
44. Determination of bonding strength of cold sprayed splats using in-situ nano-scratch technique”, Advances in Surface Engineering, *MS&T, 2019*, Sept.29-Oct. 3 – Portland, Oregon.
45. Role of graphene nanoplatelets on splat morphology and microstructure of plasma sprayed alumina coatings”, Advanced Coatings for Wear and Corrosion, Protection, *MS&T, 2019*, Sept.29-Oct. 3 – Portland, Oregon.
46. Mechanics of Cold Spray-From Splats to Coatings, *Cold Spray Action Team 2019*, Worcester, MA, June 25-26, 2019.
47. Graphene Foam for Engineering Ultra-Stiff, Tough and Impact-Resistant Structural Composites, *Study of Matter at Extreme Conditions 2019*, Miami-Caribbean, March 30-April6, 2019.
48. Graphene Foam-Based Multifunctional Polymer Composites for Self-Healing, De-icing and Strain-sensing Applications, *Study of Matter at Extreme Conditions 2019*, Miami-Caribbean, March 30-April6, 2019.
49. In-situ Investigation of Thermo-mechanical Properties of a Free-standing Boron Nitride Nanotube Buckypaper, *TMS 2019*, San Antonio, TX, March 10-14, 2019.

50. Real-time Deformation in Cold Sprayed Aluminum Alloy at Elevated Temperatures by In Situ Nanoindentation, *TMS 2019*, San Antonio, TX, March 10-14, 2019.
51. Scalable Nanomanufacturing Approaches to Develop Advanced Metal Matrix Nanocomposites, *TMS 2019*, San Antonio, TX, March 10-14, 2019.
52. Boron Nitride Nanotube Based Advanced Metal Matrix Nanocomposites for Aerospace Applications, *Defense TechConnect 2018*, Tampa, FL, October 22-25, 2018.
53. Scalable Manufacturing Routes to Develop Boron Nitride Nanotubes Based Metal Matrix Composites, *International Mechanical Engineering Congress & Exposition (IMEC) 2018*, Pittsburgh, PA, November 9-15, 2018.
54. 3D Graphene Foam for Engineering Advanced Composites and Metamaterials, *International Mechanical Engineering Congress & Exposition (IMEC) 2018*, Pittsburgh, PA, November 9-15, 2018.
55. Thermally and Electrically Triggered Three Dimensional Graphene Foam Reinforced Shape Memory Epoxy Composites, Symposium: 2019 Symposium on Functional Nanomaterials: Synthesis, Integration, and Application of Emerging Nanomaterials, *TMS 2019*, San Antonio TX, March 10-14, 2019.
56. Boron Nitride Nanotube Reinforced Titanium Composite With Controlled Interfacial Reactions By Spark Plasma Sintering, Symposium: Powder Processing of Bulk Nanostructured Materials Symposium, *TMS 2019*, San Antonio, TX, March 10 – 14, 2019.
57. Three – Dimensional Graphene Foam – Polymer Composite with Superior Deicing Efficiency and Strength, Symposium: Nanotechnology for Energy, Environment, Electronics, Healthcare and Industry, *MS&T 2018*, Columbus, OH, October 14–18, 2018.
58. Nanomechanical and Multiscale Damping Properties of 2D Layered MXene Phase, *MS&T 2018*, Columbus, OH, October 14-18, 2018.
59. Microstructural and Multiscale Tribological Properties of the Cold-sprayed Ti₂AlC MAX Phase Coating, *MS&T 2018*, Columbus, OH, October 14-18, 2018.
60. Electrically and Thermally Triggered Three-Dimensional Graphene Foam-Reinforced Shape Memory Epoxy Composites, Symposium: Responsive Functional Nanomaterials, *MS&T 2018*, Columbus, OH, October 14-18, 2018.
61. In situ Mechanical Investigation of Splat Sliding in Cold Sprayed 6061Al Coatings, Symposium: Characterization and Testing: Mechanical Properties, *ITSC 2018*, Orlando, FL, May 7-10, 2018.
62. Computational Approach for Designing Plasma Sprayed Coatings: From Splat to Bulk Deposits, Conference and Exposition: International Thermal Spray Conference, *ITSC 2018*, Orlando, FL, May 7-10, 2018.
63. Pathways for Engineering Boron Nitride Nanotube Based High-Strength Metal Matrix Composites, Symposium: Emerging Materials and Processes II, *AEROMAT 18*, Orlando, FL, May 7-10, 2018.
64. In Situ Deformation Characteristics of a Free-standing Three-dimensional Graphene Foam-aluminum Nanohybrid, Symposium: Nanocomposites V: Structure-Property Relationships in Nanostructured Materials –Nanostructures and Polymer Nanocomposites, *TMS 2018*, Phoenix, AZ, March 11-15, 2018.

65. Synthesis, Consolidation and In-situ Indentation studies on Bulk Boron Suboxide, *MS&T 2017*, Pittsburgh, PA, October 8-12, 2017.
66. Nanomechanical and Nanotribological Studies of BNNP Reinforced UHMWPE Coating for Biomedical Applications, *MS&T 2017*, Pittsburgh, PA, October 8-12, 2017.
67. Multi-scale Mechanical Properties of Biodegradable Mushroom-based Leather, Symposium: 9th International Symposium on Green and Sustainable Technologies for Materials Manufacturing and Processing, *MS&T 2017*, Pittsburgh, PA, October 8 – 12, 2017.
68. Integration of nanoparticles to 3D printing processes (SLA, and FDM), *MS&T 2017*, Material Advantage Undergraduate competition, Pittsburgh, PA, October 8 – 12, 2017.
69. Reaction Synthesis of 2D Boron Nitride Nanoplatelet and Graphene Nanoplatelet by Spark Plasma Sintering for BCN formation, *SMEC 2017*, Miami-Easter Caribbean, April 1-9, 2017
70. Understanding the Phase Formation and Mechanical Behaviour of Two-Dimensional Hexagonal BCN, *ICACC-2017*, Daytona Beach, Florida, January 22-27, 2017.
71. Integration of graphene in poly(lactic) acid by 3D printing to develop creep and wear-resistant hierarchical nanocomposites, Symposium: Additive Manufacturing for Surface Engineering of Materials, *MS&T 2016*, Salt Lake City, UT, October 23-27, 2016.
72. Structural and Mechanical Properties of Spark Plasma Sintered Boron Nitride Nanoplatelets, *MS&T 2016*, Salt Lake City, UT, October 23-27, 2016.
73. Multi-scale Damping Behavior of Three-Dimensional (3D) Graphene Foam-Reinforced Polyurethane Composites, Symposium: Metal and Polymer Matrix Composites III – Polymer Matrix Composites, *MS&T 2017*, Pittsburg, PA, October 8-12, 2017.
74. Boron Nitride Nanotube Reinforced Aluminum Composite via Solidification Processing, Symposium: Metal and Polymer Matrix Composites III – Metal Matrix Composites, *MS&T 2017*, Pittsburgh, PA, October 8-12, 2017.
75. Multi-Scale Mechanics and Electrical Transport in a Free-Standing 3D Architecture of Graphene and Carbon Nanotubes Fabricated by Pressure Assisted Welding, Symposium: Nanostructured materials and devices, *Study of Matter at Extreme Conditions (SMEC 2017)*, Miami-Eastern Caribbean, April 1-9, 2017.
76. Ceramic Composites with 3D Contiguous Graphene Foam Reinforcement, Symposium: Innovative Processing and Synthesis of Ceramics, Glasses and Composites, *MS&T 2017*, Pittsburgh, PA, October 8-12,2017.
77. 3D Graphene Foam Reinforced Epoxy Composites, Symposium: Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials, *MS&T 2016*, Salt Lake City, UT, October 23-27, 2016.
78. High-Temperature Oxidation Behavior of Hafnium Carbide-tantalum Carbide Solid Solutions Prepared by Spark Plasma Sintering, Symposium: Thermal Protection Materials and Systems, *MS&T 2016*, Salt Lake City, UT, October 23-27, 2016.
79. Oxidative Unzipping and Transformation of High Aspect Ratio Boron Nitride Nanotubes into White Graphene Oxide Platelets, Symposium: Boron, Boron Coatings, Boron Compounds and Boron Nanomaterials: Structure, Properties, Processing, and Applications, *MS&T 2016*, Salt Lake City, UT, October 23-27, 2016.

80. Development of 3D Printing Process for Engineering Graphene Reinforced Poly (Lactic Acid) Composite with Superior Surface Wear Resistance, Symposium: Additive Manufacturing for Surface Engineering of Materials, *MS&T 2016*, Salt Lake City, UT, October 23-27, 2016.
81. Structural and Mechanical Properties of Spark Plasma Sintered Boron Nitride Nanoplatelets, Symposium: Boron, Boron Coatings, Boron Compounds and Boron Nanomaterials: Structure, Properties, Processing, and Applications, *MS&T 2016*, Salt Lake City, UT, October 23-27, 2016.
82. Solid Solutions Formation of Tantalum Carbide-hafnium Carbide by Spark Plasma Sintering, Symposium: Sintering and Related Powder Processing Science & Technologies, *MS&T 2016*, Salt Lake City, UT, October 23-27, 2016.
83. Ultrahigh Temperature Ceramics (UHTC) Materials with Nano-Reinforcement, *AFRL Research Collaboration Program Review* in Dayton, Ohio, September 22, 2016.
84. A Study of the Mechanisms of Deformation in Graphene Nanoplatelet Reinforced Tantalum Carbide using In-situ Indentation, Symposium: Sintering and Related Powder Processing Science and Technologies, *MS&T 2015*, Columbus, OH, October 4-8, 2015.
85. TaCNbC Formed by Spark Plasma Sintering with the Addition of Sintering Additives, *MS&T 2015*, Columbus, Ohio, Oct. 4-8, 2015.
86. Ultrahigh Temperature Ceramics (UHTC) Materials with Nano-Reinforcement, *AFRL Research Collaboration Program Review* in Dayton, Ohio, September 17th, 2015.
87. Insitu Indentation Behavior and Orientation Effects in Spark Plasma Sintered Graphene, *MRS Meeting*, Boston, MA, December 2015.
88. Microstructure evolution in spark plasma sintered hafnium-tantalum carbides; *Electric Field Assisted Sintering and Related Phenomena Far From Equilibrium-An ECI Conference*, March 6-11, Tomar, Portugal
89. Measurement of Graphene Substrates Adhesion Energy Using Nano-scratch Study, *2013 MRS Fall Meeting*, December 1-6, Boston, MA
90. Cold Sprayed Aluminum based Glassy Coatings for Improved Corrosion Resistance, *Advances in Surface Engineering: Alloyed and Composite Coatings*, 2013 TMS Annual Meeting, San Antonio, TX, March 7-11, 2013.
91. Nano- Scratch Behavior of Cold Sprayed Al-bulk Metallic Glassy Coating, *Advances in Surface Engineering: Alloyed and Composite Coatings*, 2013 TMS Annual Meeting, San Antonio, TX, March 7-11, 2013.
92. Graphene Nano-Platelets Reinforced Tantalum Carbide Consolidated by Spark Plasma Sintering, *Hybrid and Hierarchical Composite Materials Symposium*, 2013 TMS Annual Meeting, San Antonio, TX, March 7-11, 2013.
93. Graphene Nano-Platelets Reinforced Tantalum Carbide, *2013 Air Force Office of Scientific Research (AFOSR) High-Temperature Aerospace Materials Program Review*, Arlington, VA, February 11-15, 2013
94. Nanotube Reinforced Composites by Spark Plasma Sintering, *2013 Air Force Office of Scientific Research (AFOSR) High-Temperature Aerospace Materials Program Review*, Arlington, VA, February 11-15, 2013

95. Oxidation behavior of Graphene NanoPlatelets Reinforced Tantalum Carbide Composites in High Temperature Plasma Flow, *Symposium 12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-laminated Ternary Carbides and Nitrides (MAX Phases): Structural stability under extreme environments (irradiation, ultrahigh temperature)*, **37th International Conference & Exposition on Advanced Ceramics & Composites (ICACC)**, Jan 27 - Feb 1, 2013, Daytona Beach, Daytona, FL
96. In-situ Focused Ion Beam Microscopy of Polymer Composites, American Society of Mechanical Engineers (ASME), November 14, 2012
97. Plasma Sprayed Hydroxyapatite-Carbon Nanotube Coating for Orthopedic Applications and Small Scale Mechanical Properties of Low Dimensional Nano and Biological Materials, **Indian Institute of Science, Bangalore**, August 8, 2012
98. Preparation and Characterization of Metallic Coatings by Portable High-Pressure Cold Spray System, **International Thermal Spray Conference (ITSC) 2012**, Houston, TX, May 21-25, 2012.
99. Tribological Properties of Plasma Sprayed AlSi Coatings Reinforced by Nano-diamond Particles, **International Conference on Metallurgical Coatings and Thin Films**, San Diego, CA, April 23, 2012
100. Osseointegration of Carbon Nanotube Reinforced Hydroxyapatite Composite Coating on Titanium Implants: *in vivo* studies, **13th EFORT European Federation of National Associations of Orthopedics and Traumatology (EFFORT) Congress 2012**, Berlin, May 23-25, 2012
101. Microstructure and Mechanical Properties of Multi-structured Peacock Feathers, **Surfaces and Heterostructures at Nano- or Micro-Scale and Their Characterization, Properties, and Applications**, 2012 TMS Annual Meeting, Orlando, March 11-15, 2012.
102. Role of Yttria Stabilized Zirconia on Fracture Toughness of Plasma Sprayed Aluminum Oxide Composite Coatings, **Advances in Surface Engineering: Alloyed and Composite Coatings**, 2012 TMS Annual Meeting, Orlando, March 11-15, 2012.
103. Tribological Behavior of Plasma Sprayed Al-Si Composite Coatings Reinforced with Different Carbon Allotropes, **Advances in Surface Engineering: Alloyed and Composite Coatings**, 2012 TMS Annual Meeting, Orlando, March 11-15, 2012.
104. *In-situ* Synthesis of TiC/SiC/Ti₃SiC₂ Composite Coatings by Spark Plasma Sintering, **Advances in Surface Engineering: Alloyed and Composite Coatings**, 2012 TMS Annual Meeting, Orlando, March 11-15, 2012.
105. Plasma Sprayed Titanium Oxide-Carbon Nanotube Composite Coating for Dye-Sensitized Solar Cells, , **Energy Nanomaterials, 2012 TMS Annual Meeting**, Orlando, March 11-15, 2012.
106. *In Vivo* Osseointegration of Nano-Designed Composite Coatings on Titanium Implants, **Biological Materials Science Symposium, 2012 TMS Annual Meeting**, Orlando, March 11-15, 2012.
107. Boron Nitride Nanotube Reinforced Aluminum Nanocomposites, **Nanocomposites**, 2012 TMS Annual Meeting, Orlando, March 11-15, 2012.

108. Multi-scale Mechanical and Tribological Behavior of Plasma Sprayed Carbon Nanotube Reinforced Aluminum Composites, *TMS 2012 Annual Meeting, and Exposition*, Orlando, Florida, March 11-15, 2012.
109. Multi-scale Mechanical Behavior of Carbon Nanotube Reinforced Aluminum Composites, *International Conference on Advances in Metallic Materials and Manufacturing Processes for Strategic Sectors (ICAMPS 2012)*, Thiruvananthapuram, India, January 19-21, 2012.
110. Spark Plasma Sintered TaC and TaC-CNT Composites for Ultrahigh Temperature Applications, *49th NMD and 65th ATM of IIM 2011*, Hyderabad, India, November 13-16, 2011
111. Mechanical Properties at Different Length Scales and Factors Affecting Strengthening in Carbon Nanotube Reinforced Aluminum Composites, *49th NMD and 65th ATM of IIM 2011*, Hyderabad, India, November 13-16, 2011
112. Carbon Nanotube Reinforced Tantalum Carbide via Spark Plasma Sintering, *2011 Air Force Office of Scientific Research (AFOSR) High-Temperature Aerospace Materials Program Review*, Arlington, VA, November 7-11, 2011
113. *In Vivo* Modification of Elastic Modulus Gradient at Implant-Bone Interface, *Emerging Frontiers in Surface Engineering of Biomaterials, Materials Science and Technology Conference 2011*, Columbus, OH, October 16-19, 2011
114. Melanocytes and melanoma cells present different mechanical properties that can be modulated by Endothelin 3, *XXI International Pigment Cell Conference (IPCC), Skin and Other Pigment Cells: Bridging Clinical Medicine and Science*, European Society for Pigment Cell Research and the Department of Dermatology and Pediatric Dermatology, University of Bordeaux, September 20-24, 2011, Palais des Congrès, Bordeaux, France
115. The Other Ones: Non-Cutaneous Melanocyte, *XXI International Pigment Cell Conference (IPCC), Skin and Other Pigment Cells: Bridging Clinical Medicine and Science*, European Society for Pigment Cell Research and the Department of Dermatology and Pediatric Dermatology, University of Bordeaux, September 20-24, 2011, Palais des Congrès, Bordeaux, France
116. Correlation Between Tribological Properties of Carbon Nanotube Reinforced Aluminum Composites at Nano and Macro length scales, *Workshop on Mechanical Behavior at Small Length Scales*, Trivandrum, India, September 18-21, 2011
117. Precipitation and Crystallization of Hydroxyapatite on Boron Nitride Nanotubes Immersed in Simulated Body Fluid, *Surfaces and Heterostructures at Nano- or Micro-Scale and Their Characterization, Properties, and Applications*, 2011 TMS Annual Meeting, San Diego, February 14-17, 2011.
118. Quantification of Osteoblast Adhesion Strength on Hydroxyapatite-Carbon Nanotube Coated Bioimplant Surface, *Biological Materials Science*, 2011 TMS Annual Meeting, San Diego, February 14-17, 2011.
119. Boron Nitride Nanotube: A Novel Reinforcement for Hydroxyapatite, *Next Generation Biomaterials, Materials Science and Technology 2010*, Houston, TX, October 17-21, 2010.

120. Quantifying Mechanical Properties and Adhesion Strength of a Single Splat – Building Blocks of Thermal Sprayed Coatings, *Mechanical Behavior of Low Dimensional Materials, Materials Science and Technology 2010*, Houston, TX, October 17-21, 2010.
121. Microstructure and Mechanical Properties of Tantalum Carbide Reinforced with Carbon Nanotubes”, *AFOSR Biennial Review Meeting*, Dayton, Ohio, 21-22 Sept. 2010
122. Mechanical Properties and Biocompatibility in-vitro and in-vivo of Plasma Sprayed Carbon Nanotube Reinforced Hydroxyapatite Coatings for Orthopedic Implants, *First TMS-ABM International Materials Congress*, July 26-30, 2010, Rio de Janeiro, Brazil
123. Synthesis and Characterization of Multi-walled Carbon Nanotube Reinforced Tantalum Carbide Composites via Spark Plasma Sintering, *12th International Ceramic Congress, CIMITEC 2010*, June 6-11, 2010, Montecatini Terme, Tuscany, Italy.
124. Quantification of Carbon Nanotube Distribution and Property Correlation in Nanocomposites, Polymer Nanocomposite, *2010 TMS Annual Meeting*, Seattle, Washington, Feb 13-17, 2010.
125. Microstructure and Mechanical Properties of Tantalum Carbide Reinforced with Carbon Nanotubes, *2010 Air Force Office of Scientific Research (AFOSR) High-Temperature Aerospace Materials Program Review*, February 1-5, 2010.
126. Investigation on Wear Resistance of Plasma Sprayed Hydroxyapatite-Carbon Nanotube Composite Coating and Cytotoxicity of Wear Debris, *34th International Conference & Exposition on Advanced Ceramics & Composites (ICACC)*, January 24-29, 2010, Daytona Beach, Florida.
127. Chemical Vapor Deposited Carbon Nanotubes Reinforced Aluminum Oxide Coating with Improved Fracture and Wear Resistance, *34th International Conference & Exposition on Advanced Ceramics & Composites (ICACC)*, January 24-29, 2010, Daytona Beach, Florida.
128. Enhanced Ionic Conductivity of YSZ Electrolyte for Solid Oxide Fuel Cell, *International Symposium on Hydrogen and Energy Storage, January 14-15, 2010, Indian Institute of Technology (IIT) Kanpur*, India.
129. Poly Lactide-Caprolactone Copolymer-Boron Nitride Nanotube: A Novel Polymer Composite for Biodegradable Scaffold *Application, Third International Conference on Mechanics of Biomaterials and Tissues (ICMOBT)*, Clearwater Beach, FL, December 13-17, 2009.
130. High-Temperature Tribological Behavior of Carbon Nanotubes Reinforced Plasma Sprayed Aluminium Oxide Coating, *23rd International Conference on Surface Modification Technologies (SMT 23)*, November 2-5, 2009
131. Study of Melanocytes Mechanical Properties by Nanoindentation Uncovers Membrane Plasticity Behavior. *Francois’s presentation at Memphis 15th Annual Meeting of the Pan-American Society for Pigment Cell Research (PASPCR)*, September 4-7, 2009, Memphis, TN.
132. An Experimental and Numerical Algorithm for Near Net Shape Forming of Thin-Walled Ceramic Structures by Plasma Spraying, *US National Congress on Computational Mechanics-2009*, July 16-19, 2009, Columbus, Ohio.

133. Plasma Sprayed Aluminum Oxide-Carbon Nanotube Composite Coatings with Improved Fracture Toughness and Wear Resistance, *Sub-Micron and Nanostructured Ceramics*, June 7-12, 2009, Colorado Springs, Colorado.
134. Nanomechanical Property Evaluation of Murine Cardiac Tricuspid Heart Valve, *25th Southern Biomedical Engineering Conference*, May 15-17, 2009, Miami, FL.
135. Superior Wear Resistance of Biocompatible Ultra High Molecular Weight Polyethylene Reinforced with Hydroxyapatite and Carbon Nanotubes, *25th Southern Biomedical Engineering Conference*, May 15-17, 2009, Miami, FL.
136. Copolymer- Boron Nitride Nanotube Composite for Biodegradable Scaffold Application, *25th Southern Biomedical Engineering Conference*, May 15-17, 2009, Miami, FL.
137. Neural Crest-Derived Melanocytes Affect the Biomechanical Properties of the Tricuspid Valve Leaflet, *2009 Weinstein Cardiovascular Development Conference*, May 7-9, 2009, San Francisco, CA.
138. Wear Behavior of Aluminum/Aluminum-Silicon Composite Coatings Prepared by Cold Spraying, *2009 International Thermal Spray Conference and Exposition*, May 4-7, 2009, Las Vegas.
139. Synthesis and Characterization of Multiwalled Carbon Nanotube Reinforced Aluminum Nanocomposite via Plasma Spraying of Spray Dried Powders, *2009 International Thermal Spray Conference, and Exposition*, May 4-7, 2009, Las Vegas.
140. Comparative Study of CNT/Plasma Interaction during Various Thermal Spray Processes, *2009 International Thermal Spray Conference and Exposition*, May 4-7, 2009, Las Vegas.
141. An Experimental and Numerical Algorithm for Near Net Shape Forming of Thin-Walled Ceramic Structures by Plasma Spraying, *2009 International Thermal Spray Conference, and Exposition*, May 4-7, 2009, Las Vegas.
142. Nanotribological Properties of Carbon Nanotube Reinforced Plasma Sprayed Aluminum-Silicon Alloy Composite Coatings, *Surface Structures at Multiple Length Scales, Annual TMS Meeting*, San Francisco, Feb 16-19, 2009.
143. Interfacial Phenomena in Plasma Sprayed Multiwalled Carbon Nanotube Reinforced Aluminum Nanocomposite, *Processing, and Fabrication of Advanced Materials*, New Delhi, India, December 15-17, 2008.
144. Improving the Fracture-Toughness of Plasma Sprayed CNT - Al₂O₃ Nanocomposite Coating, *Processing, and Fabrication of Advanced Materials*, New Delhi, India, December 15-17, 2008.
145. Nanomechanical Properties of Ultra High Molecular Weight Polyethylene- Hydroxyapatite Composite Reinforced with Carbon Nanotubes, *Processing and Fabrication of Advanced Materials*, New Delhi, India, December 15-17, 2008.
146. Multiwalled Carbon Nanotube Reinforced Aluminum Composite Coating via Cold Kinetic Spraying, *Materials Science and Technology 2008*, Pittsburgh, PA, October 5-9, 2008.
147. Chromium carbide-CNT Nanocomposites with Enhanced Mechanical Properties, *Materials Science, and Technology 2008*, Pittsburgh, PA, October 5-9, 2008

148. Biocompatibility and Tribology of Plasma Sprayed Hydroxyapatite-Carbon Nanotube Coatings, *24th Southern Biomedical Engineering Conference*, El Paso, TX, April 19, 2008
149. Multiscale Tribology of Plasma Sprayed Carbon Nanotube Reinforced Aluminum Oxide Nanocomposite Coating, “Nanomaterials: Fabrication, Properties, and Applications,” *Annual TMS Meeting, New Orleans*, March 11, 2008.
150. J. Tercero, T. Laha, and Arvind Agarwal, “Fabrication of a Porous Scaffold via 3D Printing and Plasma Spray Forming”, *Proceedings of ASME Early Career Technical Conference*, Miami, FL, October 5, 2007.
151. Plasma Sprayed Nanocrystalline YSZ for Fuel Cells, *University of Central Florida*, Orlando, May 10, 2007
152. Fracture Toughness Enhancement via Plasma Spraying of Insitu Grown CNT- Al₂O₃ Nano-composite Coating, “Nanomaterials: Fabrication, Properties, and Applications,” *Annual TMS Meeting, Orlando*, FL, 28 February 2007.
153. CNT Dispersion in Plasma Sprayed Nano-Al₂O₃ – CNT Nano-Composite Coating, *presented at "Nanocomposites -Their Science, Technology, and Applications," Materials Science and Technology (MS&T) 2006 Conference*, Cincinnati, OH, October 2006.
154. Biocompatibility of Plasma Sprayed Hydroxyapatite-CNT Nanocomposite Coating, “Advanced Processing of Biomaterials,” *Materials Science and Technology (MS&T) 2006 Conference*, Cincinnati, OH, October 2006.
155. Spray Formed HA/CNT Substrates for Osteoblast Growth Analysis, “Tissue Engineering & Biomaterials Session,” *Biomedical Engineering Society (BMES) 2006*, October 13, Chicago, 2006.
156. Fracture Toughening of Plasma Sprayed Aluminum Oxide – Carbon Nanotube Nanocomposite Coating”, Poster presented at *Gordon Research Conference at Andover, NH*, during Aug. 13-18, 2006.
157. “Interfacial Strength Measurement of Cold Sprayed Aluminum Coatings,” *International Thermal Spray Conference*, Seattle, WA, May 15-18, 2006.
158. “Carbon Nanotube Reinforced Hydroxyapatite Coating Biomedical Application,” *International Thermal Spray Conference*, Seattle, WA May 15-18, 2006.
159. “Effect of Sintering on Thermally Sprayed Carbon Nanotube Reinforced Aluminum Composite,” *Surfaced and Interfaces in Nanostructured Materials Symposium-2, Annual TMS Meeting*, San Antonio, TX, March 14-15, 2006.
160. “Plasma Sprayed Carbon Nanotube Reinforced Aluminum Oxide Coating,” *Surfaced and Interfaces in Nanostructured Materials Symposium-2, Annual TMS Meeting*, San Antonio, TX, March 14-15, 2006.
161. “Comparative Evaluation of Plasma and High-Velocity Oxy-Fuel Spray Formed Carbon Nanotube Reinforced Al-Based Composite,” *Surface Engineering in Materials Science III, Annual TMS Meeting, San Francisco*, February 2005.
162. “Synthesis and Characterization of Vacuum Plasma Sprayed Tantalum Carbide,” *Surface Engineering in Materials Science III, Annual TMS Meeting, San Francisco*, February 2005.

163. "Near Net Shape Fabrication via Vacuum Plasma Spray Forming," *International Symposium of Research Students (ISRS-2004) on Material Science and Engineering*, December 20-22, 2004, Chennai, India
164. "Introduction to Nanotechnology," Industrial and Systems Engineering, Florida International University Pines Center, 23 October 2004
165. "Characterization of Vacuum Plasma Sprayed Tantalum Carbide," *2nd International Surface Engineering Congress, Orlando*, 2-4 August 2004.
166. "Plasma Engineered Ceramic Nanospheres," *Surfaces and Interfaces in Nanostructured Materials Symposium, Annual TMS Meeting*, March 2004, Charlotte, NC.
167. "Electrochemical Behavior of CNT-Reinforced Aluminum Nanostructured Coating," *2nd International Surface Engineering Congress, ASM International, Indianapolis*, September 2003.
168. "Aluminum Based Nanostructured Composite Coatings: Processing, Microstructure and Wear Behavior," *Surface Engineering in Materials Science II, Annual TMS Meeting, San Diego*, March 4, 2003.
169. "Iron Aluminide Based Coating Deposited by High Energy Density Processes," *15th International Conference on Surface Modification Technologies, Indianapolis*, November 5-8, 2001.
170. "Net Shape Forming of Light Weight Optical Structures for Space Applications," *Conference Optics Manufacturing for Dual-Use, Huntsville, AL*, February 14-15, 2001.
171. "Near Net Shaped Hypereutectic Al-Si Structures by Spray Forming Techniques," *Surface Engineering Symposium, ASM Materials Solution Conference, St. Louis*, October 9-12, 2000.
172. "Characterization and Tribological Behavior of Composite Boride Coating Deposited on Steel using Laser Surface Engineering," *Elevated Temperature Coatings –3, Annual TMS Meeting, San Diego*, 28th Feb-3 March 1999.
173. "Characterization of Titanium Diboride Coating Deposited on Metals using Pulse Electrode Surfacing (PES) Technique", *XI International Conference on Surface Modification Technologies, Paris, France*, September 8-10, 1997.
174. "Ultrahard Ceramic Composite Coatings," presented at *University of Tennessee for MAES 595 Graduate Students*, September 1997.
175. "Environmental Embrittlement in High-Temperature Intermetallics," presented at *Intl. Seminar for Protection of Environmental Corrosion in Structural and Aircraft Materials*, November 1994, New Delhi, India.

Selected Poster Presentations

176. *In-situ* Mechanics of Cold Sprayed Coatings, *Cold Spray Action Team (CSAT 2018)*, Boston, MA, June 19-20, 2018.
177. Pathways for Engineering Boron Nitride Nanotube Based High-strength Aluminum Composites, Symposium: Nanocomposites V: Structure-Property Relationships in Nanostructured Materials – Poster Session, *TMS 2018*, Phoenix, AZ, March 11-15, 2018.
178. Multi-Scale Mechanics and Electrical Transport in a Free-Standing 3D Architecture of Graphene and Carbon Nanotubes Fabricated by Pressure Assisted Welding, Symposium:

- Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials – Poster Session *MS&T 2017*, Pittsburgh, PA, October 8-12, 2017.
179. Splat Sliding in Cold-Sprayed Coatings, *Cold Spray Action Team (CSAT 2017)*, Boston, MA, June 14-15, 2017.
 180. Oxidative Unzipping and Transformation of Boron Nitride Nanotubes into ‘White Graphene Oxide’ Platelets, *Florida Statewide Graduate Research Symposium 2017*, Tampa, FL, April 21, 2017.
 181. Synthesis of Boron Nitride Nanotubes Reinforced Aluminum Composites by Roll-Bonding Technique, Symposium: Nanostructured materials and devices, Society for Materials at Extreme Conditions, *SMEC 2017*, Ft. Lauderdale, FL, April 1-9, 2017.
 182. Nano-Scale Creep and Scratch-Induced Deformation in Mg Alloys, *Florida Statewide Graduate Research Symposium 2016*, Gainesville, FL, April 22, 2016.
 183. Properties of Graphene-Silicone Prosthetic Heart Valves, *BMES 2014 Annual Meeting*, San Antonio, Texas, October 22-25, 2014.
 184. Tissue Engineered Cartilage Interaction in Healthy and Diseased Environment Using Hydroxyapatite Nanoparticles, *BMES 2014 Annual Meeting*, San Antonio, Texas, October 22-25, 2014.
 185. Nanoindentation reveals differences in the mechanical properties of melanocytes and melanoma cells, *American Society for Cell Biology (ASCB) 2010*, Philadelphia, PA, December 11 - 15, 2010.
 186. Vacuum Plasma Sprayed Carbon Nanotube Reinforced Tantalum Carbide, *Materials Science and Technology 2010*, Houston, October 17-20, 2010.
 187. Quantifying Mechanical Properties and Adhesion Strength of a Single Splat – Building Blocks of Thermal Sprayed Coatings, *Materials Science, and Technology 2010*, Houston, October 17-20, 2010. (*This poster was judged as the “Best Poster” among Graduate Students category*).
 188. Nanohardness and Young’s Modulus of Nano Polycrystalline Diamond, 2010 Annual Meeting of COMPRES, Consortium for Materials Properties Research in Earth Sciences, *June 22-25, 2010, Stevenson, WA*.
 189. Biocompatibility of Hydroxyapatite-Carbon Nanotube Composite for Orthopedic Implants with Improved Mechanical Properties, *Third International Conference on Mechanics of Biomaterials and Tissues (ICMOBT)*, Clearwater Beach, FL, December 13-17, 2009.
 190. Nanotribology of Plasma Sprayed Hydroxyapatite Reinforced with Aluminum Oxide and Carbon Nanotubes, *International Conference on Advanced Nanomaterials and Nanotechnology*, Indian Institute of Technology, Guwahati, India, Dec. 9-11, 2009..
 191. Non-wetting of Lotus Leaf, *National Metallurgist’s Day, Indian Institute of Metals*, Kolkata, India, Nov. 14, 2009.
 192. Wear Behavior of Ultra High Molecular Weight Polyethylene-Carbon Nanotube Composite Coatings, *Materials Science, and Technology 2009*, Pittsburgh, PA, October 25-29, 2009.
 193. Metal embedded Fiber Brag Grating Sensors, *Physics Education 2009 American Physics Society (APS) Meeting*, Pittsburgh, Pennsylvania, USA, March 16–20, 2009.

194. Effect of Nano Grains on Ionic Conductivity on Samarium Doped Ceria for ITSOFC, *33rd International Conference, and Exposition on Advanced Ceramics and Composites*, Daytona Beach, FL, January 2009.
195. Near Net Shape Forming of Carbon Nanotube-reinforced Aluminum Nanocomposites by Plasma Spray Forming, *2008 NSF Engineering Research and Innovation Conference, Knoxville*, Tennessee, Jan 7 -10, 2008.
196. Multi-walled Carbon Nanotube Reinforced Aluminum Nanocomposites by Cold Kinetic Spraying, *2007 NSF Grantee conference on International Research and Education in Engineering (IREE)*, Purdue University, West Lafayette, Indiana, Oct. 30 - Nov. 1, 2007.

RESEARCH FUNDING

- **Awarded since 2003 (US \$ 6.8 M as PI and additional \$25 M as Co-PI)**
 - **Average for last 16 years: \$400 K/year as PI (excluding Co-PI)**
1. PI: Arvind Agarwal, Co-PI: Benjamin Boesl
 Title: Ultra High-Resolution Field Emission Scanning Electron Microscope for studying Nanostructured Materials and their In-situ Mechanics
 Funding Agency: Department of Defense
 Amount of Funding: \$ 399K
 Time Period of Grant: September 2019 – September 2020
 2. PI: Daniela Radu, Co-PI: Arvind Agarwal, John Volakis, Cheng-Yu Lai, Laird Kramer
 Title: NASA MIRO: Center for Research and Education in 2D Optoelectronics (CRE2DO)
 Funding Agency: NASA
 Amount of Funding: \$ 3.1M
 Time Period of Grant: October 2019 – September 2022
 3. PI: Arvind Agarwal, Co-PI: Benjamin Boesl
 Title: Processing-Microstructure-Property Maps for Metal Matrix Composite Developed by Ultrasonic Cavitation
 Funding Agency: Army Research Office
 Amount of Funding: \$ 416K
 Time Period of Grant: March 2019 – February 2022
 4. PI: Shekhar Bhansali, Co-PI: Arvind Agarwal
 Title: REU Site: Wearable and Emerging technologies - Facilitating research Opportunities and Creating pathways for Underrepresented Students (WE-FOCUS)
 Funding Agency: National Science Foundation
 Amount of Funding: \$359,642
 Time Period of Grant: March 2019 – February 2022
 5. PI: Arvind Agarwal, Co-PI: Benjamin Boesl
 Title: Partnership for Research and Education Consortium in Ceramics and Polymers (PRE-CCAP)

Funding Agency: National Nuclear Security Agency
Amount of Funding: \$ 3M (FIU's portion is \$900K over 3 years)
Time Period of Grant: Oct1, 2018 – Sept 30, 2021

6. PI: Arvind Agarwal, Co-PI: Benjamin Boesl
Title: DURIP: Acquisition of Flash Diffusivity Equipment
Funding Agency: Office of Naval Research
Amount of Funding: \$145,263
Time Period of Grant: Jan 1, 2018 – Dec 31, 2019
7. Co-PI: Arvind Agarwal, PI: David J. Bishop (Boston University)
Title: Nanosystems Engineering Research Center for Directed Multiscale Assembly of Cellular Metamaterials with Nanoscale Precision: CELL-MET
Funding Agency: National Science Foundation
TOTAL AWARD FUNDING: \$19,750,000 (FIU's Funding: \$2.4M, \$560K/year)
Time Period of Grant: Oct 2017- Sept. 2022
8. PI: Arvind Agarwal, Co-PI: Benjamin Boesl
Title: Mechanical Properties of Origami-Inspired Graphene Foam-Polymer Composites (Supplemental Undergraduate and High School Research Apprenticeship (URAP and HSAP) Program)
Funding Agency: Army Research Office
Amount of Funding: \$7,500
Time Period of Grant: Summer 2018
9. PI: Arvind Agarwal, Co-PI: Benjamin Boesl
Title: Boron Nitride Nanotube Reinforced Titanium Composites
Funding Agency: Office of Naval Research
Amount of Funding: \$450K
Time Period of Grant: May 2017- May 2020
10. PI: Arvind Agarwal, Co-PI: Benjamin Boesl
Title: DURIP: Acquisition of Acquisition of Low Load Acquisition of a Low-Load Mechanical Testing Platform with a Non-Contact Extensometer for Studying Deformation Mechanisms in Fibers, Foams and Nanocomposites
Funding Agency: Air Force Office of Scientific Research
Amount of Funding: \$108,310
Time Period of Grant: June 2017-May 2018
11. PI: Arvind Agarwal, Co-PI: Benjamin Boesl
Title: Splat Sliding in Cold Sprayed Materials
Funding Agency: Northeastern University/Army Research Office
Amount of Funding: \$800K
Time Period of Grant: September 2016- December 2020
12. PI: Arvind Agarwal, Co-PI: Benjamin Boesl

Title: 3D Graphene Foam Reinforced Flexible Polymer Composites
Funding Agency: Air Force Office of Scientific Research/Army Research Office
Amount of Funding: \$581K
Time Period of Grant: September 2015- September 2018

13. PI: Arvind Agarwal, Co-PI: Benjamin Boesl
Title: Ultra High-Temperature Ceramic Materials with Nano Reinforcements
Funding Agency: Air Force Office of Scientific Research/Clarkson Aerospace
Amount of Funding: \$372,000
Time Period of Grant: September 2013- November 2018
14. Co-PI: Arvind Agarwal, PI: Benjamin Boesl
Title: DURIP: Acquisition of In-situ Nanoindenter for Nanomechanics
Funding Agency: Office of Naval Research
Amount of Funding: \$184,000
Time Period of Grant: June 2016-May 2017
15. Co-PI: Arvind Agarwal, PI: Zhe Cheng
Title: Title Novel High-Temperature Carbide and Boride Ceramics for Direct Power Extraction Electrode Application
Funding Agency: Department of Energy
Amount of Funding: \$250,000
Time Period of Grant: October 2015- September 2018
16. PI: Arvind Agarwal
Title: Graphene Nanoplatelet Reinforced Tantalum Carbide
Funding Agency: Air Force Office of Scientific Research
Amount of Funding: \$327,000
Time Period of Grant: June 2012-May 2015
17. PI: Arvind Agarwal, Co-PI: Kuang Hsi Wu
Title: Acquisition of Spark Plasma Sintering Furnace for Synthesizing Nanocomposites Reinforced with Boron Nitride Nanotubes and Carbon Nanotubes
Funding Agency: Air Force Office of Scientific Research (Defense University Research Instrumentation Program-DURIP)
Amount of Funding: \$268,000
Time Period of Grant: October 2011-December 2012
18. PI: Arvind Agarwal, Co-PI: None
Title: Multi-Scale Microstructure and Mechanical Properties of High Carbon Eutectic Tantalum Carbide Reinforced with Carbon Nanotubes
Funding Agency: Air Force Office of Scientific Research
Amount of Funding: \$333,640
Time Period of Grant: April 2009-March 2012
19. PI: Arvind Agarwal, Co-PI: None

Title: Optical Profilometer to Evaluate Wear Resistance of Carbon Nanotube Reinforced Ceramic Nanocomposite Coatings
Funding Agency: Office of Naval Research
Amount of Funding: \$36,295
Time Period of Grant: March 2010- October 2011

20. PI: Arvind Agarwal, Co-PI: None
Title: Research Experience for Teachers (Supplemental Funding for CAREER award)
Funding Agency: National Science Foundation
Amount of Funding: \$14500
Time Period of Grant: May- December 2010
21. PI: Arvind Agarwal, Co-PI: None
Title: Development of Comprehensive Process Maps Development of Comprehensive Process Maps for Carbon Nanotube Reinforced Ceramic Nanocomposite Coatings with Improved Fracture, Fatigue and Wear Properties
Funding Agency: Office of Naval Research
Amount of Funding: \$399,601
Time Period of Grant: April 2008- December 2011
22. PI: Arvind Agarwal, Co-PI: None
Title: CAREER: Near Net Shape Consolidation of Bulk Nanocomposites by Plasma Spray Forming
Funding Agency: National Science Foundation – CAREER Award,
Amount of Funding: \$400,000.
Time Period of Grant: Feb 2006- July 2011
23. PI: Arvind Agarwal, Co-PI: None
Title: Research Experience for Undergraduate (Supplemental Funding for CAREER award)
Funding Agency: National Science Foundation
Amount of Funding: \$12000
Time Period of Grant: April 2009-April 2011
24. PI: Sharan Ramaswamy, Co-PI: Arvind Agarwal
Title: Enhanced Retention and Anchorage of Hydrogels Augments Cartilage Regeneration in Osteochondral Defects (*RESEED Grant*)
Funding Agency: College of Engineering and Computing, FIU
Amount of Funding: \$35000
Time Period of Grant: May 2010- May 2011.
25. PI: Igor Tsukanov, Co-PI: Arvind Agarwal
Title: Computational and Experimental Tools for Prediction of Thermal Strains in Plasma Sprayed Coatings (*RESEED Grant*)
Funding Agency: College of Engineering and Computing, FIU
Amount of Funding: \$35000
Time Period of Grant: May 2010- May 2011.

26. PI: George S. Dulikravich, Co-PI: Arvind Agarwal
Title: Multi-objective Optimization of Corrosion Resistant Aluminum Alloys
Funding Agency: Office of Naval Research (ONR) and Touchstone Research Laboratory
Amount of Funding: \$33,000
Time Period of Grant: September- December 2009
27. PI: Arvind Agarwal, Co-PI: None
Title: Carbon Nanotube Reinforced Ceramic Coatings and Free Standing Structures by Plasma Spraying for Improved Toughness
Funding Agency: Office of Naval Research
Amount of Funding: \$328,956
Time Period of Grant: March 2005- June 2008.
28. PI: Arvind Agarwal, Co-PI: Yiding Cao
Title: Nanomaterials for Fuel Cells
Funding Agency: NASA and University of Central Florida
Amount of Funding: \$89,000
Time Period of Grant: December 2006- March 2008
29. PI: Jiandi Zhang (Physics), Co-PIs: Arvind Agarwal, Wenzhi Li, Kevin O' Shea and Xiaotang Wang
Title: Acquisition of an X-ray/UV Photoelectron Spectroscopy Setup for Materials Research & Education
Funding Agency: Army Research Office
Amount of Funding: \$316,600
Time Period of Grant: July 2007-June 2008, (*Role: Co-PI*)
30. PI: George S. Dulikravich, Co-PI: Arvind Agarwal
Title: Multi-Objective Optimization of Bulk Metallic Glasses
Funding Agency: Army Research Office
Amount of Funding: \$300,000
Time Period of Grant: July 2006-June 2009, \$300K
31. PI: Arvind Agarwal, Co-PI: None
Title: International Research and Education in Engineering (IREE): Multi-walled Carbon Nanotube Reinforced Aluminum Nanocomposites by Cold Kinetic Spraying
Funding Agency: National Science Foundation
Amount of Funding: \$22075
Time Period of Grant: September 2006-December 2007
32. PI: Arvind Agarwal, Co-PI: None
Title: Acquisition of Nanoindenter with Atomic Force Microscope Objective for Evaluating Nanomechanical Properties of Bulk Nanocomposites and Coatings
Funding Agency: Defense University Research Instrumentation Program (DURIP), Office of Naval Research
Amount of Funding: \$250,000

Time Period of Grant: April 2006-March 2007

33. PI: Arvind Agarwal, Co-PI: G. S. Murty (Touchstone Research Lab)
Title: STTR: Development of Spray Coating Methods and Materials to replace Aluminum Cladding of Aging Aircraft for Corrosion Protection
Funding Agency: Air Force Office of Scientific Research
Amount of Funding: \$100,000 (*FIU's portion \$41,000*)
Time Period of Grant: August 2006-April 2007
34. PI: Arvind Agarwal, Co-PI: Scott O' Dell (Plasma Processes Inc.)
Title: STTR: Innovative Molybdenum Alloys for Extreme Operating Conditions
Funding Agency: NASA
Amount of Funding: \$100,000 (*FIU's portion \$24,000*)
Time Period of Grant: March 2006- July 2007
35. PI: C. Levy (MME, FIU), Co-PI: Arvind Agarwal,
Title: Investigation of Carbon Nanotubes and Shape Memory Alloy Treatment for Vibration Control
Funding Agency: Army Research Office
Amount of Funding: \$209,290
Time Period of Grant: July 2005-June 2008
36. PI: Arvind Agarwal, Co-PI: None
Title: High Strength Bioceramic Coatings Reinforced with Carbon Nanotubes for Orthopedic Implants
Funding Agency: FIU Research Foundation
Amount of Funding: \$24,961.
Time Period of Grant: June 2005-June 2006
37. PI: Arvind Agarwal, Co-PI: None
Title: Nanoscale Mechanics, Bio-inspired Hierarchical Structures, and Potential Application
Funding Agency: NSF and Northwestern University
Amount of Funding: \$2000 (Travel Award)
Time Period of Grant: June 2005
38. PI: Arvind Agarwal, Co-PI: None
Title: Carbon Nanotube Reinforced TaC for Improved Fracture Toughness
Funding Agency: FIU Research Foundation
Amount of Funding: \$4,961.
Time Period of Grant: June- December 2004
39. PI: Arvind Agarwal, Co-PI: None
Title: Plasma Engineered Ceramic Nanospheres
Funding Agency: FIU Research Foundation
Amount of Funding: \$4,997.
Time Period of Grant: June- December 2003

40. PI: Arvind Agarwal, Co-PI: None
Title: Zero Erosion W-Re Nozzle Inserts
Funding Agency: Plasma Processes Inc.
Amount of Funding: \$30,400.
Time Period of Grant: November 2003- November 2005

31. PI: Arvind Agarwal, Co-PI: None
Title: Vacuum Plasma Sprayed TaC Structures
Funding Agency: Plasma Processes Inc.
Amount of Funding: \$8320.
Time Period of Grant: November 2003- June 2005

32. PI: Arvind Agarwal, Co-PI: None
Title: Characterization of Ceramic Powders & Coatings
Funding Agency: Plasma Processes Inc.
Amount of Funding: \$2500.
Time Period of Grant: January 2003- December 2005

Funding (Before 2002)

1. “Spherodized Iron Oxide Powder,” Steward Inc., May 2002, \$20,000.
2. “Lightweight Beryllium Free Nanostructured Composites”: Missile Development Agency, March-October 2002, \$70,000.
3. “Vacuum Plasma Sprayed W-Re coating,” GE Corporate Research and Development March-May 2002, \$16,000
4. “Development of FeAl based intermetallic structures and coatings,” Chrysalis Technologies Inc., July-Dec 2001, \$20,000.

RESEARCH COLLABORATORS (Current)

I have established successful research collaborations within my department, college, FIU and other universities at national and international level (Switzerland, Italy, UK, France, Japan, China, Brazil, Australia, and India). Also, I have an active collaboration with the industries. The nature of my research is highly multi-disciplinary which includes topics from Biology (*e.g. mechanical properties of single cell*), Civil Eng. (*e.g. nano-mechanical properties of concrete*), Biomedical Eng. (*e.g. mechanical properties of orthopedic implants, gels and membranes*), Physics (*e.g. carbon nanotubes and surface science*) and Electrical Eng. (*e.g., plasma sprayed fiber grating sensors*). These collaborations have resulted in the publication of journal articles, successfully securing federal grants, and exchange of students at the international level.

International Universities

1. Dr. Jeff Wheeler, EMPA, Switzerland
2. Dr. Hanus Seiner, Academy of Sciences of the Czech Republic
3. Dr. Diletta Scitti, Institute of Science and Technology for Ceramics, Faenza, Italy
4. Prof. Nadia Jessel- University of Strasbourg, France
5. Prof. Ian Chen-Deakin University, Australia
6. Prof. Kantesh Balani-Indian Institute of Technology (IIT), Kanpur, India

7. Prof. Jayant Jain- Indian Institute of Technology (IIT), Delhi, India
8. Prof. D. Graham McCartney -University of Nottingham, United Kingdom
9. Prof. Marcia Gallas- Instituto de Física – UFRGS, Brazil
10. Prof. Yao Chen-Soochow University, China
11. Prof. Chitoshi Masuda-Waseda University, Japan

US Universities (other than FIU)

1. Prof. Alice White-Boston University
2. Prof. Chris Chen- Boston University
3. Prof. S. Seal -University of Central Florida, Orlando
4. Prof. S. Harimkar- Oklahoma State University, Stillwater
5. Prof. E. Olevsky, San Diego State University, San Diego

FIU

1. Prof. Benjamin Boesl- Mechanical and Materials Engineering
2. Prof. Norman Munroe- Mechanical and Materials Engineering
- 3.
4. Prof. George S. Dulikravich- Mechanical and Materials Engineering
5. Prof. Jiuhua Chen- Mechanical and Materials Engineering
6. Prof. Sharan Ramaswamy- Biomedical Engineering
7. Prof. Lidia Kos-Biology

Industry/National Labs

1. Dr. Meyya Meyappan-NASA Ames Research Center
2. Mr. Tim McKechnie and Mr. Scott O’Dell-Plasma Processes Inc., Huntsville, AL
3. Mr. Robert Hickman-NASA Marshal Space Flight Center, Huntsville, AL
4. Dr. J. S. Karthikeyan-ASB Industries, OH

AWARDS WON BY MENTORED STUDENTS AND ORGANIZATION

1. Pranjal Nautiyal, **2019 Henry DeWitt Smith Scholarship**, American Institute of Mining, Metallurgical, and Petroleum Engineers (San Antonio, Texas): This scholarship is awarded annually to 2 graduate students in mining, metallurgical and petroleum departments of leading colleges and universities.
2. Pranjal Nautiyal, **TMS Best Paper Contest (2019) - Graduate Division - First Place** (San Antonio, Texas): Awarded for the research article on the mechanics of cold sprayed coatings, Article Title: In-situ Mechanical Investigation of the Deformation of Splat Interfaces in Cold-Sprayed Aluminum Alloy Mater. Sci. Eng. A, Vol. 737, pp. 297-309.
3. Pranjal Nautiyal, **Graduate Excellence in Materials Science (GEMS) Award-2018**, The American Ceramic Society - Basic Science Division (Columbus, Ohio): This award recognizes the outstanding scientific and academic achievements of graduate students in Materials Science and Engineering
4. Pranjal Nautiyal, **2018 Tech Connect Defense Innovation Award** (Tampa, Florida): This award recognizes top 15% technology submissions to Defense TechConnect Summit & Expo.

5. Jenniffer Bustillos, **Worlds Ahead Graduate (Spring 2018)** – Florida International University, May 2018.
6. Pranjal Nautiyal, **First Prize, TMS Graduate Student Poster Contest** (Functional Materials Division), **TMS 2018**, Phoenix, AZ, March 2018.
7. Pranjal Nautiyal, **First position, Engineering Poster Presentation, Florida Statewide Graduate Student Research Symposium**, Univ. of South Florida, Tampa, April 2017
8. Material Advantage at FIU, **Most Creative Recruitment Strategies Award at National Level**, Fall Membership Challenge, Fall 2017
9. Archana Loganathan, **GSAW (Graduate Student Appreciation Week) 2018 Scholarly Forum First Prize Winner**
10. Archana Loganathan, **2nd Prize for Ceramographic Competition**, American Ceramic Society (ACerS) Basic Science Division held in the Material Science and Technology 2017 (MS&T 17) conference, Pittsburgh, PA.
11. Adeyinka Idowu, **Dissertation Year Fellowship**, 2019
12. Archana Loganathan, **Dissertation Evidence Acquisition and Dissertation Year Fellowship**, Summer 2018.
13. Jenniffer Bustillos, **Winner of Material Advantage Undergraduate Speaking Contest** at Materials Science & Technology 2017, Pittsburgh, PA, October 2017.
14. Catalina Young, American Ceramic Society (ACerS) Presidential Council **Scientific Creativity Award** for Best Ceramograph, (*MS&T 17*) Conference, Pittsburgh, PA.
15. Catalina Young, American Ceramic Society (ACerS) Presidential Council **Viewers' Choice Award** for Best Ceramograph, (*MS&T 17*) conference, Pittsburgh, PA
16. Ms. Jenniffer Bustillos, BS student, **2nd Prize, McNair Scholar**, Fall 2016
17. Mr. Pranjal Nautiyal, Ph.D. student: **Best Technical Presentation**, Graduate Students Organization Council at FIU, Spring 2016.
18. Dr. Chenz Zhang, **Worlds Ahead Graduate, Spring 2016**, Florida International University
19. Dr. Debrupa Lahiri: Zwick Science Award 2013 for Best Mechanical Characterization Technique, Madrid, Spain, April 2014.
20. Dr. Santanu Das: Best Poster Award, Measurement of Graphene Substrates Adhesion Energy Using Nano-scratch Study, 2013 MRS Fall Meeting, December 01 - 06, Boston, USA
21. Mr. Andy Nieto: **Best Graduating MS** student in the College of Engineering and Computing, FIU, Spring 2013.
22. FIU Materials Advantage chapter: was awarded as the "Chapter of Excellence" by TMS and ASM International for 2011-12. FIU has won this award for the 7th time in nine years. The award is given to top 5 ASM/TMS chapters worldwide (more than 70 chapters) for their yearly activities to promote the cause of Materials Science and Engineering, October 2012.
23. Dr. Sybille Facca, **Best Paper Award by French Biomechanics Society** for the paper titled "Nanoreinforcement of hydroxyapatite coatings on titanium for osseointegration of orthopedic implants," October 2012

24. *World Materials Day Award*, awarded to FIU Materials Advantage Chapter, October 2011, Columbus, OH
25. Ms. Debrupa Lahiri: *Best Graduating Ph.D.* student in the College of Engineering and Computing, FIU, Summer 2011, August 13, 2011.
26. Ms. Debrupa Lahiri, *Worlds Ahead Graduate*, Honored by FIU President for overall excellence and impact during Summer 2011 Commencement, August 13, 2011.
27. Ms. Debrupa Lahiri, Ph.D. student: awarded *Best Graduate Student Poster Award* for Materials Science and Technology (MS&T) Conference in Houston, October 2010.
28. Ms. Debrupa Lahiri, Ph.D. student: awarded *2nd Prize for Best Student Paper "Surfaces and Heterostructures at Nano- or Micro-Scale and their Characterization, Properties, and Applications I" symposium*, Annual TMS Meeting, San Diego, CA, Feb. 27- March 3, 2011.
29. Ms. Debrupa Lahiri, Ph.D. student: awarded *Dissertation Year Fellowship (DYF)* by University Graduate School, Florida International University (Spring 2011- Fall 2011)
30. FIU Materials Advantage chapter: was awarded as the "*Chapter of Excellence*" by TMS and ASM International for 2009-10. FIU has won this award for the 6th time in eight years. The award is given to top 5 ASM/TMS chapters worldwide (more than 70 chapters) for their yearly activities to promote the cause of Materials Science and Engineering, October 2010.
31. Mr. David Axel Virzi, B.S. student: awarded *NSF Travel Grant* to attend Materials Science and Technology (MS&T) Conference in Houston, October 2010.
32. Mr. Indranil Lahiri: *Student Member, ASM Board of Trustees*, ASM International, Materials Park, OH, 2010-11.
33. Mr. Riken R. Patel: *Best Graduating MS* student in the College of Engineering and Computing, FIU, Fall 2009.
34. Mr. Srinivasa R. Bakshi: *Best Graduating Ph.D.* student in the Department of Mechanical and Materials Engineering, Fall 2009.
35. Mr. Riken R. Patel: *Best Graduating MS* student in the Department of Mechanical and Materials Engineering, FIU, Fall 2009.
36. Ms. Debrupa Lahiri: Selected by American Ceramic Society to nationwide "*President's Student Council*," Daytona Beach, FL, January 2010.
37. FIU Materials Advantage chapter: was awarded as the "*Chapter of Excellence*" by TMS and ASM International for 2008-09. FIU has won this award for the 5th time in seven years. The award is given to top 5 ASM/TMS chapters worldwide (more than 70 chapters) for their yearly activities to promote the cause of Materials Science and Engineering, October 2009.
38. *World Materials Day Award*, awarded to FIU Materials Advantage Chapter, October 2009, Pittsburgh, PA.
39. Ms. Debrupa Lahiri, Ph.D. student: awarded *Dissertation Evidence Acquisition (DEA)* fellowship by University Graduate School, Florida International University (Fall 2009-Summer 2010)
40. Mr. Anup K. Keshri: awarded *Dissertation Year Fellowship (DYF)* by University Graduate School, Florida International University (Fall 2009-Summer 2010)

41. Ms. Debrupa Lahiri, Ph.D. student: awarded *Best Poster Award* by Materials Processing and Manufacturing Division (MPMD) of The Materials Society (TMS) at 2009 Annual Meeting in San Francisco, Feb 15-19, 2009.
42. Mr. Anup K. Keshri: Selected by American Ceramic Society to nationwide "*President's Student Council*," Daytona Beach, FL, January 2009.
43. World Materials Day Award, 2008 awarded to FIU Materials Advantage Chapter, October 2008, Pittsburgh, PA.
44. Mr. Srinivasa Rao Bakshi, Ph.D. student: awarded *Dissertation Year Fellowship* by University Graduate School, Florida International University (Fall 2008-Summer 2009)
45. Mr. Anup K. Keshri: *Arthur E. Focke Leader Shape Award*, as one among six students worldwide, by American Society of Materials (ASM) Education Foundation Board of Trustees, for Summer of 2008.
46. Mr. Kantesh Balani: *Best Graduating Ph.D.* student in the College of Engineering and Computing, FIU, Fall 2007
47. Mr. Jorge Tercero, M.S. student: awarded *NSF Travel Grant* to attend NSF-CMMI Conference, January 7-10, Knoxville, TN
48. FIU Materials Advantage chapter: was awarded as the "*Chapter of Excellence*" by TMS and ASM International for 2006-2007. FIU has won this award for four consecutive years. This honor is even more special as FIU chapter is only four years old. The award is given to top 5 ASM/TMS chapters worldwide (more than 70 chapters) for their yearly activities to promote the cause of Materials Science and Engineering, September 2007.
49. World Materials Day Award, 2007 awarded to FIU Materials Advantage Chapter (formerly ASM/TMS student chapter), September 2007.
50. FIU Materials Advantage chapter: won the first National "*Materials Bowl*" during Annual TMS Meeting in Orlando, 25 February 2007.
51. Mr. Kantesh Balani: David Merchant International Student Award, Phi Beta Delta National Society, Spring 2007.
52. Mr. Kantesh Balani: Dean's award for excellent performance during Ph.D., Spring 2007.
53. Mr. Tapas Laha: *Best Graduating Ph.D.* student in the College of Engineering and Computing, FIU, Fall 2006
54. FIU Materials Advantage chapter: was awarded as the "*Chapter of Excellence*" by TMS and ASM International for 2005-2006. FIU has won this award for 3 consecutive years. This honor is even more special as FIU chapter is only 3 years old. The award is given to top 5 ASM/TMS chapters worldwide (more than 70 chapters) for their yearly activities to promote the cause of Materials Science and Engineering.
55. World Materials Day Award, 2006 awarded to FIU Materials Advantage Chapter (formerly ASM/TMS student chapter), August 2006.
56. Mr. Jorge Tercero, B.S. student: awarded *NSF Travel Grant* to attend NSF-DMI Conference, July 24-27, St. Louis, MO.
57. Mr. Kantesh Balani, Ph.D. student: awarded *NSF Travel Grant* to attend NSF-DMI Conference, July 24-27, St. Louis, MO.
58. Mr. Tapas Laha, Ph.D. student: awarded *NSF Travel Grant* to attend NSF-DMI Conference, July 24-27, St. Louis, MO.

59. Mr. Kantesh Balani, Ph.D. student: awarded *Dissertation Year Fellowship* by University Graduate School, Florida International University (beginning July 2006)
60. Mr. Kantesh Balani, Ph.D. student: *Best Technical Presentation*, Students Organization Council (SOC) at FIU awarded \$400, March 2006.
61. Mr. Tapas Laha, awarded *Dissertation Year Fellowship* by University Graduate School, Florida International University (beginning January 2006)
62. Mr. Tapas Laha, Ph.D. student: *Travel scholarship of \$500* to attend Annual TMS Meeting in San Antonio, March 13-16, 2006
63. Mr. Bakshi S. Rao, Ph.D. student: Best poster award by FIU Materials Advantage, November 2006.
64. FIU ASM/TMS student chapter: was awarded as the "Chapter of Excellence" by TMS and ASM International for 2004-2005. FIU has won this award for 2 consecutive years. This honor is even more special as FIU chapter is only 2 years old. The award is given to top 5 ASM/TMS chapters worldwide (more than 70 chapters) for their yearly activities to promote the cause of Materials Science and Engineering.
65. *World Materials Day Award*, 2005 awarded to FIU Materials Advantage Chapter (formerly ASM/TMS student chapter).
66. FIU Materials Advantage Chapter (formerly ASM/TMS student chapter): was awarded as *BEST organization* by Engineering Student Council, Florida International University, April 2005.
67. FIU Materials Advantage Chapter (formerly ASM/TMS student chapter): was awarded \$800 for submitting *one of the best proposals* for annual chapter activities, February 2005.
68. Mr. Kantesh Balani, *Best Technical Presentation*, Students Organization Council (SOC) at FIU awarded \$400, March 2005.
69. Mr. Tapas Laha, Ph.D. Student: *Travel scholarship of \$500* to attend Annual TMS Meeting in San Francisco, Feb 13-17, 2005.
70. Mr. Kantesh Balani, Ph.D. Student: was awarded "*Best Technical Paper*" in Advanced Materials Processing Category at International Symposium of Research Students (ISRS-2004) on Material Science and Engineering, December 20-22, 2004, Chennai, India
71. FIU ASM/TMS student chapter: was awarded as the "Chapter of Excellence" by TMS and ASM International for 2003-2004. This honor is even more special as FIU chapter is awarded in its first year of existence. The award is given to top 5 ASM/TMS chapters worldwide (more than 70 chapters) for their yearly activities to promote the cause of Materials Science and Engineering.
72. FIU ASM/TMS Chapter: Students Organization Council (SOC) at FIU has awarded ASM/TMS Student Chapter as "*Best New Organization*" award for 2003 for its academic and community service activities. The award also included funds more than \$500, which is being utilized for academic and outreach activities.
73. Mr. Kantesh Balani, Ph.D. Student: *Arthur E. Focke LeaderShape Award*, as one among six students worldwide, by American Society of Materials (ASM) Education Foundation Board of Trustees, for Summer of 2004.

74. Mr. Tapas Laha, Ph.D. Student at Florida International University: *Arthur E. Focke LeaderShape Award*, as one among six students worldwide, by American Society of Materials (ASM) Education Foundation Board of Trustees, for Summer 2004.
75. Ms. Petya Georgieva, Ph.D. Student at the University of Central Florida (with Prof. S. Seal): *2nd Prize for Poster Presentation* (Materials Science Category) Awarded by Florida Chapter of American Vacuum Society for “Development of Metal-Ceramic Bulk Nanocomposite with Enhanced Properties and Important Engineering Applications,” March 8-9, 2004.
76. Mr. Tapas Laha, Ph.D. Student: *National Science Foundation (NSF) Fellowship* to attend Summer Institute on Nano Mechanics and Materials at Northwestern University, August 2003.
77. Mr. Keith Rea, B. S. Student at the University of Central Florida (with Prof. S. Seal): *3rd Prize awarded by International Metallographic Society (IMS)* for “Fishing in the Hole” Insitu Focused Ion Beam Lift-out for TEM Analysis, 2003.
78. Ms. Melanie Andara, B. S. Student: has been awarded *REU Fellowships* in 2 consecutive years by Univ. of Central Florida, Orlando and Georgia Institute of Technology, Atlanta. Dr. Agarwal was her mentor.

PROFESSIONAL SERVICE

(a) Conference/Symposium Organization

1. Co-Organizer, *Surface Engineering for Improved Corrosion Resistance*, TMS-2018, March 11-15, Phoenix, AZ, 2018.
2. Organizer, Taking Pentagon to the People, DOD Conference at FIU, September 25-26, 2017.
3. Co-Organizer, *Nanostructured Surfaces for Improved Functional Properties*, TMS 2017, Feb 26-March 2, San Diego, CA, 2017.
4. Co-Organizer, *Additive manufacturing for Surface Engineering of Materials*, MS&T-2016, Salt Lake City, UT, Oct 23-26, 2016.
5. Lead Organizer, *Advanced Protective Coatings/Surface Engineering*, THERMEC 2013, Las Vegas, NV, Dec. 2-6 2013.
6. Co-Organizer, *Advances in Surface Engineering: Alloyed and Composite Coatings-3*, 2014 Annual TMS Meeting, San Diego, CA, February 16-20, 2014
7. Co-Organizer, *Advances in Surface Engineering: Alloyed and Composite Coatings-2*, 2013 Annual TMS Meeting, San Antonio, TX, March 3-7, 2013
8. Co-Organizer, *Advances in Surface Engineering: Alloyed and Composite Coatings*, 2012 Annual TMS Meeting, Orlando, FL, March 11-15, 2012
9. Co-Organizer, *Surfaces, and Heterostructures at Nano- or Micro-Scale and their Characterization, Properties, and Applications II*, 2012 Annual TMS Meeting, Orlando, FL, March 11-15, 2012
10. Co-Organizer, *Emerging Frontiers in Surface Engineering of Biomaterials*, Materials Science and Technology 2011, Columbus, OH, Oct 16-20, 2011.

11. Co-Organizer, *Surfaces, and Heterostructures at Nano- or Micro-Scale and their Characterization, Properties, and Applications I*, Annual TMS Meeting, San Diego, CA, Feb. 27- March 3, 2011.
12. Co-Organizer, *Surface Engineering for Amorphous-, Nanocrystalline-, and Bio-materials*, Annual TMS Meeting, Seattle, WA, Feb 14-18, 2010.
13. Lead Organizer, *Surface Structures at Multiple Length Scales*, Annual TMS Meeting, San Francisco, CA, Feb 15-19, 2009.
14. Co-Organizer, *Experimental and Computer Modeling of Plasma Spray Processes for Near Net Shape Forming and Coating*, 10th US National Congress on Computational Mechanics, Columbus, OH, July 16-19, 2009.
15. Co-organizer and Co-Editor, *Surface and Interfaces in Nanostructured Materials-2*, Annual TMS Meeting, San Antonio, March 2006.
16. Lead Organizer and Chief Editor, *Surface Engineering in Materials Science-III*, Annual TMS Meeting, San Francisco, February 2005.
17. Co-organizer and Co-Editor, *Surface and Interfaces in Nanostructured Materials*, Annual TMS Meeting, Charlotte, February 2004.
18. Co-organizer and Co-Editor, *Surface Engineering in Materials Science-II*, Annual TMS Meeting, San Diego, March 2003.
19. Session Chair at several international conferences organized by ASM, TMS, and AVS.
20. Organizing Committee Member-*International Surface Engineering Congress*, ASM International, 2000-2003.

(b) Review Activities (for Journals)

1. ACS Nano (American Chemical Society, ACS)
2. Acta Biomaterialia (Elsevier)
3. Acta Materialia (Elsevier)
4. Advanced Engineering Materials (Wiley)
5. Advanced Healthcare Materials (Wiley)
6. Advanced Materials (Wiley)
7. Advanced Powder Technology (Elsevier)
8. Applied Materials and Interfaces (American Chemical Society, ACS)
9. Applied Physics Letters (American Institute of Physics)
10. Applied Surface Science (Elsevier)
11. Biomedical Materials (Institute of Physics, IOP)
12. Biofabrication (Institute of Physics, IOP)
13. Carbon (Elsevier)
14. Chemical Physics Letters (Elsevier)
15. Colloids and Surfaces B: Biointerfaces (Elsevier)
16. Composite A: Applied Science and Manufacturing (Elsevier)
17. Composite B (Elsevier)
18. Composite Science and Technology (Elsevier)
19. Expert Review of Medical Devices (Future Science Group, London)
20. International Journal of Applied Ceramic Technology (Blackwell Publishing)
21. Journal of Alloys and Compounds (Elsevier)

22. Journal of American Ceramic Society (American Ceramic Society)
23. Journal of Applied Physics (American Institute of Physics)
24. Journal of Biomedical Materials Research: Part A (Wiley)
25. Journal of Colloid and Interface Science (Elsevier)
26. Journal of Composite Materials (SAGE Publishers)
27. Journal of Electrochemical Society (Electro Chemical Society, ECS)
28. Journal of Heat Transfer (American Society of Mechanical Engineers, ASME)
29. Journal of Manufacturing Science & Eng. (American Society of Mechanical Engineers)
30. Journal of Materials Engineering and Performance (Springer)
31. Journal of Materials Processing Technology (Elsevier)
32. Journal of Materials Research (Materials Research Society)
33. Journal of Materials Science (Springer)
34. Journal of Nanoscience and Nanotechnology (American Scientific Publisher)
35. Journal of Physics and Chemistry of Solids (Elsevier)
36. Journal of Physical Chemistry (American Chemical Society, ACS)
37. Journal of Royal Society Interface (The Royal Society)
38. Journal of Thermal Spray Technology (Springer)
39. Langmuir (American Chemical Society, ACS)
40. Materials (Molecular Diversity Preservation International, MDPI)
41. Materials Chemistry and Physics (Elsevier)
42. Materials Science and Engineering A (Elsevier)
43. Materials Science and Engineering B (Elsevier)
44. Metallurgical and Materials Transactions (ASM and TMS International)
45. Nanomedicine (Future Medicine)
46. Nanotechnology (Institute of Physics, IOP)
47. Nature
48. Physica E (Elsevier)
49. Philosophical Magazine (Taylor and Francis)
50. Review of Scientific Instruments (American Institute of Physics)
51. Starch (Wiley)
52. Surface Coatings and Technology (Elsevier)
53. Surface Modification Technologies (ASM International and Institute of Materials, London)
54. Textile Research Journal (SAGE Publishers)
55. Tissue and Cell (Elsevier)
56. Ultrasonics (Elsevier)
57. Wear (Elsevier)

(c)Membership in Professional Organization

- Fellow of ASM International
- Senior Member, The Minerals, Metals and Materials Society (TMS)
- American Ceramic Society
- Materials Research Society (MRS)
- American Society of Mechanical Engineers (ASME)
- Thermal Spray Society (TSS)
- AAAS

UNIVERSITY SERVICE

Apart from my major administrative duties as AMERI Director, Associate Dean for Research, and MME Chair, I have also served on several committees at the department, college, and University levels.

University Level

- Chairs Advisory Council (CAC), 2018 onward
- FIU Vice President of Research's Advisory Council, 2008, 2010
- FIU Faculty Mentor Advisory Board, 2011-2014
- Member, FIU Vice President of Research Search Committee, 2006.
- Member, FIU University Graduate School (UGS) Dean Search Committee, 2006.
- University Honorary Degree and Award Committee, 2011

College Level

- College of Engineering and Computing Tenure and Promotion Committee, 2012
- College of Engineering and Computing Research Advisory Committee, 2010
- Secretary, College of Engineering and Computing Curriculum Committee, 2008-09.
- Executive Dean's Taskforce Committee on Graduate Enrollment, 2006

Department Level

- Graduate Program Director, Mechanical and Materials Engineering, Florida International University, July 2004-June 2008.
- Chair, MME Strategic Plan Committee, 2011-14
- Chair, MME Non-Tenure Track Faculty Promotion Committee, 2011-12, 2013-14
- Chair, MME Departmental Teaching Load Committee, 2011-12
- Member, Departmental Tenure, and Promotion Committee, 2007-onwards
- Chair, MME Graduate Program Committee, 2012-14
- MME Undergraduate Adhoc Lab Improvement Committee, 2006.
- Member, MME Faculty Screen & Search Committee, 2005, 2006, 2007, 2011, 2012
- Member, MME Instructor Search Committee, August 2004.
- Member, Materials Science and Engineering Ph.D. Curriculum Committee, 2004.