

DOE-FIU Cooperative Agreement Annual Research Review – FIU Year 2

| Tuesday, September 27, 2022 | | |
|-------------------------------|--|--|
| 9:30 - 9:35 am EDT | Kick-Off /Welcoming Remarks (DOE-EM) | Kurt Gerdes (Director, Technology Development) – DOE EM-3.2 |
| 9:35 - 9:40 am EDT | Welcoming Remarks (DOE-LM) | Leonel Lagos on behalf of DOE Office of Legacy Management |
| 9:40 - 10:00 am EDT | Projects 4 & 5: STEM Workforce Development and Training | FIU, DOE HQ (EM & LM), SRNL, PNNL, WIPP, SRS, ORP, LBNL, WRPS, INL, Grand Junction |
| BREAK | | |
| 11:00 - 12:00 pm EDT | Projects 4 & 5 (cont'd): STEM Workforce Development and Training | FIU, DOE HQ (EM & LM), SRNL, PNNL, WIPP, SRS, ORP, LBNL, WRPS, INL, Grand Junction |
| BREAK | | |
| 1:00 - 2:30 pm EDT | Project 1: Chemical Process Alternatives for Radioactive Waste | FIU, DOE HQ, PNNL, WRPS, SRNL, SRS |
| 2:30 - 4:00 pm EDT | Project 3: Waste and D&D Engineering & Technology Development | FIU, DOE HQ, SRNL, PNNL, LBNL, INL, ANL |
| Wednesday, September 28, 2022 | | |
| 10:00 - 11:30 am EDT | Project 2: Environmental Remediation Science & Technology | FIU, DOE HQ, SRNL, PNNL, ORNL, LANL, CBFO |
| 11:30 - 1:00 pm EDT | Wrap Up (FIU Projects 1, 2, 3, 4 & 5) | FIU, DOE HQ (EM & LM) |

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DOE-FIU Cooperative Agreement Annual Research Review – FIU Year 2

PROJECT 4

DOE-FIU Science & Technology Workforce Development Initiative

PROJECT 5

Long-Term Stewardship of Environmental Remedies: Contaminated Soils and Water and STEM Workforce Development

Worlds
Ahead

Advancing the research and academic mission of Florida International University

FIU Personnel and Collaborators

Program Director: Leonel Lagos

Program Manager: Ravi Gudavalli

FIU Faculty/Staff: Walter Quintero, Clint Miller, Angelique Lawrence, Anthony Abrahao, Pieter Hazenberg

DOE-EM Fellows: Angel Almaguer, Aubrey Litzinger, Aurelien Meray, Brendon Cintas, Caridad Estrada, Christian Dau, Christian Gonzalez Lopez*, Daniel Martin*, David Maren*, Desmond Sinnott, Gisselle Gutierrez*, Jeff Natividad*, Joel Adams, Josue Estrada Martinez, Juan Morales*, Juana Perucina*, Karina Hernandez*, Mariah Doughman, Nicholas Espinal, Oscar Roa*, Philip Moore, Phuong Pham*, Raymond Piloto*, Roger Boza, Rohan Shanbhag, Sebastian Story, Sebastian Trevino*, Stevens Charles, Thi Tran*

DOE-LM Fellows: Eduardo Rojas*, Olivia Bustillo, Shawn Cameron

DOE-EM: Kurt Gerdes, Mary Ann Maloney, Genia McKinley, Jean Pabon, Junita Turner

DOE-LM: Carmelo Melendez, Jalena Dayvault, David Shafer

DOE National Laboratories, Sites, Contractors

*Former staff/student contributors



Overall Needs:

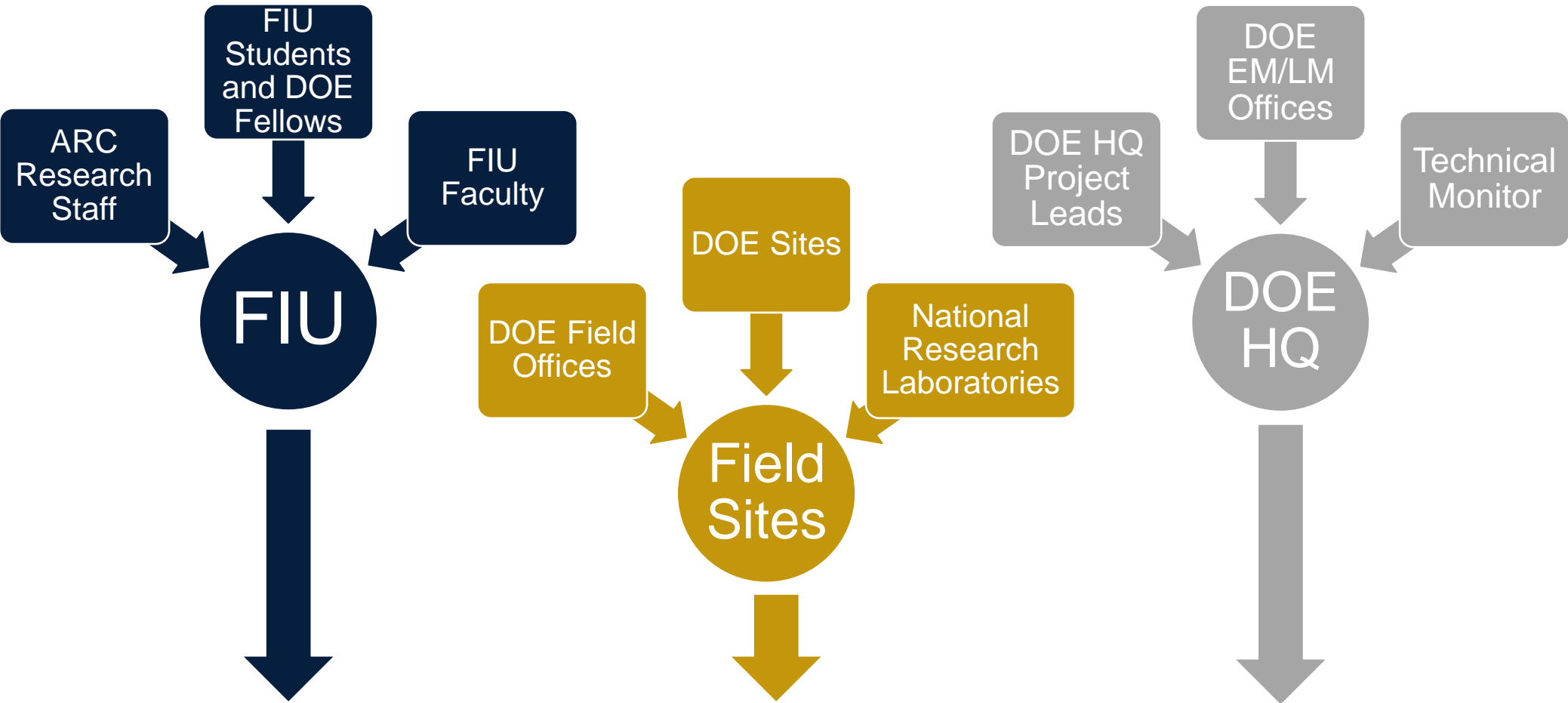
- There is a national need for more careers in science, technology, engineering and mathematics (STEM). The lack of the STEM workforce is felt at the federal government and private industry.

Objectives:

- The DOE-FIU Science and Technology Workforce Development Program has been designed to build upon the existing DOE-FIU relationship by creating a “pipeline” of minority engineers specifically trained and mentored to enter the Department of Energy workforce in technical areas of need.
- The Program provides interested students with a unique opportunity to integrate course work, DOE fieldwork, and “hands on” research at FIU into a well-structured academic program.



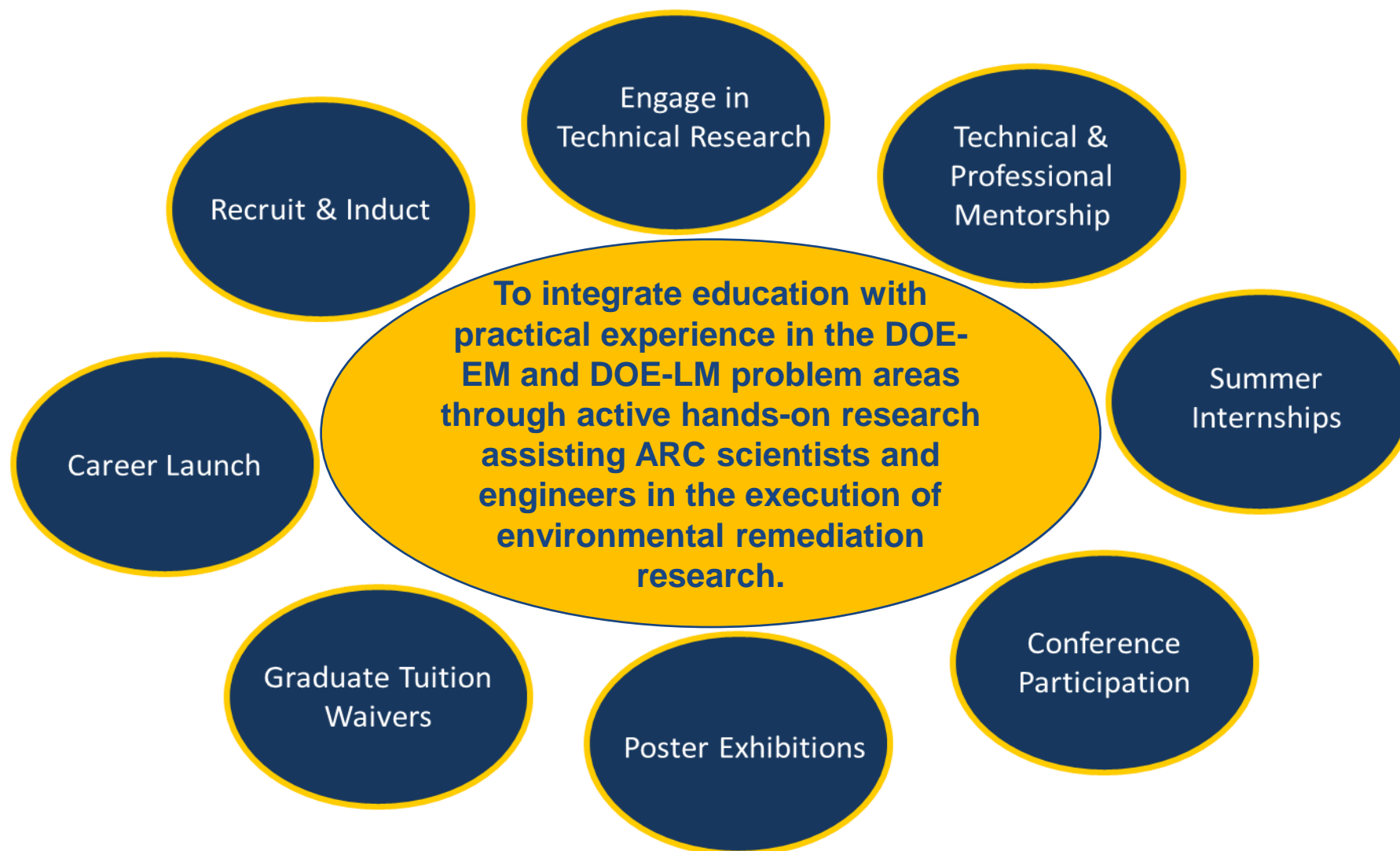
Cooperative Agreement Team



DOE-FIU Cooperative Agreement



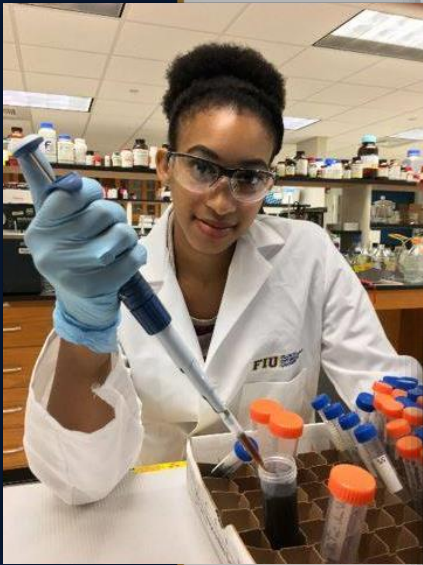
DOE Fellows Program Components



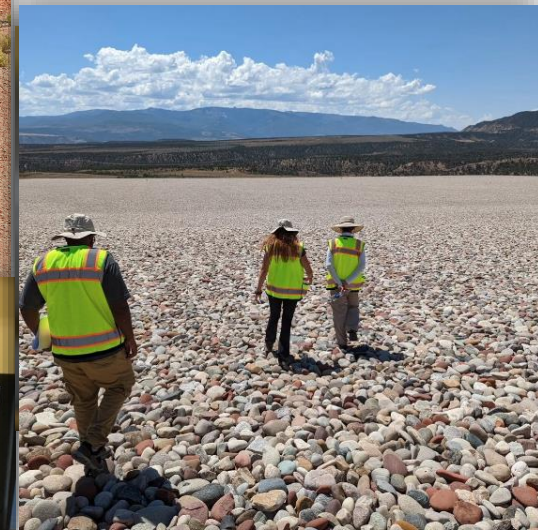
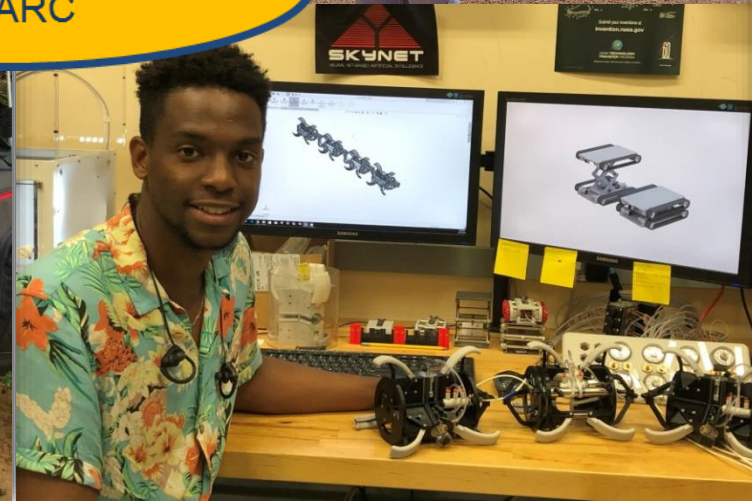
FIU

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Engaging in Technical Research at FIU



20 hours per week at
FIU ARC





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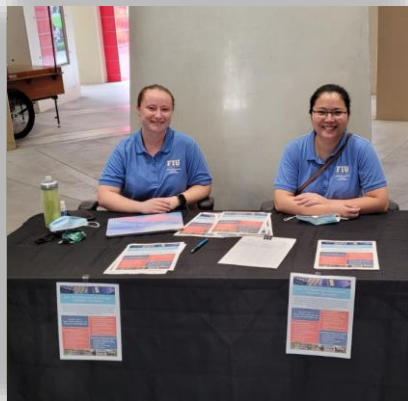
FIU Year 2

Highlights & Accomplishments



FIU Year 2 Highlights & Accomplishments:

- Conducted recruitment campaigns and selected **5** FIU students to join the programs
- **32** Fellows supported FIU scientists and engineers in the development of the technical work
- Conducted introduction ceremony and inducted DOE Fellows Class of 2020 (**12**) and 2021 (**11**)
- **19** summer internships were conducted across the DOE complex, including **1** LM Fellow Internship
- **26** DOE Fellows participated and presented posters during DOE Fellows Poster exhibition



DOE-EM Fellows Introduction Ceremony

Joel Adams
Stevens Charles
Brendon Cintas
Christian Dau
Mariah Doughman
Josue Estrada
Christian Gonzalez Lopez
Phuong Pham
Raymond Piloto
Sebastian Story
Thi Tran

Eduardo Rojas



Newly inducted DOE Fellows (11 EM + 1 LM)

DOE-EM Fellows Introduction Ceremony

Angel Almaguer
Nicholas Espinal
Caridad Estrada
Karina Hernandez
Aubrey Litzinger
Juana Perucina
Oscar Roa
Rohan Shanbhag
Desmond Sinnott
Sebastian Trevino

Shawn Cameron



New DOE Fellows inducted (10 EM + 1 LM),
193 since program inception



Summer 2022 Internship Program (SIP)

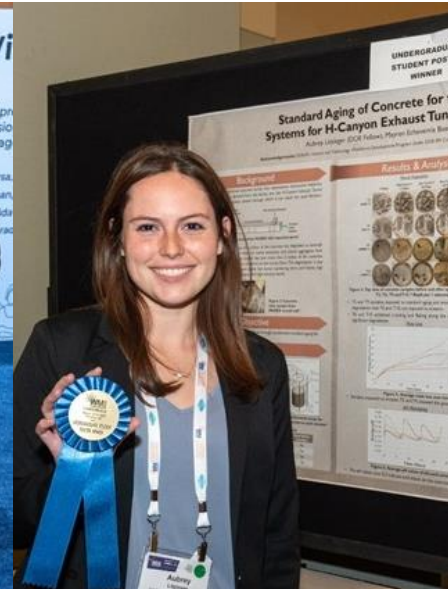
| Name | Location |
|---------------------------|----------------|
| Philip Moore | SRNL |
| Angel Almaguer | Hanford/PNNL |
| Aubrey Litzinger | LANL |
| Aurelien Meray | LBNL |
| Brendon Cintas | SRNL |
| Caridad Estrada | ORNL |
| Christian Dau | SRNL |
| David Marreno | DOE-HQ |
| Desmond Sinnott | SRNL |
| Jeff Natividad† | Oak Ridge/UCOR |
| Joel Adams | Hanford/WRPS |
| Josue Estrada | Hanford/WRPS |
| Mariah Doughman | Hanford/PNNL |
| Philip Moore ⁶ | SRNL |
| Phuong Pham | SRNL |
| Roger Boza* | INL |
| Rohan Shanbhag | Hanford/PNNL |
| Stevens Charles | SRNL |
| Olivia Bustillo | Grand Junction |
| Shawn Cameron | Site visits |



Conference Participation and Presentations

Waste Management 2022 (WM2022) Symposia

- 14 DOE Fellows attended and participated at the WM2022 Symposia.
- 4 DOE Fellows, Aurelien Meray, Caridad Estrada, Marian Doughman and Thi Tran were awarded Roy G. Post foundation scholarships.
- DOE Fellow, Aubrey Litzinger, won the undergraduate student poster competition.
- DOE Fellow, Olivia Bustillo, and former DOE Fellow, Silvina Di Pietro, participated in panel sessions.



Conference Participation and Presentations

- 3 DOE Fellows, Mariah Doughman, Aurelien Meray and Juan Morales, participated virtually in the RemPlex 2021 Global Summit on Environmental Remediation.
 - Juan Morales received the “**best presentation**” award for his outstanding presentation during the Emerging Contaminants session.
- DOE Fellow, Aurelien Meray, presented a poster virtually titled “*PyLEnM: Machine Learning and Analytics Toolkit for Long-term Water Quality Monitoring and Remote Sensing*” at the HyrdoML Symposium.



Building the Pipeline - DOE Fellows Joining the Workforce



Juan Morales
SRNL



Jeff Natividad
WRPS



Phuong Pham
SRNL



Gisselle Gutierrez
Kimley-Horn and
Associates, Inc.

Building the Pipeline - DOE Fellows Joining the Workforce



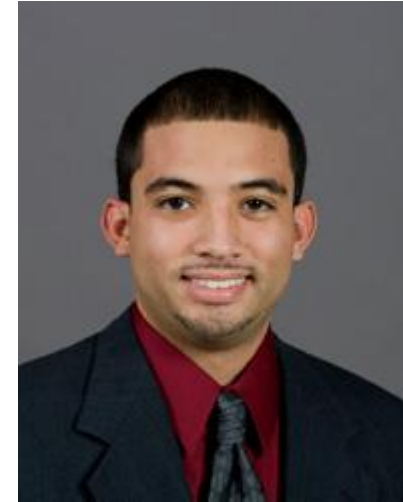
Edgard Espinosa
DOE-HQ



Merlin Ngachin
ANL



Rubymir Romero
Bechtel Power



Lee Brady
DOE-HQ



Duriem Calderin
PNNL

Building the Pipeline - DOE Fellows Joining the Workforce



Charles Castillo
ORNL



Rosa Ramirez
DOE-HQ



Stephen Wood
ORNL



Nicole Anderson
NETL



**Hansell
Gonzales-Raymat**
SRNL



Building the Pipeline - DOE Fellows Joining the Workforce



**Adamandios
Manoussakis
SNL**



**Tristan
Simoes-Ponce
SRNL**



**Silvina
Di Pietro
NNSA/LLNL**

Overall Accomplishments

- **193 FIU STEM** minority students (graduates and undergraduates) have been inducted as DOE Fellows since program inception.
- **16 DOE Fellows** hired throughout the DOE Complex: DOE EM HQ (3), DOE national laboratories (10), NNSA (1), and DOE EM contractors (2).
- **19 Fellows** have been hired by other federal, state or local governments including: Dept. of Defense, NASA, Army Corp of Engineers, Dept. of Commerce, Florida Dept. of Environmental Protection, DERM, Dept. of the Navy (NAVSEA).
- **81 DOE Fellows** graduated FIU with bachelor's or master's degrees and obtained employment in STEM industry.
- **12 DOE Fellows** graduated FIU and pursued graduate STEM degrees at other major Universities (MIT, Virginia Tech, Georgia Tech, Stanford, etc.).
- **18** are still pursuing their respective degrees at FIU and continue to be part of the DOE Fellows Program.
- DOE Fellows graduate FIU and immediately obtain employment with federal government, state/local government and STEM industry in general. The hiring rate upon graduation is approximately 97%.



FIU Year 3 Projected Scope

Active hands-on research assisting ARC scientists/engineers during the execution of DOE-EM research in order to integrate education with practical experience in the DOE-EM problem areas.

- Recruit qualified talented FIU minority STEM students
- Engage in DOE-EM research under the technical projects
- Conduct poster exhibition & competition
- Host DOE Fellows induction ceremony
- Coordinate summer internship program and internship technical reports
- Conference participation & presentations, including WM Symposia, American Nuclear Society, American Geophysical Union (AGU)
- DOE-EM HBCU collaboration/interactions - extend recruitment to include HBCU/MSI students interested in a Ph.D. at FIU
- Work closely with DOE nat. labs to identify opportunities for Ph.D. students including extended work assignments that can lead to post-doctoral positions



Project 5: Long-Term Stewardship of Environmental Remedies: Contaminated Soils and Water and STEM Workforce Development

FIU Year 3 Projected Scope

Active hands-on research assisting ARC scientists/engineers during the execution of DOE-LM research in order to integrate education with practical experience in the DOE-LM problem areas.

- Use of Apatite for Uranium Sequestration at Old Rifle Site
 - Study the mechanism of U removal/sequestration from groundwater by apatite
- Climate Resiliency Studies for Long-Term Surveillance of DOE-LM Sites
 - Development of geophysical survey platform to inspect disposal cells over time will benefit LM in detecting many landfill changes
- STEM Workforce Development
 - Recruit qualified talented FIU minority STEM students
 - Engage in DOE-LM research under the technical projects
 - Conduct poster exhibition & competition
 - Host DOE Fellows induction ceremony
 - Coordinate summer internship program and internship technical reports
 - Conference participation & presentations, including WM Symposia, American Geophysical Union (AGU)





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Upcoming Events Announcement



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DOE Fellows Poster Exhibition



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16th Annual

DOE FELLOWS POSTER EXHIBITION

NOVEMBER 7, 2022

1 pm – 4 pm

FIU ENGINEERING CENTER

PANTHER PIT

A STEM WORKFORCE DEVELOPMENT PROGRAM
SPONSORED BY
THE U.S. DEPARTMENT OF ENERGY

fellows.fiu.edu





Save the Date

DOE-FIU Science & Technology Workforce Development Program's

16th DOE Fellows Induction Ceremony
Annual (Class of 2022)

Host: Applied Research Center, Florida International University

When: Tuesday, November 8, 2022 at 12:00 pm

Where: FIU Modesto Maidique Campus
Graham Center (GC) Ballroom
11200 SW 8th St, Miami, FL 33174



*A collaboration between the U.S. Department of Energy's Office of Environmental Management
and Florida International University's Applied Research Center*



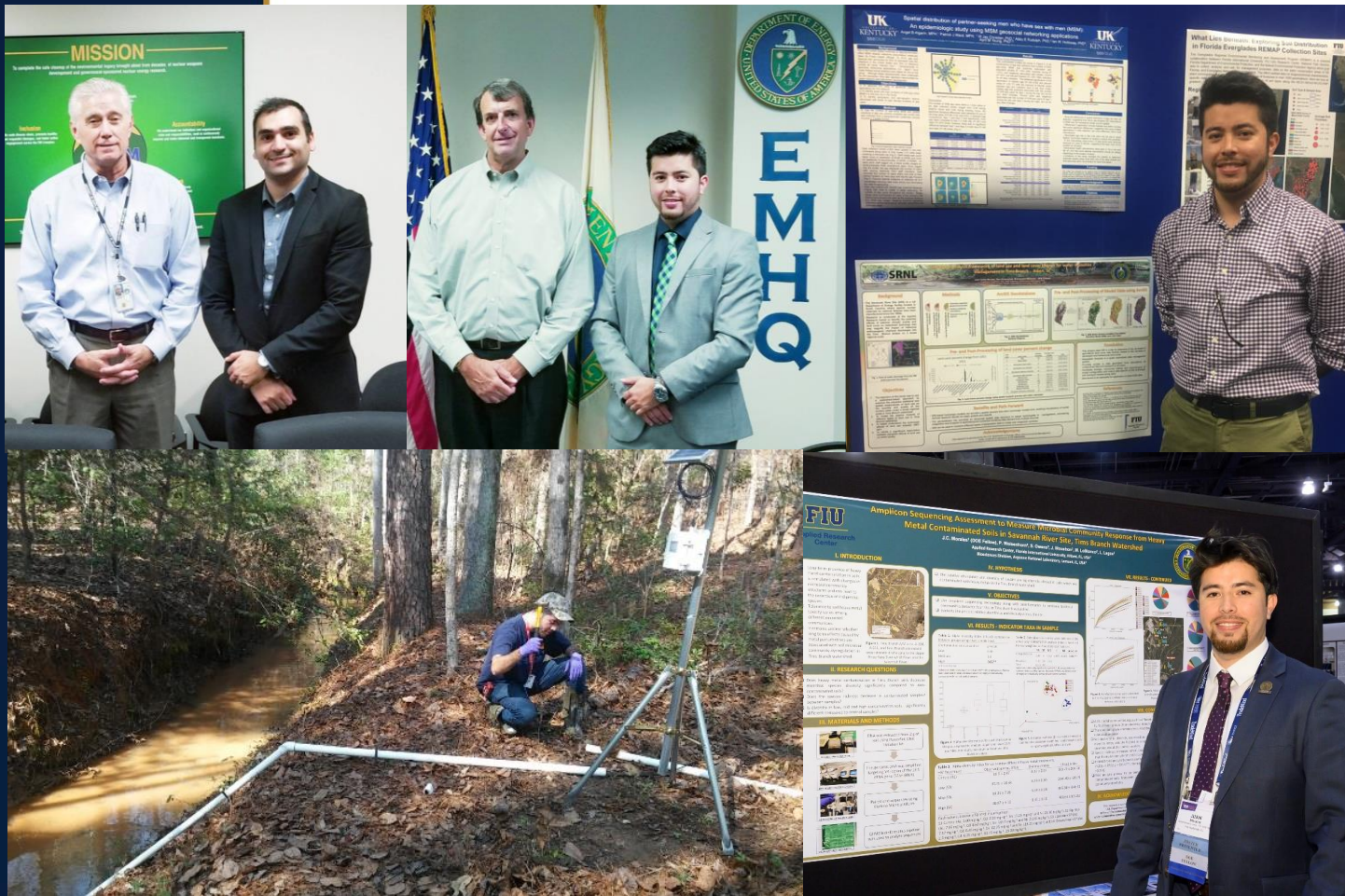


Thank You. Questions?

Juan Morales

Ph.D. Environmental Health Sciences
Postdoctoral Researcher - SRNL

Back up



- Participated in 4 internships at DOE-HQ (2017 & 2018), ANL (2019) & PNNL (2020)
- Presented his research findings at numerous conferences, including the Waste Management Symposia, the American Geophysical Union and RemPlex
- Deployed remote monitoring stations in Tims Branch, SRS for environmental data collection

Joining the Workforce

Phuong Pham
Ph.D. Chemistry
Postdoctoral Researcher - SRNL

Back up



- Studied the effect of environmental factors on iodine attenuation and release at SRS wetlands
- Participated in two internships at SRNL (2021 & 2022)
- Presented her research findings at numerous conferences, including the Waste Management Symposia and the American Chemical Society

Joining the Workforce

Jeff Natividad

M.S. Mechanical Engineering
Mechanical Engineer - WRPS

Back up



- Developed several mobile platforms featuring vertical surface movement capabilities for the application of concrete fixatives within the H-Canyon Exhaust Tunnel at SRNL
- Participated in internships at WRPS (2020 & 2021) and UCOR (2022)
- Presented at Waste Management Symposia and co-authored several papers

Joining the Workforce

Gisselle Gutierrez

M.S. Environmental Engineering
Civil Analyst - Kimley-Horn and Associates, Inc.

Back up



Acquired high-resolution imagery needed to build a high-resolution digital elevation model (DEM) to be used for the development of basin-scale land surface and groundwater models for the Waste Isolation Pilot Plant (WIPP).



Participated in internships at LANL (2021) and WIPP (2020)

Won Roy G. Post Foundation Scholarship