Dr. Norman D.H. Munroe
11712 Southwest 128th Place
Miami, Florida 33186
(917) 497-0190

EDUCATION

1982 - 1987	Eng.Sc.D. Process Engineering and Chemical Metallurgy Columbia University - New York, New York
1979 - 1981	M.Sc. Metallurgical Engineering University of British Columbia - Canada
1975 - 1977	M.Phil. Ceramic and Mineral Engineering University of Leeds - United Kingdom
1970 - 1973	B.Sc. with Honors in Physics and Chemistry University of Dar-es-Salaam - Tanzania

PROFESSIONAL AFFILIATION AND LICENSES

American Society of Mechanical Engineers
American Ceramic Society
Transactions of the Metallurgical Society/Metal Progress
Sigma Xi, The Scientific Research Society; Kappa Chapter
ISO 14,001 Lead Auditor

ACADEMIC EMPLOYMENT

Aug 2015	**Full Professor,** FIU
Aug 2013- 2017	**Director**, Office of Student Access & Success, **Director**, Center for Diversity in Engineering & Computing
Aug 2010 - 2015	**Associate Dean,** Undergraduate Studies & Academic Affairs College of Engineering and Computing, FIU
Aug 2008 – Aug 2010	**Director**, Applied Research Center, FIU
Oct 2005 – 2008	**Associate Director**, Applied Research Center, FIU
Mar 2003 – Oct. 2005	**Associate Dean,** Research and Graduate Affairs, College of Engineering and Computing, FIU
Dec 2000–**Aug 2003**	**Chairman**, Dept. of Mechanical & Materials Engineering, FIU
1996 – 2015	**Associate Professor**, FIU
1991 – 1996	**Assistant Professor**, FIU
1986 (Summer)	**Teaching Assista**nt, Columbia University, New York, New York
1977-1979	**Lecturer**, University of Guyana, South America
1975-1977	**Teaching Assistant**, Department of Mineral Engineering, University of Leeds, UK
1973-1975	**Assistant Lecturer**, University of Guyana, Guyana, South America

ACADEMIC AWARDS AND HONORS

- Fulbright Scholar Award, 2019-2020, US State Department
- Advisor for 1st Place Senior Design Team, Lab-On-A-Chip – 3D Printed Thrombosis on a Chip, selected to represent FIU/CEC at Statewide Invitational, FAU, 2019
- IAAM Medal for Notable and Outstanding Research in Advanced Materials Science & Technology, Stockholm, Sweden, 2018
- 2016 Best Educator award, Legacy Magazine
- FIU NSBE winning the Best Student Chapter Award in 2004, as Advisor

- 1st Place Poster on "Effects of Acid Concentration on The Corrosion Rate of Al-6160", July 27-30, 2000 LS CO-AMP National Research Conference, 2000.
- Faculty Fellowship Awards, Idaho National Engineering & Environmental Lab 1998 & 1999
- Florida State Teaching Incentive Program Award, 1996
- Florida International University Excellence in Teaching Award, 1994
- Campbell Fellowship, Columbia University, 1982 - 87
- "Americas top Black Graduating Engineers" Class of 1986. Cash award from Washington
- Government Conditional Scholarship, to University of British Columbia, Canada, 1979 - 81
- Inter University Council Scholarship to Leeds University, United Kingdom, 1975 - 77
- Guyana Government Scholarship, to University of Dar-es-Salaam, Tanzania, 1970 - 73

PROFESSIONAL EXPERIENCE

June 1989 - Present

Technical Director & CEO, J.N.D. Associates, Inc., ASTEM Environmental, Inc., Monitoring well installation and Geophysical services, Removal of leaking underground storage tanks, asbestos/lead abatement, Environmental Site Assessment Phases I & II.

July 2013 – present

Deposition for Venice Bay Vs Bacardi Distillery Environmental Site Assessment, Nassau, Bahamas.

June-Dec 2000:

Faculty Intern Foster Wheeler; Wastewater Pilot Plant testing at New Bedford Harbor, MA; Geophysical testing and Dredging of New Bedford Harbor; Environmental Site Assessment, Watertown, Superfund Site, Watertown, MA.

August 1995 - 2000

Research Associate at the Hemispheric Center for Environmental Technology at FIU. Responsible for Hazardous Waste Management Research, Decontamination & Decommissioning, Microwave Degradation

June - August 1993

EMCOM Faculty Fellow, Oak Ridge National Laboratory
Project: Investigated the Biosorption of Uranium by P. Aeruginosa

June - August 1992

EMCOM Faculty Fellow, Oak Ridge National Laboratory
Project: Bioremediation of dissolved Uranium

May - June 1992

Environmental Impact Assessment of industrial area at Kelwan, Egypt at the El Tabbin Metallurgical Institute, conducted stack sampling, and chemical analyses

November 1987 - July 1991

Assistant Chief of Inspectors, at the Environmental Health and Safety Department, New York City Board of Education. Primary responsibilities were the supervision of 20 Engineers for asbestos abatement specifications, in compliance with OSHA and Federal, State and City Regulations.

Aug – Oct. 1986

United Nations Consultant, to the Guyana Geology and Mines Commission, Guyana; Omai Gold Mine geological drilling assignment, Assessed the analytical capability within the country, and developed plan for a Mineral Processing Facility.

January 1982 - June 1987

Research Assistant, Columbia University, New York, New York. Designed and constructed Pilot Flash Reactor to simulate the reaction shaft of an industrial flash smelter.

Summer 1977

Research Engineer, Guyana Bauxite Mining Enterprise. Conducted research on "Black-ball" formation during the calcination of refractory grade bauxite, and utilization of Bayer "Red mud" in commercial bricks.

Summer 1975

Summer Intern at the Alumina Plant, Guyana Mining Enterprise, Guyana, South America.

RELATED WORK EXPERIENCE

- Over 100 Phases 1and II Environmental Site Assessments in New York and Florida.
- Over 100 Contaminant Assessment Reports for service stations in New York and New Jersey.
- Over 1000 Asbestos, mold, indoor air quality investigations in New York and Florida.
- Remediation of soil & groundwater contamination at City Gas Station, 94-02 111th St. Richmond Hill, New York.
- Remediation of soil & groundwater contamination at 295 Auto Truck Plaza, Exit 7 295S, Pedricktown, Oldsman County, NJ.
- Remediation of soil & groundwater contamination at Emporium Service Station, 354 Hamilton Avenue, Brooklyn New York.
- Remediation of soil & groundwater contamination at Getty Service Station, 1081Leggett Avenue, Bronx, New York.
- Remediation of soil & groundwater contamination at Clean Touch Car Wash/Quick Lube, 2111 Hylan Blvd. Staten Island, NY 10306.
- Remediation of soil & groundwater contamination at City Gas Station, 20 Sheridan Blvd. Inwood, Long Island, NY.
- Remediation of groundwater contamination at Pazak's Service Station, 3021 Route 23, West Milford, New Jersey.
- Tank Closure for Former Unico Service Station, 76-09 Main St. Flushing N.Y.
- Tank Closure for Former Mobil Service Station 17-FK3, 1097 Bedford Avenue, Brooklyn, New York.
- Tank Closure at Liberty Plaza, 165 Broadway, N.Y., N.Y. for Olympia & York Companies, USA.
- Tank Closure at 38-25 21st Street, Long Island City for Mr. Peter Lupoli of Administrator, CTA of 160-16 14th Avenue, Whitestone, New York
- Remediation Action Plan for Everglades Pipe Line in Port Everglades, Florida
- Remediation Action Plan for UHAUL Site; Former Gas Station in Lakeworth, Florida
- Supervision of six O & M sites in Broward and Palm Beach Counties.
- Tank Closure for Service Station in Lighthouse Point, Florida.

US DEPARTMENT OF ENERGY AND US DEPARTMENT OF DEFENSE

TECHNICAL DIRECTOR and PI Western Hemisphere Information Exchange (WHIX)-07 program in partnership with US Southern Command US DOD, lead **FIU Technology/Demonstration** team that produced biodiesel from Jatropha, waste oil, canola and palm oil that were tested for emissions compliance in marine, UAV and land vehicle engines in partnership with the Panama Institute of Technology and the US Military Group, Panamanian Military.

TECHNICAL DIRECTOR and PI of the WHIX-08 program in partnership with the US Southern Command, US DOD, developed a **Mobil Medical Clinic powered by a hybrid wind/solar energy system** for deployment to the Dominican Republic.

Workshop Organizer on: "Development of Opportunities in Deepwater Oil and Gas for the Security

and Prosperity Partnership North American Forum", in Houston, Texas 2006.

Plenary Session Organizer on: "Energy and Economic Development in the Caribbean", presented at the LACCEI Conference, Mayaguez, Puerto Rico, June 21-23, 2006.

Enabled FIU to become a Consortium member with Gas Technologies Institute with Jackson State University, Tuskegee, Alcorn State, California State (Fullerton), Fisk and North Carolina Central University to engage in Natural Gas and related energy activities.

Developed Corrosion Laboratory at Florida International University to investigate microbial induced corrosion of aluminum clad spent nuclear fuel containers.

Eastern Hydrogen Energy Corp. – Managed the design, assembly and testing of a Demonstration Hydrogen Fuel Cell Stack.

DOE - Production of natural gas and fluid flow in tight sand reservoirs

DOE - Heat Transfer Enhancement through self-sustained oscillating flow in micro channels

DOE -Assessment of natural gas supply and storage initiatives throughout Florida; usage of abandoned wells for carbon sequestration.

DOE - CETA – Assisted in the establishment of the Center for Energy and Technology of the Americas at FIU; Conducted assessment of the Venezuelan oil and gas sector, model development on solvent based enhanced oil recovery; developed a numerical model to simulate fluid injection in heavy oil reservoirs.

DOE - Reviewer of Hemispheric Oil Sector Openings

DOE - Reviewer of Enhanced Oil Recovery Methods used in carbonates in the U.S.

DOE - Support for the International Nuclear Energy Research Initiative

Gas Technologies Institute - Supervised Research Project: Development of Micro-Bio-Fuel Cells; Intermediate temperature PBI based fuel cells and solid-oxide fuel cells.

Oak Ridge National Laboratory, Oak Ridge, Tennessee, **EMCOM Faculty Fellow,** Summer of 1993; Project: Investigated the Biosorption of Uranium by *P. Aeruginosa,*

Oak Ridge National Laboratory, Oak Ridge, Tennessee **EMCOM Faculty Fellow,** Summer of 1992; Project: Bioremediation of Dissolved Uranium Ions

RECENT SPONSORED RESEARCH CONDUCTED FOR INDUSTRY

1. **Supervised Saudi Arabian Engineers from ARAMCO** pursuing their MS degrees at FIU on the assessment of corrosion resistance of Fusion Bonded Epoxy, Phenolic, Plasite and Phenoline coated pipelines used to convey oil and sour gas from off-shore deposits in the Gulf of Saudi Arabia.

2. **Parkson, an AXEL Johnson Inc. Company** - Materials assessment and characterization of Aqua

Guard (AG) waste water treatment plant chains.

3. **Police Department, City of Coral Gables** - Materials assessment and characterization of firing pins of the Glock firearm.

4. **Maham Chemical Industry Co. Ltd**, of Teheran, Iran - Assessment of corrosion rate of Type 1100 aluminum in a 3 percent inhibitor solution.

5. **BioNucleonics, Inc.** Miami, Florida - Corrosion and phase transformation of Nitinol.

6. **Mercy Hospital Orthopedic Institute** - Biocompatibility assessment of prosthetic explants.

7. **Parkson, an AXEL Johnson Inc. Company** - Failure analysis of RF welded membranes (Delcora) used for waste water filtration.

INDUSTRY EXPERIENCE

June 1989 - Present

Founder, Technical Director & CEO of 3 Companies, Services included:
J.N.D. Associates, Inc., - Asbestos, lead Abatement, ESA Phases I, II & III
ASTEM Laboratories, Inc. - Asbestos, Radon and mold analyses, Geophysical services
ASTEM Environmental, Inc. - Well installations, Soil and Groundwater remediation

June-Dec 2000 (Sabbatical Leave):

Faculty Intern Foster Wheeler - Wastewater Pilot Plant, New Bedford Harbor, MA **Watertown, Superfund Site** - Environmental Site Assessment, Watertown, MA
Townpark Village, FL - Asbestos survey

August 1996- 2000

Research Associate - Hemispheric Center for Environmental Technology, FIU Responsible for Hazardous Waste Management Research, Decontamination & Decommissioning of Nuclear Facilities, Microwave Sintering

May - June, 1992

El Tabbin Metallurgical Institute, Kelwan, Egypt - Environmental Impact Assessment of industrial area, stack sampling and chemical analyses of samples from industrial complex

November 1987 - July 1991

Assistant Chief of Inspectors, New York City Board of Education, Environmental Health and Safety Department - Supervised Engineers responsible for conducting asbestos abatement and inspection

Aug – Oct. 1986

United Nations TOKTEN Consultant – Assigned to Guyana Geology and Mines Commission. Assessed Guyana's analytical capability and developed plan for a Mineral Processing Facility

January 1982 - June 1987

Research Assistant, Columbia University, New York, New York. Designed and constructed Pilot Flash Smelting Reactor to simulate the reaction shaft of the Outokumpu industrial flash smelter.

Summer 1977

Research Engineer - Guyana Bauxite Mining Enterprise. Conducted research on "Black-ball" formation during the calcination of refractory grade bauxite, and utilization of Bayer "Red mud" in commercial bricks.

Summer 1975

Summer Intern - Alumina Plant, Guyana Mining Enterprise, Guyana, South America.

PROFESSIONAL SERVICE

Reviewer of zyBook, Materials Science and Engineering: An Introduction (10e) by William D. Callister, Jr. and David G. Rethwisch.

Academic Editor - Journal of IAAM, Advanced Materials Letters, 2019 – Present

ASTM - Round Robin testing of a Magnesium based Degradation Control Material Protocol V4 1.1, participation of FIU.

Western Hemisphere Pre-Departure Orientation (WHA PDO) Mentor for Fulbright Scholar Awardee from July 8 – 11, 2024.

Panelist for Webinar entitled, "Leading Innovation in Education – Becoming a Research-Driven University, University of Technology, Jamaica, July 12, 2024.

Panelist for Webinar entitled, "Caribbean Energy 2024: Prospects, Challenges and Opportunities for Oil - Gas, Renewables and Environment, LACC/CPC Caribbean Policy Series, Co-sponsored by the Caribbean Policy Consortium, April 24, 2024.

Organized and presented at Grant Writing Virtual Workshop, University of Technology, Jamaica, September 21, 2023.

External Examiner – MPhil. and PhD Programs, University of Technology, Jamaica, August, 2023.

External Examiner - The University of The West Indies, Assessment Regulations for First Degrees, Associate Degrees, Undergraduate Diplomas and Certificates Including GPA and Plagiarism Regulations, 2020 to present.

Moderator – Faculty of Engineering & Technology Mini Retreat, Herdsmanton, Georgetown, Guyana, January 30, 2020

Panel Speaker – 2nd Guyana International Petroleum Exposition & Business Summit, 2019

Academic Editor - Journal of IAAM, Advanced Materials Letters, 2019 – Present

Session Chair and Program Committee Member, Bioresorbable Materials, BioInterface Workshop & Symposium, Oct 1 – 3, 2018, St. Julien Hotel, Boulder, Co.

Panel Speaker - 32nd Annual McKnight Fellows' Meeting & 20th Annual Graduate School Conference, November 12-14, 2016, Tampa, FL., Pathways to Becoming a College and University-Level Academic Administrator.

Academic Editor, SurFACTS Newsletter, BioInterface Workshop & Symposium, Surfaces in Biomaterials Foundation, 2015 – Present.

Moderator - Best practice in special outreach: NSTI, CCD and TRAC & Rides, 2015 Southern Transportation Civil Rights Training Symp. Aug 4-6, 2015, Ft. Lauderdale, Fl, US.

Session Chair - 25th Annual Biointerface Workshop and Symposium, Sept 21-23, 2015, Scottsdale, Arizona –USA.

FIU representative in the ASEE-Florida Diversity Summit - member of the committee for a multi-Institution coalition, with Industry and NSF to implement an "Industry-Post Doc" position to address the decline in the number of URMs who become professors in Engineering.

Member of the National Action Council for Minorities in Engineering, Inc. (NACME) Scholarship and University Relations Advisory Council to provide guidance regarding key issues relating to the strategy and implementation of our scholarship program initiatives.

FIU ASHOKA Task Force Member responsible for building social innovation into the fabric of our institution.

Member of AXESS Dual Enrollment in Engineering and Computing Sciences Workgroup, an FIU/M-DCPS Partnership.

Member - FIU-Booker T. Washington Community School Initiative Partnership**.**

Session Chair & Planning Committee Member - BioInterface Meeting, September 21 -24, 2015, Scottsdale, Arizona, USA.

Session Chair & Planning Committee Member - "Recent Developments in Materials and Coatings", BioInterface, October 6-9, 2014, Redwood City, Ca. USA**.**

Program Committee Chair of Abstract Submission - Inaugural Florida McNair Scholars Research Conference, Miami, FL, November 14-16, 2013 and upcoming conference in 2014.

Invited Speaker at the National Society of Black Engineers Public Policy Special Interest Group Meeting at the AAAS in Washington DC, February 22, 2013.

Program Committee Member of 29th Southern Biomedical Engineering Conference, Miami, FL, May 3-5, 2013.

FIU Committee Member and CEC lead in coordinating the celebration of Diversity Week, April 4-8, 2011 – March 31, 2014.

FIU Committee Member for strategies for increased retention of African American students.

NSF-MSI Faculty Development Forum: Provided recommendations and strategies for improving the quality and quantity of proposals submitted to NSF and evaluation of prior workshops, May 23, 2011.

As PI of the WHIX-08 program, developed a **Mobil Medical Clinic powered by a hybrid wind/solar energy system** for deployment to the Dominican Republic in partnership with the US Southern Command.

As PI of the WHIX-07 program in partnership with the US Southern Command, I lead **FIU Technology/Demonstration** team to engage with the Panama Institute of Technology and the US Military Group on the production of biodiesel for tests in engines of land, sea and air vehicles.

Editing manuscripts for the Western Hemispheric Security Analysis Center (WHEMSCA), ARC that enabled the publishing of qualitative and quantitative research throughout the Americas at the national, regional and international levels utilizing experts from academia, business sectors, government ministries and private organizations. He published an article entitled, "Climate Change and Regions at Risk: A look at Central America"' Applier Research Center, May 2011.

Provided **workshops of Climate Change and Greenhouse Gas Accounting** in Barbados and on behalf of the Commonwealth Secretariat, UK, 2010.

Provided **workshops of Climate Change, Greenhouse Gas Accounting and Clean Development Mechanism** in Belize on behalf of the Commonwealth Secretariat, UK, June, 2010

Session Chair for the Session on: "Corrosion, Biocompatibility, & Surface Processing", at the International Conference on Shape Memory and Superelastic Technologies, December 3-5, 2007, Tsukuba, Japan.

Workshop Organizer on: "Development of Opportunities in Deepwater Oil and Gas for the Security and Prosperity Partnership North American Forum", in Houston, Texas 2006.

Plenary Session Organizer on: "Energy and Economic Development in the Caribbean", presented at the LACCEI Conference, Mayaguez, Puerto Rico, June 21-23, 2006.

Reviewer and Editor for DOE report on: "Energizing Development and Dissemination Strategy, Bolivia", 2006.

Invited Speaker at the 60th Annual Convention of Florida State Conference of NAACP Branches.

Invited speaker and Mentor at the Quality Education for Minorities (QEM) Network/NASA/FAR Conferences and Workshops.

FIU Representative for the Consortium consisting of Gas Technology Institute/FIU and six other Universities.

Developed Traditional, Video-Tapes and Web-based University Courses for the Department of Energy and Florida International University; Courses include: ENV 310 Environmental Monitoring I, ENG 3365 Materials in Engineering, and ENG 3311 Statics.

Chairman of the Induction to the Order of the Engineer Ceremony

Taught the materials section of the FE Review course at Pratt and Whitney in West Palm Beach.

Advisor to three professional society student chapters; The National Society of Black Engineers (NSBE), The American Society of Mechanical Engineers (ASME) and Pi Tau Sigma student Fraternity Society.

Member of the Editorial Board
International Scholarly Research Network (ISRN) Material Science Journal

Reviewer of Albert Einstein Distinguished Educator Fellowship (AEF) Program

Reviewer of Journal Papers for:

- Journal of Materials Engineering and Performance
- Acta Biomaterialia
- Applied Biochemistry and Biotechnology
- American Society of Mechanical Engineers, HTD.
- Journal of Power Sources
- Applied Energy
- Journal of Electro Chemic. Acta.
- Institution of Engineering and Technology Renewable Power Generation
- Journal of Materials
- Journal of Chemical Engineering Science
- ASM Conference Proceedings
- Materials Chemistry and Physics
- Journal of Process Mechanical Engineering
- Journal of Materials: Design and Applications, Part L

External Reviewer of research proposal related to (ITS/006/13) Innovation and Technology Support Program, Hong Kong.

Evaluation of National Science Foundation & Other Proposals

- Nanotechnology Experience for Undergraduates, NEU
- Research Experience for Undergraduates, Site, REU
- Invited Participant to NSF Workshop on Writing Successful Proposals
- American Chemical Society Petroleum Research Fund
- Member of USDA Reviewer Panel for SBIR proposal on Renewable Energy

Keynote Speaker at the McNair Fellowship Annual Symposium Research Paper and Poster Review, FIU 2008 and in 2010.

Radio Talk Show Host
Appeared on WBCG 1080 AM Talk Show on June 15, 1996 and June 22, 1996 and made a presentation on environmental issues regarding indoor air pollutants such as asbestos, lead-based paint and radon.

UNIVERSITY SERVICE

Founding Faculty Fellow of the STEM Transformation Institute at Florida International University

Member of the FIU Student Access & Success Center

Diversity Week – Coordinated all activities for the College of Engineering and Computing during the annual weekly celebration of diversity at FIU.

Lead FIU CEC in the **Annual Martin Luther King Celebration, Evening with the Engineers**.

Lead CEC in Annual Diversity Week Celebration where the **College received an award for the Best College award for celebrating Diversity Week, 2014.**

Member of the Ashoka Task Force – Enabling FIU to become a member to foster a campus-wide culture of social innovation.

Member of the Writing Across the Curriculum (WAC) - Lead the revision of syllabi for the Senior Design Capstone course to improve critical thinking and writing skills.

Member of the Global Learning Initiative Committee – Assisted in the modification of existing courses and development of the Tech. Humans & Society ENG1033 (now EGS 1041) GLI course.

Serve on several **Search & Screen Committees** for Provost, Deans, Center Directors, Dual Enrollment Coordinator and Faculty appointments at FIU.

Appointed member of ***Taskforce on Recruitment of African Descent Students***, for improving recruitment and retention of undergraduate African descent students, here at FIU.

Vice-Chairperson for the Order of the Engineer Committee
Responsibilities include planning the annual Order of the Engineer Ceremony.

Volunteer "Ambassador" for the '95 United Way Campaign
Responsibilities included acquiring cash contributions or payroll pledges from faculty and staff.

Represented Florida International University at the **Sustainable Development and the Summit of the Americas, December 6-8, 1995, Cochabamba, Bolivia.**

Member of the FIU Environmental Management Advisory Committee
Responsibilities involved strategies for implementing environmental educational for a sustainable future.

Miami Conference Staff Intern
Served as a staff intern for the **Miami Conference on the Caribbean; December 3-5, 1991;** Submitted reports on sessions:
(i) Environment Workshop and
(ii) Long-Term Competitiveness Workshop: Technology/Research & Development

OUTREACH ACTIVITIES

- Elected to Board of Directors Surfaces in Biomaterials Foundation (SBIF), Academic Representative
- Member of FIU Committee that meet with Principal Aristide of Booker T. Washington Senior High School on merger of the Engineering Academy with Astronomy.
- Assisted in the development of dual enrollment courses at Coral Park Senior High School and MAST academy.
- Coordinated Graduate student recruitment with Army Corp of Engineers, 2005
- Attended the National Academy of Engineers Meeting in Savannah, Georgia, 2005
- Met with Mr. Clement James, Consulate of Trinidad & Tobago on Graduate student recruitment
- Met with Trade Station Group, Plantation, FL regarding recruitment of graduate students
- Met with Mr. Ian Sweeney, Consulate of Antigua & Barbuda on graduate students
- Met with Mr. Jorge Dupouy, Consulate of Chile on student recruitment
- Met with Mr. Ricardo Allicock, Consulate of Jamaica on student recruitment
- Established collaboration between FIU & the R&D center of the Army Forces at Picatinny

- Attended the 17th Annual Regulatory Information Conference, Washington, DC
- Patent Application witness for a Bionucleonics Cobalt Flood Source patent.
- Member of the Honors College Advisory Council.
- Member of the Advisory Board of FIU Center for Diversity in Engineering.
- Department Chairpersons Workshop, at Palm Coast, Florida on October 7-10, 2001.
- Kick-off Meeting & Plan for Action at the Florida Alliance to eradicate Childhood Lead Poisoning on January 17, 2002.
- NSF Workshop for the Advancement and Retention of Underrepresented & Minority Engineering Educators at Arlington, Virginia, on September 9-10, 2001.
- Member of the Pathways to College Network Partners, Stranahan High School, Interview Session September 25, 2002.
- Member of the task force for engineering in the Caribbean Studies Association.

Proponent and facilitator of Dual Enrollment at local High Schools: Booker T. Washington, Mast Academy and Coral Park. Created a Recruitment and Outreach Committee to coordinate cooperative dual-enrollment and pre-college engineering projects with Coral Park, Stranahan High Schools and MAST Academy. 102 students enrolled in EGN 1100 – Intro to Engineering course at Coral Park and 20 at MAST Academy.

Enabled FIU to become a Consortium member with Gas Technologies Institute, Jackson State University, Tuskegee, Alcorn State, California State (Fullerton), Fisk and North Carolina Central University to engage in Natural Gas and related energy activities.

Mentor/Advisor/Review Committee Member, FIU McNair Undergraduate Research Program

Mentor/Advisor/Review Student Selection Committee Member, Minority Biomedical Research Support –Research Initiative for Scientific Enhancement (MBRS RISE)

Invited Speaker at the Homestead Middle School Career Fair April 17, 2001.

FIU Representative at:

- HBCU/MI Advanced Technology Development and Commercialization opportunities Dec. 4-5, 2000 at Clark Atlanta University.

- Department of Defence HBCU/MI Technical Assistance Conference Feb 11-13, 2001 in Miami, Florida.

- Cordis Open House at the Chemical and Physical Laboratory and Biological Control Laboratory, March 30, 2001.

- DOD SBIR/STTR conference in Arlington, Virginia in April, 2001.

FIU - "Water Wars" Symposium on limited water supply in Florida
Presented a paper entitled; "Groundwater Contamination and its influence on Future Supply in South Florida" at the FIU - "Water Wars" Symposium on limited water supply in Florida that was held at Florida International on February 27, 1995.

Participation in WERC's 4th Annual Environmental Design Contest

Served as team advisor for Richard Davis, Laurel Keith and Beatrice Cazanas who represented Florida International University, at this International Environmental Design Contest, sponsored by the Waste-management Education and Research Consortium (WERC) at New Mexico State University.

Outreach to the High-Risk Population for Environmental Equity
This project involved distributing "Enviro-Links" surveys throughout schools, and low income communities. Teachers, parents and students (Grades 4-8) were educated at workshops on issues regarding indoor air pollutants, such as lead-based paint, radon, and asbestos. Statistical data on lead poisoning in low-income communities were developed.

TECHNOLOGY TRANSFER

DOE – Biodiesel production from Jatropha, waste oil cranola and palm oil and testing in Marine, UAV and land vehicle in Panama.

DOE - Design, manufacture and installation of a renewable energy powered medical mobile clinic in the Dominican Republic.

Eastern Hydrogen Energy Corp. - Design, Assembling and Test of a Demonstration Hydrogen Fuel Cell Stack

DOE - Production of Natural Gas and Fluid Flow in Tight Sand Reservoirs

DOE - Heat Transfer Enhancement through Self-Sustained Oscillating Flow in Micro channels

DOE -Assessment of Natural Gas Supply and Storage Initiatives through Florida

DOE - CETA - Establishment of the Center for Energy and Technology of the Americas
Assessment of the Venezuelan Oil and Gas Sector

DOE - Review of Hemispheric Oil Sector Openings

DOE - Review of Enhanced Oil Recovery Methods used in Carbonates in the U.S.

DOE - Support for the International Nuclear Energy Research Initiative

FAA - Identification and Validation of Analytical Chemistry Methods for Detecting Composite Surface Contamination and Water Moisture

Solid Powerboats - Initiated Senior Design Project via collaboration with local company to. Design the deployment of an anchor. First and second place winners received cash prizes.

Foxworth & Dinkins Technology Transfer Workshop
Represented the Department of Mechanical Engineering at the Foxworth & Dinkins Technology Transfer workshop - "Bridging Innovation and Entrepreneurship" in Atlanta, Georgia on November 6 - 8, 1994 to promote technology transfer between academia and industry.
Parsons Environmental Services, Inc.
Collaborated with Parsons Environmental Services, Inc. to facilitate transfer of technologies from laboratory to commercial implementation between National Laboratories, FTC, the Department of Energy and Industry.

White House Invitation: Technology for a Sustainable Future
Served as a coordinator for workshop held at Florida International University on Sustainable Technologies for the Americas on October 28, 1994

TECHNOLOGY TRANSFER WORKSHOPS

- Promoting Alternative Energy Technologies in Developing Countries, offered by FNGS, a Consortium of Florida Universities, FIU 2011
- Attended a two day workshop at NSF on Enhancing Proposal Development Skills and Promoting Research Collaborations for Engineering Faculty of Minority Serving Institutions, 2007.
- Attended the ORAU 62nd Annual Council Meeting and ORCAS workshop on, "Innovation and Academia at the Oak Ridge Center for Advanced Studies", 2007.
- National Institute of Standard and Technology Advanced Technology Program Kick-off Meeting, January 9, 2002
- Brookhaven Nanocenter Workshop on March 8-9, 2002 and mentored two graduate students.
- Lambda Novatronics, Inc.
- Oak Ridge National Laboratory
- Fernald Environmental Restoration Management Corporation
- Argonne National Laboratory
- Participated in the preparation of a proposal involving the collaborative efforts of several DOE Laboratories, FIU and other Universities in April 19-21, 1994.
- Represented Florida International University at Historically Black Colleges and Universities/Minority Institutions Environmental Technology Consortium (HBCU/MI) at Clark/Atlanta University
- Partnership Leader for Florida International University/Second Nature/HBCU/MI Consortium for "Greening" of Curricula a Florida International University
- Education for an Environmentally Sustainable Future -- Second Nature Partnership Leader Series of Workshops
- Received Partnership Leader training at workshops in Atlanta, Georgia and Flagstaff, Arizona during the months of May and June, 1994 and 1995 respectively to acquire knowledge and skills to invoke environmental issues into existing curricula.

TEACHING (TWENTY YEAR HISTORY)

1999 – 00		2000 – 01		2001 – 02	
UG courses (Enrollment)	Grad courses (Enrollment)	UG courses (Enrollment)	Grad courses (Enrollment)	UG courses (Enrollment)	Grad courses (Enrollment)
EGN 3311 (50)		ECH 4706 (8)		EGN 4930 (4)	
ECH 4706 (8)		EGN 3365 (14)		EGN 3365 (40)	
EGN 3311 (29)		ECH 4645 (2)		EML 4930 (5)	

EGN 3365 (51)		EGN 3365 (29)			
ECH 4826 (13)		EML 4930 (6)			
ECH 4826 (4)	Sabbatical	Leave			

2002 – 03		2003– 04		2004– 05	
UG courses (Enrollment)	Grad courses (Enrollment)	UG courses (Enrollment)	Grad courses (Enrollment)	UG courses (Enrollment)	Grad courses (Enrollment)
EML 4930 (1)	EML 6971 (2)	ECH 4826 (15)	EML 6990 (2)	EGM 3311 (20)	
EGN 3365 (51)		EGM 4522 (12)	EML 6971 (2)	EGN 3365 (34)	
		EML 3101 (16)			
		EML 4930 (2)			

2005 – 06		2006– 07		2007– 08	
UG courses (Enrollment)	Grad courses (Enrollment)	UG courses (Enrollment)	Grad courses (Enrollment)	UG courses (Enrollment)	Grad courses (Enrollment)
EML 4930 (1)	EML 6971 (2)	EGN 3365 (57)	EML 6910 (1)	EGM 3311 (62)	EML 6908 (1)
EGM 3311 (31)		EGN 3365 (34)	EMA 5326 (4)	EML 4140 (21)	EML 6910 (2)
		EML 4911 (2)		EML 4911 (2)	EML 6971 (2)
		EML 4930 (2)		EML 4911 (1)	

2008 – 09		2009– 10		2010– 11	
UG courses (Enrollment)	Grad courses (Enrollment)	UG courses (Enrollment)	Grad courses (Enrollment)	UG courses (Enrollment)	Grad courses (Enrollment)
EML 4911 (2)	EML 6971 (2)	EML 4930 (2)	EML 6910 (1)	EGN 1033 (100)	
EML 4905 (3)	EML 7979 (1)	EGN 3365 (34)	EMA 5326 (4)		
	EML 6910 (1)	EML 4911 (2)	EML 6971 (2)		
	EML 6908 (1)				

2011 – 12		2012– 13		2013– 14	
UG courses	Grad courses	UG courses	Grad courses	UG courses	Grad courses

(Enrollment)	(Enrollment)	(Enrollment)	(Enrollment)	(Enrollment)	(Enrollment)
EML 4911 (2)	EML 6971 (2)	EML 4930 (1)	EML 6910 (3)	EGN 1033 (48)	EMA 5326 (5)
EML 4905 (3)	EML 7979 (1)	EML 4905 (2)	EML 7979 (1)	EML 4930 (1)	EML 7979 (3)
EGN 1033 (71) X 2	EML 6910 (3)	EML 4911 (2)	EML 6908 (2)	EGN1033 (63)	
EML 4930 (1)	EML 6908 (3)	EGN 1033 (74) X 2			
2014-15		2015-16		2016-17	
EGN 1033 (50)	EMA 5326 (4)	EGN 3365 (45)	EGS 1041 (43)	EGN 3365 (48)	EGS 1041 (55)
2017-18		2018 -19		2019-20	
EGS 1041 (52)	EML 6971 (1)	EGN 3365 (52)	EMA 5326 (4)	EGM 3311 (116)	EML 7979 (1)
EGS 1041 (51)	EML 7979 (1)	EGS 1041 (53)	EML 6971 (1)	EGS 1041 (52)	
EMA 3702L (29)	EML 6910 (1)	EML 4911 (2)	EML 7979 (1)	EML 4905 (7)	
EML 4911 (2)		EML 4930 (1)		EML 4930 (2)	
2020-21		2021-2022			
EGS 1006 (42)	EML 7979 (2)	EGS 1006 (44)	EML 7979 (2)		
EGS 1041 (54)	EMA 5326 (6)	EGS 1041 (54)			

HIGHLIGHTS OF TEACHING, NEW COURSES, NEW METHODOLOGIES:

- Led to revision of the Capstone Senior Design Course to enhance writing and critical thinking
- Led the College of Engineering through the 2014 ABET Mock review process
- Developed the proposal in collaboration with Dr. Kinzy Jones for the Masters in Material Science & Engineering
- Developed the proposal in collaboration with Dr. Kinzy Jones for the Ph.D. in Material Science & Engineering
- Championed the cause for the ME department name change to Mechanical & Materials Engineering
- Supervised the ABET Accreditation process for the ME Department in 2002
- Developed electronic lecture notes for Materials Science, Dynamics and Statics
- Developed the following new Courses in the Mechanical and Materials Engineering Dept.:
  ECH 4706 – Engineering Applications of Electrochemistry

  ECH 4826 – Corrosion Control

  ECH 4645 – Principles of Industrial Electrochemistry

  EMA 5326 – Corrosion Science and Engineering

RESEARCH AREAS

1. Material Science
Dr. Munroe conducts research on corrosion and biocompatibility of implant materials. Current research focuses on development of biosorbable Mg alloys and past research dealt with shape memory alloys, radiologically doped Nitinol stents for Bionucleonics and material assessment for Cordis Biomedical companies.

2. Fuel cell membrane and catalyst development
Dr. Munroe investigates development of PBI membranes for PEM fuel cells, and using PBI/inorganic composites such as carbon nanotubes, zirconium phosphate to enhance the membrane assembly conductivity.

3. Theoretical Studies on PEM Fuel cell Design
Dr. Munroe's research includes numerically optimizing the MEA composition, in terms of porosity, acid doping level, volume fraction of electrolyte, and volume fraction of carbon, to maximize the fuel cell performance.

4. Optimization of membrane electrode assemblies
Assembling the MEA in a way that minimizes the risk of failure by delamination. The method of assembly must take into account the materials being used, and must maintain the mechanical integrity of the MEA under all operating conditions.

5. Bioremediation and Environmental Restoration of liquid and hazardous waste and various other environmental pollutants.

6. Environmental site assessments Phases I II and III - investigation into the history of activities conducted on and around a subject property, and assessment of the level of any contaminant on and in the vicinity of the property.

7. Environmental investigation of leaking underground storage tanks at service stations for the delineation of soil and ground water contamination.

POST-DOCTORAL SUPERVISION, CURRENT EMPLOYMENT AND PROJECTS SUPERVISED

1. Dr. Xiaoli Tan (Associate Professor, Department of Materials Science & Engineering, Iowa State University, US). Research Project: Firing of Bauxite Extrudates in a Variable Frequency Microwave Furnace; Cyclic Deformation Behavior of High Purity Titanium Single Crystals; Orientation Dependence of Slip and Twinning in HCP Metals".

2. Dr. Yong Gao (Postdoctoral Fellow, Rutgers University, USA) Research Project: Biocompatibility Assessment of Highly Conductive Multi-Walled Carbon Nanotubes Metal Matrix Composites; Development of Micro-Bio-Fuel Cells

3. Dr. Denver Cheddie (Associate Professor, Process and Utilities Engineering, University of Trinidad and Tobago). Research Project: Development of 1-D Dynamic Solid Oxide Fuel Cell (SOFC) Model for Real Time Applications

4. Dr. Waseem Haider (Associate Professor, Central Michigan University). Research Project: Enhanced Biocompatibility of NiTi (Nitinol) Via Surface Treatment and Alloying.

5. Dr. Seckin Gokaltun (Research Scientist Kingsbury, Inc., Philadelphia, Adjunct professor, Drexel University). Research Project: Development of a numerical model to simulate fluid injection in heavy oil reservoirs.

6. Dr. Vishal Musaramthota, (Materials Research Scientist, Innovator, New Products technology Development, Florida, USA).

GRADUATE STUDENT SUPERVISION AND DISSERTATIONS

***** **Major Thesis/Dissertation Advisor**
† **Co-advisor Thesis/Dissertation**
Graduate Research

Major Thesis/Dissertation Advisor	**Degree**	**Graduation**	**Thesis**
Kanchibhotla, Srikanth*	M.S.	2004	Study on amorphization of Ni-Ti-Ta-System & production of NiTi-Ta alloys through conventional powder metallurgy
Nurse, Godfrey*	Ph.D.	Transferred to FAMU	Remediation of Heavy Metals from Contaminated Soils
Trichi, Kartikeyan*	M.S.	2004	Dielectric Properties of refractory composites via a cavity perturbation
Hayri Serhat Sapmaz†	Ph.D.	2005	Soot Measurement in Steady and Pulsed Ethylene/air diffusion flames using laser-induced incandescence
Denver Cheddie*	Ph.D.	2006	Computational and Experimental Analyses of Fuel Cell Processes
Sushma Amruthaluri *	M.S.	2008	Synthesis of Cu-MWCNT composite and its electrical conductivity measurement
Chandan Pulletikurthi *	M.S.	2009	Biocompatibility of surface treated Porous Nitinol
Puneet Singh Gill *	M.S.	2009	Synthesis and Investigation of Highly Conductive Cu-Cr-MWCNT Composites
Yong Gao †	Ph.D.	2009	New Fuel Cell System for Portable Application with Low Temperature Co-fired Ceramics (LTCC) Technology
Waseem Haider *	Ph.D.	2010	Enhanced Biocompatibility of Nitinol Implant Materials
Smit Pandaya*	M.S.	2011	Comparative Assessment of Novel Titanium Alloys for Biomedical Applications

Puneet Singh Gill*	Ph.D.	2012	Assessment of Biodegradable Magnesium Alloys for Enhanced Mechanical and Biocompatible Properties
Ebony Daniels*	M.S.	2012	In-Situ Electrochemical Study of Cell Proliferation and Viability on Biomaterials
Brian Reding †	Ph.D.	2013	Tubular and Sector Heat Pipe with Interconnected Branches for Gas Turbine and/or Compressor Cooling
Sushma Amruthaluri *	Ph.D.	2014	An Investigation of Biocompatibility of Bio-absorbable Polymeric coating on Magnesium Alloys
Chandan Pulletikurthi *	Ph.D.	2014	An Investigation of Biocompatibility of Bio-absorbable Polymeric coating on Nitinol Alloys
Vishal Musaramthota*	Ph.D.	2014	Development of a Durability Test for Adhesively Bonded Composite Surfaces and Identifying the Effects of Contaminants on Long-Term Durability
Ahmad Abbasi † Baharanchi	Ph.D.	2015	Development of a Two-fluid Drag Law for Clustered particles using Direct Numerical Simulation and Validation through experiments.
Faris Alkordy*	M.S.	2015	Evaluation of Organic Protective Coatings as Corrosion Prevention for the Interior of Subsea Pipelines in Sour Gas Service.
Mohammad Alrudayni*	M.S.	2015	Evaluation of External Coating Performance on Buried Pipelines in the Oil and Gas Industry.
Javier Palencia Cuenca*	Ph.D.	2017	New Methodology of Design and Operational Method for low dead hydroturbines.
Elnaz Mirtaheri*	Ph.D.	2018	Biocompatibility of NiTinol and MZC-*en-vivo Assessment*
Michelle Pierre†	Ph.D.	2021	Nanocomposite electrochemical sensor for detection of biomarkers
Chiamaka Okafor*	Ph.D.	2022	Investigating Bioresobable Magnesium-Lithium Alloys for Biomedical and Commercial Applications
Anil James	M.S	2021	Overview of DAC techniques and absorbent materials

GRADUATE STUDENT SUPERVISION ON DISSERTATION COMMITTEE

Member of Thesis Dissertation	Degree	Graduation	Thesis
Caudill, Nelson E	M.S.	1996	Super-Deep Penetration of Meteor Particles
Davis, Horace	M.S.	1996	Fatigue Study Analysis of Cordis Peripheral stent
Esparragoza, Ivan	M.S.	1996	Super-Deep Penetration of Meteor Particles
Hoo, Gregory√	M.S.	1996	Electro kinetic Remediation of Contaminated concrete
Muguercia Ivan	M.S.	1997	An experimental Investigation of laminar Fluid flow behavior inside A helicoidal pipe & a 180 Degrees u-tube using Laser Doppler Anemometry
Ferdinand Desir√	M.S.	1998	Remediation of volatile hydrocarbons from the vadose zone
Jack Wang	M.S	Transferred to G.Tech.	Manufacture of porous Nitinol by mechanical alloying
Ling, Jian	Ph.D.	1999	Radially rotating miniature heat pipes for turbine blade cooling applications
Ma, Jianlu	M.S.	1999	New Ni-Ti-Ta shape memory Alloys
Aponte, Carmen	M.S.	2000	Process inventory & population Prevention overview the citrus Industry
Sapmas, Hayri*	M.S.	2000	Angular scattering measurements in laminar angular scattering measurements in laminar non-premixed flames
Yongqian Wang*	Ph.D.	2000	The crystallography of the martensittic transformation in Ni-Ti-Hf high temperature shape memory alloys.
Sundaram, Kalyana	Ph.D.	2000	Centrifugal separation of molten steel and glass Mixtures
Vembu, Bharath	M.S.	2000	Design and fabrication of Meso scale structures/ Components
Hankey, Jude	M.S.	2001	Electrically tunable micro strip line hairpin filter using yttrium barium cooper oxide

Khabari, Ali	Ph.D.	2001	Formation & investigation of nanostructured thin Films
Deng, Guangnan	M.S.	2002	Embedded heat spreaders in low Temp co fired ceramic substrates
Kandukuri, Ravindra	M.S.	2002	Thermal conductivity of High density thermal vias In low temperature co fired Ceramics
Kavalireddi, Gopala	M.S.	2002	Investigation of the ultra High pressure water Blasting technology for Oxide layer removal
Wang, Peng	M.S.	2002	Tape casting of thick silver Film & co-firing behaviors With low temperature co-Fired ceramic substrate
Zheng, Feng	M.S.	2002	The investigation, characterization & application of photo resist in high resolution & high performance interconnects
Caudill, Nelson	M.S.	2003	The study of thermal stresses In a single long elastic fiber Embedded in an infinite matrix
Kashyap, Medha	M.S.	2003	Corona discharge gas Sensor for detection of Hydrocloroflourocarbon Gases based on low Temperature co-fire Ceramic LTTC technology
Shetty Roshan	M.S.	2003	Raman spectroscopy study Of high pressure induced Phase transformations in Inorganic oxides
Ussawarujikuchai, A.	Ph.D.	2003	Cosolubilization Characteristics of Petroleum hydro- carbons in Groundwater
Gonzales, Gabriela	M.S.	2004	Processing-Structure –Property in Vacuum Plasma Sprayed Tantalum Carbide
Gulve, Revansidha	M.S.	2004	Study of thermal expansion properties of nano- crystalline nickel oxide
Phatak, Nishad	M.S.	2004	Determination of volume coefficient of thermal expansion and study of physical behavior at high temperature of nano-crystalline zinc oxide
Raghunandan, S.	M.S.	2004	Study of coefficient of thermal expansion and physical behavior at high temperature of nano- crystalline titanium di oxide
Ravinet, Alfredo	Ph.D.	2004	Abatement of Lead based paint
Garth Cosby	Ph.D.	2006	Trust Based Mechanisms for Wireless Sensor Networks
Venkata Balaji Pasumarthi	M.S.	2007	Reaction Synthesis of Max Phase Ternary Carbide-Ti_3SiC_2 Using Plasma Spraying
Jorge Terecero	M.S.	2008	Effect of nanosize reinforcements on plasma sprayed hydroxyapatite coating's mechanical properties and biocompatibility
Seckin Gokaltun	Ph.D.	2008	Lattice Boltzmann Method for Flow and Heat Transfer in Micro geometries

Yamini Parikh	M.S.	2009	Simulation of C-MEMS Based Biofuel Cell
Srinivasa Rao Bakshi	Ph.D.	2009	Plasma and Cold Sprayed Aluminium Carbon Nanotube Composite: Quantification of Nanotube Distribution and Multi-Scale Mechanical Properties
Debrupa Lahiri	Ph.D.	2011	Hydroxyapatite-Nanotube Composites and Coatings for Orthopedic Implants
Howard Holness	Ph.D.	2012	Cluster Ion Formation and Diagnostics using IMS-MS
Paulette Stephens	Ph.D.	2011	Need for Emotional Intelligence in the IT Workplace
Anup Kumar Keshri	Ph.D.	2011	Comp. Process Maps for Carbon Nanotube Reinforced Aluminum oxide nanocomposite coatings with improved fracture & wear properties
D.B. Shire	Ph.D.	2011	High Density Hermetic Packaging for Next-Generation Neural Prostheses
Marciela Fuentes	M.S.	2011	Hydraulic Analysis of Large Pumping Stations to Determine Pump Efficiency, Efficiency Deterioration Over Time, and Energy Savings".
Dharam Persaud	M.S.	2011	Experimental Validation of a Mono-layered Epoxy Probe on Carbon-Fiber Composites for Surface Chemical Contaminant Detection
Charles Kanhoua Kenmogne	Ph.D.	2011	Modeling Security and Cooperation in Wireless Networks Using Game Theory
Varun Penmatsa	Ph.D.	2012	Functionalized Carbon Micro/Nanostructures For Bimolecular Detection
Chiwon Kang	Ph.D.	2012	Development of Carbon Nanotube and Graphene based High Efficient Li-ion Battery and Supercapacitor
Majid Beidaghi	Ph.D.	2012	Design, Fabrication and Evaluation of On-Chip Micro-Supercapacitors
Santanu Das	Ph.D.	2012	Carbon nanostructure based electrodes for high efficiency dye sensitized solar cell
Shah Najiba	Ph.D.	2013	High Pressure Study of Lithium Amidoborane
Andy Nieto	M.S.	2013	Graphene Nanoplatelets Reinforced Tantalum Carbide Consolidated by Spark Plasma Sintering
Yin Song	Ph.D.	2014	A miniatured biofuel cell Based on interdigited electrodes array
Sara Rengifo	M.S.	2014	A Comparison between Graphene and WS_2 as solid lubricant additives to aluminum for automobile applications.

Rupak Dua	Ph.D.	2014	Enhanced anchorage of Tissue-engineered cartilage using and osteoinducive approach
Chunhui Chen	Ph.D.	2015	High performance electrode materials by electrostatic spray deposition for Li-ion Batteries
Vanquilla Shellman	Ph.D.	2015	The identification of volatile organic compounds from synthetic cathinone derivatives for the development of drug odor mimics to train narcotic detection canines
Christopher Emerson†	M.S.	2015	The Microstructure and the Electrochemical Behavior of Cobalt Chromium Molybdenum Alloys from Retrieved Hip Implants
Jose Luis Gonzalez Jr.	MS	2015	In-Vivo Corrosion and Fretting of Modular Ti-6Al-4V/Co-Cr-Mo Hip Protheses: The Influence of Microstructure and Design Parameters
Md Ashan Sabbir	Ph.D.	2017	Corrosion Degradation Mechanism of CBPC Coating Systems for Highway Bridge Steel Components
Meer Safa	Ph.D.	2018	Poly (Ionic Liquid) Based Electrolyte For Lithium Battery Application
Neha Chawla	Ph.D.	2018	The Catalytic Performance of Lithium Oxygen Battery Cathodes
Krishna Vigneshwaran K.K.	MS	2017	Anodic Behavior of Steel in Deficient Grout with Enhanced Sulfate Ion Concentrations and Corresponding Sulfate to Hydroxyl Ratio for Corrosion Initiation of Steel.
Daniel Yohannes	Ph.D.	2017	Chloride Threshold of Steel in Deficient PT Grout
Krishna Vigneshwaran K.K.	Ph.D.	2017	Corrosion of Post Tensioned Tendons in Deficient Grout
Yong Hao	Ph.D.	2016	Sulfur Based Electrode Materials for Secondary Batteries
Richa Agrawal	Ph.D.	2017	Lithium Ion Based Hybrid Electrochemical Capacitors: Fabrication, Optimization and Miniaturization
Mohammad Asadikiya	Ph.D.	2017	Thermodynamic investigation of yttria stabilized zirconia (YSZ) system
Md Ahsan Sabbir	Ph.D.	2017	Corrosion Degradation Mechanism of CBPC Coating System for Highway Bridge Steel Components
Alexandra Henriques	MS	2018	Nano-Confined Metal Oxide in Carbon Nanotube Composite Electrodes for Lithium Ion Batteries
Chen Zhang	Ph.D.	2018	Study of Prussian Blue and its Analogues as Mediators in Supercapacitors
Saiada Fuadi Fancy	Ph.D.	2019	Corrosion Durability of a Nano-Particle Enriched Zinc Rich Coating System for Highway Steel Bridges
Jorge Del Risco	MS	2019	Biocompatibility and Hemocompatibility of Magnesium Alloys
Adeyinka Taiwo Idowu	Ph.D.	2019	Graphene Foam-reinforced Shape Memory Polymer Epoxy Composite

Dewan Hossain	Ph.D.	2019	Development of local and Global Corrosion Sensing Technique to Monitor Structural Behavior of Prestressed Concrete Structures
Amin Rabiei Baboukani	Ph.D.	2019	Development of Phosphorus-Based Materials for Energy Storage Applications
Iman Khakpour	Ph.D.	2019	Investigation Of Bipolar Electrochemically Exfoliated Graphene For Supercapacitor Applications
Ebenezer Dotun Adelowo	Ph.D.	2019	Lithium Hybrid Capacitor Devices: Towards Higher Performance Electrochemical Capacitive Energy Storage
Nelson Omena Okpowe	Ph.D.	2019	Additive Manufacturing and Applications of Silica based glass materials
Samanbar Permeh	PhD	2019	Microbial Influenced Corrosion of Submerged Steel Bridge Piles in Natural Waters in Presence Of Marine-Fouling
Jacqueline Rodriguez	Ph.D.	2021	Improving detection Methods for Volatile Organic Compounds Utilizing a Portable Ion Mobility Spectrometer for Forensic Applications
Leon Jaramillo†	Ph.D.	2022	Contribution of Vapor Generation of Fossil-Fuel Buring to Global Warming and Integration of Renewable-Energy Technologies
Rutambara Sonawane	Ph.D.	2022	Water And Solute Transport In Deficient Post-Tensioned Grout

UNDERGRADUATE STUDENT SUPERVISION

Name	Degree	Year	Project
Hector Hernandez	B.S.	1996	Mineralogical Development During the Microwave Firing of Bauxite Extrudates
Gregory Monzo	B.S.	1996	Atomic Absorption Spectroscopy/Gas Chromatography
Mark Cross	B.S.	1996	Recovery of Gold from Black Sands
Roger Tilleux	B.S.	1996	Auto Catalytic Degradation of Cyanide
Roland Prophete	B.S.	1997	Lead Based Paint Poisioning in the High-Risk Community
Holly Knight	B.S.	1997	The Development of Electronic Lecture Notes for Materials Science and Statics
Victor Rodriguez	B.S.	1997	The Analysis of Precious Metals and Gemstones in Black Sands and Guyana Rock Samples
Newton Wallace	B.S.	1997	Electrokinetic Remediation of Contaminated Soils
Beatrice Cazanas	B.S.	1997	Design of Electrodes for an Electro-osmotic cell
David Brahim	B.S.	1997	Waste Management towards 2000
Aisha Chohan	B.S.	2000	Radon Spectra Analysis
Carlos Lopez	B.S.	2000	Radon Spectra Analysis

Narada Bradman	B.S.	2000	Environmental Justice – Lead in the Inner City
George Irie	B.S.	2001	Corrosion Behavior of Type 6061 & 1100 - Al
Jeffrey Herrera	B.S.	2001	Gas Chromatography assembly in HAZMAT Lab
Orin Shaw Brian Black	B.S.	2001	Radon Spectra Analysis
Robert Charles	B.S	2002	Optimum Biodiesel Blend Ratios For Caterpillar 3176 B Turbo Diesel
S. Gallocher, G. Gonzalez	B.S.	2002	Biocompatibility of NI-TI Shape Memory Alloys *in Vitro*
Bernard Johnson	B.S	2002	Optimum Biodiesel Blend Ratios For Caterpillar 3176 B Turbo Diesel
Erroll Palmer	B.S	2002	Optimum Biodiesel Blend Ratios For Caterpillar 3176 B Turbo Diesel
Anthony Radhay	B.S.	2003	Corrosion Behavior of Aluminum
Ren Liu	REU	2007	An Experimental Investigation of Unsteady Jet Mixing of Non-Newtonian Fluids in Waste Tank
William Mendez	B.S.	2007	Model development on Solvent Based Enhanced Oil Recovery
Daniel Llanes	B.S.	2007	Non-Newtonian Mixing of Fluid in a Waste Tank via Particle Image Velocimetry
Christopher Hoffman	B.S.	2007	Non-Newtonian Mixing of Fluid in a Waste Tank via Particle Image Velocimetry
Edgard Espinosa	B.S.	2007	Non-Newtonian Mixing in a Waste Fluid Tank via Particle Image Velocimetry
Teneile Thompson	B.S.	2007	Nitinol usage for Hodges disease
John T. Scott	B.S.	2008	Biocompatibility of Shape Memory Alloys
Raul Alfonso	B.S.	2009	Design of a Green Greenhouse for a Phytotron Facility
Lazaro Sanchez.	B.S.	2009	Design of a Green Greenhouse for a Phytotron Facility
David Crawford	B.S.	2009	Design of a Green Greenhouse for a Phytotron Facility
Karel Jie Tjoe Foek	B.S	2013	Assessment of calorific value of walnut shell, coconut shell, cacao pod and Acacia tree using a bomb calorimeter.
Felipe d la Cruz	B.S	2013	Efficiency of a portable sluice box used for gravity separation of gold and black sand.
Charles English	B.S.	2013	Efficiency of a portable sluice box used for gravity separation of gold and black sand.
Hugh Pierre	B.S.	2015	Surface characterization of Co-Cr prostheses
Rose Jean Louis	B.S.	2017	The Biocompatibility of Surface Treated Nitinol
Deveid A. Garcia	B.S.	2017	Anodization of Magnesium-Zinc-Calcium (MZC)
Victor Jose Padilla	B.S.	2017	Drug Elution Kinetics from Polymer-Coated MZC
Sebastian Molina	B.S.	2017	Surface Characterization of MZC
Brianna Gogins	B.S.	2017	Understanding the Wound Environment & detection of Biomolecules in wounds using Smart Sensors.
Andy Nelson	B.S.	2017	The Biocompatibility of Surface Treated Nitinol

LIST OF PUBLICATIONS

Theses

1. "Simulation of Flash Smelting Phenomena in a Laboratory Reactor", Eng.Sc.D. Thesis, Columbia University, Henry Krumb School of Mines, New York, June 1987.

2. "Hydrothermal Treatment of Nickeliferous Laterite with Ferric Chloride Solutions", M.S. Thesis, University of British Columbia, Department of Metallurgy, Vancouver, British Columbia, Canada, May 1982.

3. "The Manufacture of a Variety of Grogs from Guyana Aluminosilicates", M.Phil. Thesis, Mineral Engineering Department, Leeds, United Kingdom, July 1977

SUBMITTED ABSTRACTS

1. M. Uzzi, V. Persaud, D. Perez and N. Munroe, "***An assessment of the properties of electrodeposited Co-Mn oxide for use in third generation Concentrated Solar Power***", University of Guyana 3rd Graduate Research Symposium – Georgetown, Guyana; October 2-4, 2024.
2. M. Uzzi, V. Persaud, D. Perez and N. Munroe, "***Advancements in Concentrated Solar Power – Improved absorptivity of tower receivers"***, 2024 Canada-Caribbean Institute Research Symposium – Ontario, Canada; October 16-19, 2024.
3. V. Persaud, M. Uzzi, A. Hamrani, and N. Munroe, "***Machine Learning- Driven optimization of Temperature for enhanced hydrogen production through Catalytic Pyrolysis of biomass",*** 3rd Graduate Research Symposium 2024. Georgetown Guyana, 2nd - 4th October, 2024.
4. V. Persaud, M. Uzzi, and N. Munroe, "***Machine learning-driven Optimization of Residence time for enhanced hydrogen production via catalytic pyrolysis of natural gas and Biomass*** ", FORECAST conference 2024- Kingston Jamacia August 14th -16th, 2024.
5. Persaud, M. Uzzi, and N. Munroe, "***Machine Learning-Enhanced optimization of Nickel-Based Catalysts for Efficient Hydrogen Production through Catalytic Pyrolysis of natural gas***", American Chemical Society Fall 2024 Meeting – Denver Colorado, August 2024.
6. M. Uzzi, V. Persaud, D. Perez and N. Munroe, "***An assessment of electrodeposited bimetallic and high entropy oxides for third generation concentrated solar power plants",*** FORECAST conference 2024- Kingston Jamacia August 14th -16th, 2024.
7. M. Uzzi, V. Persaud, D. Perez and N. Munroe ***"Towards improved thermal efficiency of third generation Concentrated Solar Power Systems – Mixed Metal Oxide coatings",*** American Chemical Society Fall 2024 Meeting – Denver Colorado, August 2024.
8. C. Pulletikurthi, N. Munroe, R.Rokicki and H. Engqvist, ***Towards a Better Corrosion Resistance and Biocompatibility Improvement of Nitinol Medical Devices***".
9. R. Dua, P. Gill, N. Munroe and S. Ramaswamy, "***A Hydrogel-Mineral Composite Scaffold to Improve the Interfacial Shear Stress Between Engineered Cartilage and Bone"***, BMES 2012.
10. N. Munroe, P. Gill, E. Daniels, R. Rokicki, ***"Biocompatibility and Corrosion Studies of Nitinol Alloys after Magnetoelectropolishing"***. NACE, March 11-15, 2012, Salt Lake City, Utah.
11. P. Gill, N. Munroe, ***"Corrosion behavior of biodegradable surface treated magnesium alloys in PBS containing amino acids".*** NACE, March 11-15, 2012, Salt Lake City, Utah.

12. P. Gill, N. Munroe, ***"In-vitro Corrosion Studies of Bioabsorbable Magnesium Alloys".*** TMS, March 11-15, 2012. Orlando, Florida.
13. P. Gill, N. Munroe, A. Datye, R. Dua and S. Ramaswamy, ***"Assessing Biocompatibility and Mechanical Properties of Degradable Metallic Biomaterials".*** TMS, March 11-15, 2012. Orlando, Florida.
14. N. Munroe and V. Musaramthota, ***"Deepwater Exploitation of Oil and Natural Gas – A Roadmap for Technical Assistance***", Diaspora Engagement Conference, Georgetown, Guyana, July 23-28, 2017.
15. C. Okafor, N. Munroe, "***Investigation of biodegradable Mg-Li quaternary alloys with improved uniform degradation,*** MS&T 21, Oct. 17 -21, Columbus, Ohio
16. C. Okafor, N. Munroe, ***"Progress on bioresorbable quaternary magnesium alloys",*** 37th SBEC Conference, Sept. 24 -26, 2021, New Orleans, LA.

BOOK CHAPTERS

1. C. Okafor and N. Munroe, "***Mg-Li based alloys as implant materials***", Novel Biomaterials for Tissue Engineering, 2024, ISBN 978-1-83769-229-3.
2. N. Munroe, "***Environmental Risks and Mitigation in the Guyana-Suriname Basin***", in Oil and Climate Change in the Guyana-Suriname Basin, Ed. by I. L. Griffith, 2024, Routledge, Hb:978-1-032-59893-2.
3. N. Munroe and V. Musaramthota, "Deepwater Exploitation of Oil and Natural Gas – A Roadmap for Technical Assistance", in Dynamics of Caribbean Diaspora Engagement: People, Policy, Practice, University of Guyana Press, 2018.
4. W. K. Jones, N. Savaram and N. Munroe, "A Direct Methanol Fuel Cell Using Cermet Electrodes in Low Temperature Cofire Ceramics "(LTCC) Book Chapter in Fuel Cell Electronics Packaging, Springer, Editors, K. Kuang, K. Easler, 2007.

PUBLISHED ABSTRACTS

1. C. Okafor, N. Munroe, ***"In-vitro degradation assessment of bioresorbable Mg-Li-Zn-Ca alloys",*** 13th Symposium on biodegradable metals for biomedical applications, Aug 23-26, 2021, Virtual conference.
2. N. Munroe, D. Miranda, D. Garcia, R. Perez, D.Serna, J. Del Risco and C. Okafor, "***Simulating Biological Responses Via Lab on a Chip Devices***", Asian Advanced Materials Congress, Singapore, 31 October - 4 November, 2019.
3. N. Munroe, "***Biocompatibility and Hemocompatibility of Next Generation Biomaterials***", European Advanced Materials Congress, Stockholm, Sweden, 20 - 23 August, 2018.
4. N. Munroe and V. Musaramthota, ***"Deepwater Exploitation of Oil and Natural Gas – A Roadmap for Technical Assistance***", Diaspora Engagement Conference, Georgetown, Guyana, July 23-28, 2017.
5. W. Haider, N. D. Munroe, C. Pulletikurthi, P. K. S. Gill, "***Corrosion Behavior of Electropolished and Non-electropolished Ternary Nitinol alloys*****"**, *International Journal of Medical Implants and Devices*, Vol 4, No 1, pp 9, 2009.
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1. V. Persaud, M. Uzzi and N. Munroe, "***Advancing the Path to Net-zero Carbon by 2050: An Analysis of the Energy Transition and Engagement of Key Stakeholders in the Southern*** Caribbean" West Indian Journal of Engineering for publication in their July 2024 edition.
2. C. Okafor and N. Munroe, "***Developing trends in Mg alloys for biomedical implant applications: A short review",*** LACCEI International conference proceedings, 2022.
3. N. Munroe, D. Miranda, D. Garcia, R. Perez, D.Serna, J. Del Risco and C. Okafor, "***Simulating Biological Responses Via Lab on a Chip Devices***", Asian Advanced Materials Congress, Singapore, 31 October - 4 November, 2019.
4. N. Munroe, "***Biocompatibility and Hemocompatibility of Next Generation Biomaterials***", European Advanced Materials Congress, Stockholm, Sweden, 20 - 23 August, 2018.
5. N. Munroe, "***Climate Change and Guyana's Coastal Vulnerability***", Golden Jubilee, National Symposia Series, Arthur Chung Conference Center, Liliendaal, Georgetown, Guyana, May 23-24, 2016.
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28. N. Munroe, G. Nurse, S. Gallocher, G. Gonzalez**, "*Biocompatibility of Ni-Ti Shape Memory***

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41. N.D.H. Munroe, **"*Uranyl Ion Interaction with Membranes of Pseudomonas Aeruginosa"***, Proceedings of the 3rd Annual WERC Technology Development Conference, April 1993.

INVITED TALKS

1. N. Munroe, "A University in Transition: The Case of Guyana", The Guyana Association of Professional Engineers Special Meeting, Georgetown Club, Campbell Room, Guyana Sunday 16 February, 2020.
2. N. Munroe, "Green Building For Resilient Future Cities" Turkeyen & Tain Talks 21, Pegasus Hotel, Georgetown, Guyana, Wednesday 27 November, 2019.

3. N. Munroe, E. Mirtaheri and V. Musaramthota, "***Tailoring the corrosion and biological response of novel biomaterials***", 1st International Workshop-NanoBio Surfaces and Interfaces in Healthcare and Science, September 28-29, 2016, Netherlands.
4. N. Munroe, "Climate Change and Guyana's Coastal Vulnerability", Golden Jubilee, National Symposia Series, Arthur Chung Conference Center, Liliendaal, Georgetown, Guyana, May 23-24, 2016.
5. N. Munroe, P. Gill, S. Amruthaluri, **"*Recent Developments in the Design of Polymer Coated and Bioabsorbable Metal Alloys*".** 5th World Congress of Industrial Biotechnology, 2012, China.
6. N. Munroe, "***Clean Development Mechanisms (CDM) and Access for Caribbean Countries"***, Caribbean Cabinet Secretariat & Heads of Public Service Consultative Meeting, Belize, June 10-12, 2010.
7. N. Munroe, "***Greenhouse Gas Accounting***", Commonwealth Training Program on Public Policy and Management, Feb 8-9, 2010, Barbados.
8. N. Munroe**, "*Micro-Intermediate-High Temperature Fuel Cell Development*",** The FIU First Energy Workshop, March 12, 2010.
9. N. Munroe**, "*Greenhouse Gases and the South Florida Environment*"**, Environmental Science Symposium on Top Environmental Issues Affecting South Florida, MDC, March 1, 2010.
10. N. Munroe, "***Multi-Disciplinary, Collaborative Research with the Applied Research Center (ARC), Florida International University***", 10th Annual STTR/SBIR and HBCU/MI Small Business Technical Conference, Huntsville, Alabama, January 25-28, 2010.
11. N. Munroe, "***Biodiesel Demonstration/Validation Project –Western Hemisphere Information Exchange 07*"**, Alternative Fuels and Unmanned Systems Conference, Ciudad Del Saber, Panama, Dec 9-11, 2009.
12. N. Munroe, S. Amruthaluri, Puneet K.S Gill, W. Haider, **"*Synthesis of highly conductive Cu-MWCNT composite*"**, Materials Science & Technology 2008 Conference and Exhibition, October 5-9, 2008, Pittsburgh, PA.
13. N. Munroe, Puneet K.S Gill, S. Amruthaluri, W. Haider, **"*Highly conductive nanostructure Cu-Cr-MWCNT composite*"**, Materials Science & Technology 2008 Conference and Exhibition, October 5-9, 2008, Pittsburgh, PA.

CONFERENCE PRESENTATIONS

1. M. Uzzi, V. Persaud, D. Perez and N. Munroe "***Towards improved thermal efficiency of third generation Concentrated Solar Power Systems – Mixed Metal Oxide coatings"***, American Chemical Society Fall 2024 Meeting – Denver, Colorado: August 17-22, 2024.
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3. M. Uzzi, V. Persaud and N. Munroe, "***An assessment of absorptivity and emissivity properties of anodically electrodeposited Mn–Co oxide coatings on Stainless Steel",*** World Hydrogen Energy Conference (WHEC2024), Cancun. Mexico, June 2024.
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119. N.D.H. Munroe and G. Hoo, **"*Electrokinetic Decontamination of Concrete and Porous Media"***, Spectrum '96 Nuclear and Hazardous Waste Management International Meeting, Seattle, Washington, August 18-23, 1996.
120. N.D.H. Munroe, ***"Sustainable Development - A Hemispheric Perspective"***, Special Event at the Guyana Association of South Florida Meeting, Miami, Florida, June 2, 1996.
121. N.D.H. Munroe, **"*Ground Water Contamination in Florida and its Influence on Future Supply"***, FIU - Water Wars Seminar, Miami, Florida, February 27, 1995.
122. N.D.H. Munroe***, "Aluminosilicate Refractory Grogs"***, International Congress on Metallurgy and Materials Technology, Sao Paulo, Brazil, Proceedings of the International Congress on Metallurgy and Materials Technology, 1994, Vol. 9, pp. 427 - 438.
123. M.Z.C. Hu, R.E. Ihli, G.F. Bloomingburg, J.M. Norman, N.D.H. Munroe, R. Williams and B.D. Faison, "***Biosorption and Biotransformation of Uranium by Pseudomonas Aeruginosa CSU"***, Annual Meeting, Society of Industrial Microbiology, Boston, Massachusetts, July 30 - August 4,

1994. (poster)

124. N.D.H. Munroe, J. D. Bonner, R. Williams, K. E. Pattison, J. M. Norman, and B. D. Faison, ***"A Binding of Dissolved Uranium by Pseudomonas Aeruginosa CSU"***, 15th Symposium on Biotechnology for Fuels and Chemicals, Colorado Springs, Colorado, May 10-14, 1993,.
125. N.D.H. Munroe, ***"Uranyl Ion Interaction with Membranes of Pseudomonas Aeruginosa"***, Proceedings of the 3rd Annual WERC Technology Development Conference, April, 1993.
126. N.D.H. Munroe, ***"Numerical and Experimental Simulation of Particulate Flash Reaction Systems"***, ASME Annual Meeting Heat Transfer in Fire and Combustion Systems, Atlanta, Georgia, 1993, ASME, HTD - Vol. 250.
127. N.D.H. Munroe, **"*Air Pollution Control Technology*"**, El-Tabbin Institute of Metallurgical Studies, Cairo, Egypt, May 16, 1992.
128. N.D.H. Munroe and N. J. Themelis, **"*Effect of Process Parameters on Flash Smelting of Copper Concentrates*"**, AIME Annual Meeting, Denver, Colorado, February 1987.
129. N.D.H. Munroe, **"*A Mineral Processing Laboratory for Guyana*"**, United Nations TOKTEN Report for the Guyana Geology and Mines Commission, United Nations Development Program, 1986.
130. N.D.H. Munroe, **"*Factors Affecting the Production of Gold"***, Guyana Geology and Mines Commission, Georgetown, Guyana, 1986.
131. N.J. Themelis, J.K. Makinen, and N.D.H. Munroe**",** Physical Chemistry of Extractive Metallurgy, Ed. V. Kudryk and Y.K. Rao, Conference Proceedings, AIME, 1985.

POSTER PRESENTATIONS

1. Elnaz Mirtaheri and Norman Munroe, ***"Improving biocompatibility of a magnesium stent alloy using a polymer coating***" Poster presented at the Biointerface Symposium, Minneapolis, Oct. 3-5, 2016.
2. Elnaz Mirtaheri and Norman Munroe, "***Effect of Anodization on Platelet Adhesion of Polymer Coated MZC***", Poster presented at the GSAW2016 Scholarly Forum, FIU, 2016.
3. Elnaz Mirtaheri and Norman Munroe, "***Effect of Anodization on Platelet Adhesion of Polymer Coated Mg-1ZnCa Alloy***", Poster presented at the Florida State Graduate Research Symposium, 2016.
4. A. Bhat; under supervison by **N. Munroe**, S. Ramaswamy, M. Dugrot and C. Pulletikurthi, "***Thrombogenic Assessment of Nitinol Alloys and their Hemocompatibility***", 2nd Place winner, Florida State Science Fair, March, 2013.
5. P. Gill, N. Munroe, A. Dayte, R. Dua, S. Ramaswamy, "***Mechanical and Biocompatibility Studies of Biodegradable Alloys"***. NanoFlorida Sept 30-Oct 1, 2011, Miami, Florida.
6. S. Amruthaluri, N. Munroe, P. Gill, C. Pulletikurthi, ***"Biodegradable Polymer Coated Metal Alloys for Cardiovascular Applications"***. NanoFlorida Sept 30-Oct 1, 2011, Miami, Florida.
7. P. Gill, N. Munroe, A. Datye, **"*Corrosion susceptibility of magnesium based biodegradable alloys in simulated physiological solutions*"**. MS&T, Oct 16-20, 2011, Columbus, Ohio.
8. P. Gill, N. Munroe, A. Datye, R. Dua, S. Ramaswamy, **"*Corrosion Resistance and Cytotoxicity of Degradable Metallic Implants for Orthopedic Applications*"**. MS&T, Oct 16-20, 2011, Columbus, Ohio.
9. S. Akar, V. Tek, A. Bange, L. Lagos, P. Gill, N. Munroe, T. Thundat, "***Development of a Phosphate Biosensor for Soil and Groundwater***". WM2010 Conference, March 7-11, 2010, Phoenix, AZ.
10. Puneet Gill, Norman Munroe, Smit Pandya, Ebony Daniels, **"*Research on Biodegradable Mg alloys for biomedical applications*"** 140th Annual Meeting & Exhibition, TMS 2011, San Diego, California.

11. S. Pandya, N. Munroe, P. Gill, E. Daniels, "***Assessment of Surface Treatments on the Biocompatibility and Corrosion of Ti Alloys for Orthopedic Application*****"** TMS 2011, Feb 27-Mar 3, San Diego, California.
12. C. Pulletkurthi, N. Munroe, P. Gill, D. Persaud, "***Correlation between porous Nitinol implant surface characteristics and osteoblast cell proliferation*****"**, TMS 2011, Feb 27-Mar 3, San Diego, California.
13. S. Pandya, N Munroe, C. Pulletikurthi, P.K.S. Gill, D. Persaud, "***A Comparative Assessment of Corrosion Resistance and Biocompatibility of Ti-Ta Alloys for Orthopedic Implants",*** Surfaces in Biomaterials Foundation, Biointerface, Oct.18-20, 2010, Atlanta, GA.
14. P. Gill, N. Munroe, C. Pulletikurthi, D. Persaud, S. Pandya, S. Amruthaluri, "***Biocompatibility of Surface Treated Ti-Ta Alloy****",* Surfaces in Biomaterials Foundation, Biointerface, Oct. 18-20, 2010, Atlanta, GA.
15. D. Persaud, N. Munroe, S. Pandya, P.S. Gill, and C. Pulletikurthi, **"*Determination of the Mechanical Properties of Ternary Nitinol Alloys"***, Surfaces in Biomaterials Foundation, Biointerface, Oct. 18-20, 2010, Atlanta, GA.
16. W. Haider, N. D. Munroe, P. K. S. Gill, C. Pulletikurthi, S. Pandya, "***Effect of Surface Treatments on Localized Corrosion Behavior of Nitinol alloys*****"**, Society For Biomaterials, Annual Meeting and Exposition: Where Materials Meet Biology, April 21-24, 2010, Seattle, Washington
17. W. Haider, N. Munroe, P. K. Singh Gill, V. Tek, C. Pulletikurthi, S. Pandya**, "*A Comparison of Corrosion Resistance of Untreated and Treated Nitinol Alloys*"**, *ASME 2009 International Mechanical Engineering Congress and Exposition (IMECE)*, November 13-19, 2009, Lake Buena Vista, Florida.
18. W. Haider, N. Munroe, V. Tek, A. J. McGoron C. Pulletikurthi, P. K. Singh Gill, S. Pandya, ***"Corrosion Resistance and Surface Analysis of Treated Nitinol Alloys"***, *Biointerface***,** October 26-28, 2009, San Mateo, California.
19. W. Haider, N. Munroe, C. Pulletikurthi, P. K. S. Gill**, "*Corrosion Assessment of NiTi and NiTiTa*"**, *NSF CMMI Research and Innovation Conference*, June 22-25, 2009, Honolulu, Hawaii.
20. P. K. Gill, N. Munroe, S. Amruthaluri, C. Pulletikurthi, W. Haider, "***MWCNT Reinforced Metal Matrix Composite*****"**, *TMS Annual Meeting & Exhibition*, February 15-19, 2009, San Francisco, California.
21. S. Amruthaluri, N. Munroe, P. K. Gill, C. Pulletikurthi, W. Haider, "***Fabrication of Highly Conductive Cu-Ag-Ni-MWCNT Composite*****"**, *TMS Annual Meeting & Exhibition*, February 15-19, 2009, San Francisco, California.

PATENTS & INVENTION DISCLOSURE

1. ***Munroe, N and Okafor, C, "Ultra-light non-RE Mg-Li alloys with uniform degradation" Patent Invention disclosure submitted.***
2. **Munroe et. al. "*A novel trap accessory that reduces bycatch and marine debris while improving lost trap recovery in the Florida spiny lobster fishery",*** Track Code: D2021-0075
3. **Munroe et al.** "***A method of alloying and surface treatment of Nitinol to minimize platelet adhesion on blood contacting devices***". **Provisional Patent Serial No. 61/987,848**.
4. **Munroe et al. Patent No. US 10,046,094 B1 "*Polymer coated biodegradable stent and methods of use".***

Events and Outreach Presentations

- Panelist for Webinar entitled**, "*Caribbean Energy 2024: Prospects, Challenges and Opportunities for Oil - Gas, Renewables and Environment***, LACC/CPC Caribbean Policy Series, Co-sponsored by the Caribbean Policy Consortium, April 24, 2024.
- Panelist for Webinar entitled, "***Is there a roadmap for Regional Energy Cooperation and Energy Transition for the Southern Caribbean Energy Mix?",*** LACC/CPC Caribbean Policy Series. Co-sponsored by the Caribbean Policy Consortium, March 30, 2023.
- Panelist for Webinar entitled, ***"The role of Oil and Gas in the Caribbean",*** The University of the West Indies (The UWI), Diplomatic Academy of the Caribbean (DAOC), Online Training Module, Energy Diplomacy: Foreign and Security Policy Contexts in the Caribbean, August 2-5, 2022
- Panelist for Webinar entitled, ***"Southern Caribbean Energy Matrix – Regional Push for Renewable Energy",*** March 4, 2021.
- Panelist for Webinar entitled, ***"The United States and the Caribbean: New opportunities for Strategic Engagement",*** Climate Resilience: Challenges and Opportunities, September 9, 2021.

INDUSTRY TECHNICAL REPORTS

1. Experimental and Computational Analysis of Novel Electrode Materials for Fuel Cells.
2. Testing and Analysis of Coal Burning Catalyst.
3. Dielectric Measurement of Poco Graphite Composites for Nuclear Electric Propulsion Applications.
4. Solvent based enhanced oil recovery for in-situ upgrading of heavy oil sands.
5. Assessment and Characterization of the firing pin of the Glock Firearm.
6. Wind Effects on PV Panels Mounted on Roofs.
7. Optimized Positioning of Polymer Coated Photovoltaic Panels for Residential Roofs.
8. Corrosion Assessment of the Chains from the Waste Water Treatment Plant.
9. Assessment of Failure Mechanism of Parkson's HIOX RF Welded Panels.

ENVIRONMENTAL TECHNICAL REPORTS

1. Remedial Action work Plan and environmental Site Assessment of service station located 8701 Ditmas Avenue, Brooklyn, New York.
2. Closure after remediation of soil & groundwater at LL Auto Repair Inc. 129 34th Street, Brooklyn, New York.
3. Remediation of soil & groundwater at service station located at 145-15 Rockaway, Blvd. South Ozone Park, New York.
4. Closure after Remediation of soil & groundwater contamination at City Gas Station, 94-02 111th St. Richmond Hill, New York.
5. Remediation of soil & groundwater contamination at Service Station located at 20 Sheridan Blvd. Inwood.

6. Remediation of soil & groundwater contamination at Service Station at 2409 Victory Blvd., Staten Island.
7. Remediation of soil & groundwater contamination at Gulf Service station ay 2317 Ralph Avenue, Brooklyn, New York.
8. Remediation of soil & groundwater contamination at Liberty Service Station, 2469 Randall Avenue, Bronx, New York.
9. Remediation of soil & groundwater contamination at Americo Service Station, 292 Neptune Avenue, Brooklyn, New York.
10. Remediation of soil & groundwater contamination at 295 Auto Truck Plaza, Exit 7 295S, Pedricktown, Oldsman County, NJ.
11. Remediation of soil & groundwater contamination at Emporium Service Station, 354 Hamilton Avenue, Brooklyn New York.
12. Remediation of soil & groundwater contamination at Getty Service Station, 1081Leggett Avenue, Bronx, New York.
13. Closure after Remediation of soil & groundwater contamination at Clean Touch Car Wash/Quick Lube, 2111 Hylan Blvd. Staten Island, NY 10306.
14. Remediation of soil & groundwater contamination at City Gas Station, 20 Sheridan Blvd. Inwood, NY.
15. Remediation of groundwater contamination at Pazak's Service Station, 3021 Route 23, West Milford, NJ.
16. Tank Closure for Former Unico Service Station, 76-09 Main St. Flushing N.Y.
17. Tank Closure for Former Mobil Service Station 17-FK3, 1097 Bedford Avenue, Brooklyn, New York.
18. Tank Closure at Liberty Plaza, 165 Broadway, N.Y., N.Y. for Olympia & York Companies, USA.
19. Tank Closure at 38-25 21st Street, Long Island City for Mr. Peter Lupoli of Administrator, CTA of 160-16 14th Avenue, Whitestone, New York.
20. **Over 70 Contaminant Assessment Reports and Remedial Action Work Plans** for service stations in New York City.
21. **Over 70 Phases 1and II Environmental Site Assessments,** of sites in New York and Florida.
22. **Over 100 Asbestos Surveys reports** for sites in New York and Florida.

MUTEC TAPES AND ELECTRONIC LECTURE NOTES

1. Three-2 hour tapes on Materials in Engineering located in the audio-visual section of the library.

2. Three chapters of Electronic Lecture Notes (ELNs) on Statics placed on the university network

3. Four chapters of Electronic Lecture Notes (ELNs) on Materials in Engineering placed on the university network

RESEARCH FUNDING

Agency	Brief Topic/ Title	PI	Co-PI's	Amount	No. of Years	Funded/ Declined
United Nations 1986	Design and Implementation of a Mineral Processing Laboratory in Guyana	✓		6,000	1	Funded

Agency	Brief Topic/ Title	PI	Co-PI's	Amount	No. of Years	Funded/ Declined
DOE 1992	Gear UP South Central Miami-Dade/ FIU		✓	10,733,853	6	Declined
Clark Atlanta/USAID 1992	Advanced Training in Water and Air Quality Measurements and Instrumental Analysis		✓	14,000	1	Funded
USEPA 1992-1993	Outreach in Environmental Restoration and Waste Management to Minority, Communities		✓	5,250	1	Funded
NSF 1993	CSEMS Program		✓	220,000	2	Declined
Int. Lead Zinc Research Org. Inc. 1994	Performance of Galvanized Steel in Concrete in Tropics		✓	35,080	1	Declined
DOE/AWU 1994-1995	MIC in Metallic Materials	✓		60,000	1	Funded
FIU 1994-1995	MIC of Al Alloys	✓		16,000	N/A	Declined
NASA 1993-1996	Theory of the Motion of Meteor Particles in Solid Materials	✓		220,000	3	Funded
Naval Research 1995-1996	Soln. Crystal Growth of GaN		✓	250,000	3	Declined
NSF 1992-1996	An Experimental/Numerical Investigation of Double Diffusive Convection During Solidification		✓	447,232	4	Funded
US ARMY 1993-1994	Acquisition of a 200kV Transmission Electron Microscope		✓	490,000	1	Funded
USEPA 1994-1995	Outreach to the High-Risk Population for Environmental Equity	✓		8,180	1	Funded
USEPA 1995-1996	Environmental Justice for the High-Risk Population-Community Outreach Initiative	✓		19,377	1	Funded
US DOE 1995-1998	Microwave Combustion and Sintering Without Iso-static Pressure	✓		350,000	3	Funded
US Dept. of Education 1995-1998	Increasing the Number of Minority Students into the Pipeline for Engineering Majors	✓		300,000	3	Funded
USDOE 1999-2001	Large Scale Demonstration Project-Item No. 5		✓	42,623	1	Funded
USDOE 1999-2001	Large Scale Demonstration Project-Item No. 2		✓	34,109	1	Funded
FIU FOUNDATION 1998	Development of porous Nitinol materials by mechanical alloying-microwave sintering	✓		14,000	1	Funded
DOE/INEEL – USDOE 1998-1999	Microbially Induced Corrosion of Aluminum Clad Spent Nuclear Fuel Containers	✓		60,000	1	Funded
Bio-Nucleonic 2001 -2002	Corrosion of electro-polishing of NiTi	✓		27,500	2	Funded
Gas Technologies Inst. 2003-2004	Experimental and Computational Analysis of Novel Electrode Materials for Fuel Cells	✓		35,000	2	Funded

Agency	Brief Topic/ Title	PI	Co-PI's	Amount	No. of Years	Funded/ Declined
Gas Technologies Inst.2004-2005	Microbial Induced Corrosion/Corrosion Resistant Coatings	✓		30,000	2	Funded
NASA/Tuskegee Univ. 2003-2005	Dielectric Measurement of Poco Graphite composites for Nuclear Electric Propulsion Applications	✓		3,000	1	Funded
NSF 2003-2004	MRI: Acquisition of a Scanning Transmission Electron Microscope for Multi-Disciplinary Nanomaterials Research and Education		✓	489,505	1	Declined
P&G 2003-2004	Product Development: Concept-To-Design-To-Market	✓		300,00	3	Declined
DOE 2004-2005	EDRC Proposal		✓	250,000	1	Awarded
NSF 2005	Acquisition of a High-Resolution FEG STEM		✓	1,170,000	1	Declined
NSF 2006-2008	Novel Material Synthesis, Characterization & Processing		✓	10,604,735		Declined
NOAA 2005-2007	Improvement of the Environmental Condition of Florida's Most Polluted Urban Tidal Waterway		✓	300,000	2	Funded
Ronald E. McNair Post Bac. 2005-2006	Dielectric Properties of Glucose – A Precursor for the Development of a Non-Invasive Diabetic Monitor	✓		6,000	1	Funded
NIST-Advanced Technology Program 2004-2005	Development of a Neutron Generator		✓	2,000,000	3	Declined
Army Office of Research 2005-2007	Techniques for Securing Large Scale Resource Limited Sensors: Key revocation and Beyond,		✓	458,674	3	Declined
Oceanic & Atmospheric Research, NOAA 2004-2007	Economic and Environmental Impact Assessment of Industries along Miami River as it affects Biscayne Bay		✓	500,000	2	Declined
NSF 2007-2009	Design, Fabrication and Modeling of High Power Density Direct Methanol Fuel Cells Based on Novel Polymer Electrolyte Membranes		✓	300,000	2	Declined
DOE 2007-2009	21st Century Workforce Development Initiative for DOE Environmental Cleanup		✓	3,000,000	3	Funded
DOD 2005-2006	DURIP Grant Proposal: Acquisition of MicroRaman Spectroscopy System for In-Situ Characterization of Nano Materials and Devices		✓	355,918	1	Declined
DOD 2006-2007	Acquisition of instruments to establish a capacity in Nanoimprinting of New Materials and devices		✓	1,000,000	1	Funded

Agency	Brief Topic/ Title	PI	Co-PI's	Amount	No. of Years	Funded/ Declined
DOD PET/U. Mississippi 2006-2007	Development of code for modeling of fuel cell		✓			
NSF 2007-2008	MRI: Acquisition of a Nanoimprinting System for Research and Education		✓	477,800	1	Declined
NSF 2008-2010	Design, Fabrication and Modeling of High Power Density DMFCs Based on Novel Polymer Electrolyte Membranes		✓	253,039	2	Declined
NSF 2007-2009	Molten salt based direct carbon fuel cell with controlled salt inventory	✓		300,000	2	Declined
NSF 2008-2009	Studies of Carbon Oxidation In a Direct Carbon Fuel Cell		✓	200,000	2	Declined
NIH 2008-2012	Enhanced Biocompatibility of NiTi via Surface Treatment and Alloying	✓		420,000	4	Funded
FDOT 2008-2010	Process Development for Rapid Hydration of Mineral Slurries for Drilled Shaft Applications	✓		202,947	2	Declined
China Private Source 2008-2009	Testing and Analysis of Coal Burning Catalyst	✓		13,500	1	Funded
VTEQE, Inc. 2007-2008	OrganiCide-Colloidal Remediation System, Related Catalysts, and Methodology of Operation	✓		8,000	1	Funded
DOE-NETL 2006-2009	Solvent based enhanced oil recovery for in-situ upgrading of heavy oil sands	✓		200,000	3	Funded
ICA-CIMAT, TEK 2008-2009	The Path to Superconducting Copper-Matrix Composites	✓		100,000	1	Declined
NSF/CREST 2006-2007	Development of New Simulation Software for Advanced Energy Research		✓	100,000	1	Funded
FIU 2006-2007	Application of Nanotechnology for Catalyst Deposition in PEM Fuel Cells	✓		5,000	1	Declined
DOE 2008-2010	Hybrid Multifunctional Wind Energy Systems		✓	347,817	2	Declined
DOD 2006-2009	Membrane Electrode Assembly of a circular Micro Fuel Cell Uniot for High-Power Density Power Sources of Battle –Field Soldiers	✓		400,000	3	Declined
DOE/NETL 2010-2013	Identification of Cluster Formations in Fluidized Beds using High Speed Shadow-sizing Imaging Techniques		✓	177,100	3	Declined
U.S. Green Tech Energy 2010	A Feasibility Study of the Development of Solar Energy Enterprise		✓	-	1	Declined
USDA 2009-2012	Expanding Agro-energy Opportunities by Curriculum Development and Experiential Learning	✓		500,000	2	Declined

Agency	Brief Topic/ Title	PI	Co-PI's	Amount	No. of Years	Funded/ Declined
NIH 2010-2012	ARRA-Administrative Supplement Enhanced Biocompatibility of NiTi via Surface Treatment and Alloying	✓		200,000	2	Declined
USDA-DOE	Sustainable Biofuel Production from *Jatropha curcas* – From Farm to Fuel		✓	3,287,000		Declined
State of Florida DEM 2009-2010	Wind Effects on PV Panels Mounted on Roofs	✓		$51,000	1	Funded
DOE 2010-2012	Solar Cooling Employing a Novel Jet Ejector Refrigeration System Combined with Spectral Service Coatings	✓		400,000	3	Declined
NSF 2010-2012	Aluminum based BMG Coatings for Improved Corrosion and Wear Protection		✓	300,000	3	Declined
NSF-IGERT 2010-2013	Increasing Diversity in Interdisciplinary Research for Energy Conversion		✓	300,000	3	Declined
State of Florida DEM 2010-2011	Optimized Positioning of Polymer Coated Photovoltaic Panels for Residential Roofs	✓		100,000	1	Declined
NSF 2010-2013	REU Site Energy Storage and Functional materials		✓	339,000	3	Declined
DOD 2008-2010	Western Hemisphere Information Exchange Program (WHIX-07 & 08)	✓		4,000,000	2	Funded
FDOT 2011-2012	Improved Inspection Techniques for Steel Prestressing/Post Tensioning Strands		✓	102,000	1	Funded
State of Florida DEM 2010-20111	PHASE I: 6-fan WoW Based Development of New Knowledge and Mitigation Techniques for Roof-Top Equipment and Roof- and Ground-Mounted Solar Panels		✓	$250,000	1	Funded
DOE-NETL 2012-2014	Development of a Two-fluid Drag Law for Clustered Particles Using Direct Numerical Simulation and Validation through Experiments		✓	$200,000	3	Funded
FIU-RESEED 2011-2012	Evaluation of Explanted Prosthesis for Development of a Failure Analysis Protocol	✓		$15,000	1	Funded
DOD 2011-2014	Development of a High Power Density Solid Oxide Fuel Cell with Advanced Electrochemical Promotion Catalysts	✓		$609,000	3	Declined
NSF 2013-2014	Implantable Venous Access Devices		✓	300,000	2	Declined
City of Coral Gables Police Department 2013-2014	Assessment and Characterization of the firing pin of the Glock Firearm	✓		$4,500	1	Funded
Parkson Corp. 2013-2014	Corrosion Assessment of the Chains from the Waste Water Treatment Plant	✓		$13,500	1	Funded
FIU 2013 -2014	Enhanced Engineering Capstone Writing	✓		$10,000	1	Funded

Agency	Brief Topic/ Title	PI	Co-PI's	Amount	No. of Years	Funded/ Declined
MDC Dept. of Cultural Affairs 2014-2015	Miami Prep Summer Program (Pre-college Enrichment and Preparation	✓		$20,000	1	Funded
Army/DOD 2014-2015	2014-2015 UNITE Summer Program	✓		$32,000	1	Funded
USDOT 2014-2015	National Summer Transportation Program	✓		$45,000	1	Funded
NACME 2014-2015	NACME Initiative at Florida International University	✓		$37,000	1	Funded
Children's Thrust 2014-2015	FIU ENLACE Miami 2013-2014	✓		$454,679	1	Funded
Miami-Dade County Public School 2014-2015	Florida Minorities in Engineering (FLAME) 2013-2014	✓		$45,997	1	Funded
UCF 2013-2014	2013-2014 Hybrid Rocket	✓		$1,059	1	Funded
FAMU 2013-2014	Florida International University Florida Georgia Louis Stokes Alliance for Minority Participation	✓		$96 ,000	1	Funded
Parkson Corp. 2014-2014	Assessment of Failure Mechanism of Parkson's HIOX RF Welded Panels	✓		$13,500	1	Funded
DHS 2014-2015	Fundamental chemistry/thermodynamic studies of oxides to understand and predict their characteristics	✓		$598,770	2	Pending
NASA	Collaborative Effort for Professional Development of STEM Educators through Aviation and Aerospace	✓		$15M	3	Declined
DoE	FIU GEAR UP South Florida Empowerment Zone	✓		$10.5M	7	Declined
NSF 2015 -2017	REU Site: Solar Energy Systems for Integration in Buildings		✓	$301,001	2	Declined
NACME 2015-2016	NACME Initiative at Florida International University	✓		$60,500	1	Awarded
DOD –UNITE 2015	2015 Unite Summer Camp Program	✓		$42,312	1	Awarded
UCF 2015	NASA Hybrid Rocket	✓		$1,200	1	Awarded
Miami-Dade County Cultural Affairs 2014	Summer Arts & Science Camp (SAS-C)	✓		$19,284	1	Awarded
FDOT 2014	National Summer Transportation Institute	✓		$5,860	1	Awarded
Staples Foundation 2015	MiamiPrep STEM Summer Camp	✓		$3,500	1	Awarded
FDOT 2015	National Summer Transportation Institute	✓		$38,517	1	Awarded
Miami-Dade County Cultural Affairs 2015	Summer Arts & Science Camp (SAS-C)	✓		$30,000	1	Awarded

Agency	Brief Topic/ Title	PI	Co-PI's	Amount	No. of Years	Funded/ Declined
FDOT 2016	National Summer Transportation Institute	✓		$21,626	1	Awarded
UCF 2015	NASA Hybrid Rocket	✓		$1,500	1	Awarded
Miami-Dade County Cultural Affairs 2016	Summer Arts & Science Camp (SAS-C)	✓		$14,850	1	Awarded
Children's Thrust 2015-2016	FIU ENLACE Miami 2013-2014	✓		$512,493	1	Funded
Miami-Dade County Cultural Affairs 2017	Summer Arts & Science Camp (SAS-C)	✓		$22,480	1	Awarded
FAMU 2015-2016	Florida International University Florida Georgia Louis Stokes Alliance for Minority Participation	✓		$95 ,500	1	Funded
NACME 2016-2017	NACME Initiative at Florida International University	✓		$87,500	1	Awarded
Children's Trust 2017	MiamiPrep Career and Technical Education Summer Program	✓		$201,316	1	Declined
NSF 2016	Nanosystems Engineering Research Center for Direct Multiscale Assembly of Cellular Metamaterials with Nanoscale Precision: CELL-MET			$19,750,000*	5	Awarded
NSF 2016	Precise Advanced Technologies and Health Systems for Underserved Populations-PATHS-UP			$20,000,000*	5	Awarded
NSF 2016	Center for Autonomic Neural Engineering (CANE)			$20,000,000*		Declined
UAE 2017	Distributed, Grid-Tied Solar System (2 MW) with a hybrid, pilot 40 kW gas/grid tie solar system at University of Guyana, Turkeyen Campus	✓		$7,000,000	3	Declined
Honeywell FMT, LLC 2019	Corrosion Behavior of 3-D Printed Stainless Steels		✓	$65,000	1	Awarded
Honeywell International, Inc. 2021	Corrosion Analysis Collaboration with Florida International University		✓	$60,000	1	Awarded
Florida Sea Grant FSG 2022-2024	A novel trap accessory that reduces bycatch and marine debris while improving lost trap recovery in the Florida spiny lobster fishery		✓	$200,000	2	Awarded
US DOD 2024 -2029	Center for Integrated Renewable Energy and Energy Storage (CIREES)"		✓	$10,000,000	5	Awarded

*FIU's portion ~$250K for 5 years

EQUIPMENT DONATION

Donation of a High Temperature Furnace to the Advanced Materials and Engineering Research Institute (AMERI) in the College of Engineering from the Materials and Manufacturing Directorate Air Force

Research Laboratory and Florida International University.

REFERENCES

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