

#### **DOE-FIU Cooperative Agreement Annual Research Review – FIU Year 1**

September 14, 2021		
9:00 - 9:05 am EDT	Kick-Off	Kurt Gerdes (Director, Technology Development) – DOE EM-3.2
9:05 - 9:10 am EDT	Welcoming Remarks (DOE-EM)	Nicole Nelson-Jean (Assoc. Principal Deputy Asst. Secretary for Field Ops) – DOE EM-3
9:10 - 9:15 am EDT	Welcoming Remarks (DOE-LM)	Carmelo Melendez (Director, Office of Legacy Management) – DOE LM-1
9:15 - 10:30 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
10:30 am - 12:00 pm EDT	Project 1: Chemical Process Alternatives for Radioactive Waste	FIU, DOE HQ, PNNL, WRPS, SRNL, SRS
1:30 - 3:00 pm EDT	Project 3: Waste and D&D Engineering & Technology Development	FIU, DOE HQ, SRNL, PNNL, LBNL, INL, ANL
3:00 - 4:30 pm EDT	Project 2: Environmental Remediation Science & Technology	FIU, DOE HQ, SRNL, PNNL, LANL, ORNL
September 15, 2021		
9:30 - 11:00 am EDT	Wrap Up (FIU Projects 1, 2, 3, 4 & 5)	FIU, DOE HQ (EM & LM)



**DOE-FIU Cooperative Agreement Annual Research Review – FIU Year 1** 

# **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

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

**DOE Fellows:** Adrian Muino\*, Alexis Vento\*, Alicia Maratos\*, Angel Almaguer, Aubrey Litzinger, Aurelien Meray, Brendon Cintas, Caridad Estrada, Christian Dau, Christian Gonzalez Lopez, Daniel Martin\*, David Mareno, Derek Gabaldon\*, Desmond Sinnott, Eduardo Rojas, Gisselle Gutierrez, Jeff Natividad, Joel Adams, Josue Estrada, Juan Morales, Juana Perucina, Katherine Delarosa\*, Lorryn Andrade\*, Mariah Doughman, Nathalie Tuya\*, Olivia Bustillo, Philip Moore, Phuong Pham, Raymond Piloto, Roger Boza, Rohan Shanbhag, Sebastian Story, Silvina Di Pietro\*, Stevens Charles, Thi Tran

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.
- Provide interested students with a unique opportunity to integrate course work, DOE fieldwork, and "hands on" research at FIU into a well-structured academic program.



# **FIU** DOE Fellows Program Components

Applied Research Center





# **FIU** Engaging in Technical Research at FIU

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# FIU Year 1

# Highlights & Accomplishments



# **FIU** FIU Year 1 Highlights & Accomplishments:

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- Conducted 3 recruitment campaigns and selected 12 FIU students to join the program
- 38 Fellows supported FIU scientists and engineers in the development of the technical work
- Conducted virtual introduction ceremony and welcomed 16 Fellows into the program
- 16 summer internships were conducted across the DOE complex, including 2 LM Fellows Internships



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# **DOE-EM Fellows Introduction Ceremony**

Joel Adams Lorryn Andrade **Stevens Charles Brendon Cintas** Christian Dau Mariah Doughman Josue Estrada **Christian Gonzalez Lopez** Alicia Maratos Adrian Muino Ryan Ocampo Phuong Pham Raymond Piloto Sebastian Story Thi Tran **Eduardo Rojas** 

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15 EM + 1 LM New DOE Fellows inducted, 188 since program inception

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# Summer 2021 Internship Program (SIP)

Name	Site
Jeff Natividad	WRPS
Joel Adams	WRPS
Thi Tran	WRPS
Philip Moore	SRNL
Phuong Pham	SRNL
Brendon Cintas	DOE-HQ
Josue Estrada	DOE-HQ
Roger Boza	INL
Christian Dau	INL
Mariah Doughman	PNNL
Christian Gonzalez	PNNL
Gisselle Gutierrez	LANL
Aurelien Meray	LBNL
Stevens Charles	LBNL
Eduardo Rojas	Grand Junction
Olivia Bustillo	Grand Junction

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# **Conference Participation and Presentations**

#### Waste Management 2021 (WM2021) Virtual Conference

- Nineteen (19) student abstracts were submitted
- Prepared posters and 5-minute videos describing their posters and presented virtually in March 2021
- DOE Fellows Aurelien Meray and Derek Gabaldon won the graduate and undergraduate student poster competition
- One (1) DOE Fellow Gisselle Gutierrez-Zuniga participated as panel member

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# **Conference Participation and Presentations**

#### ACS Fall meeting 2021(WM2021)

- Two DOE Fellows participated in ACS Fall meeting and presented posters based on their EM research
- DOE Fellow Phuong Pham's abstract was selected for the Sci-Mix session consists of abstracts selected by division program chairs and represents the most exceptional abstracts submitted to participating divisions

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### Joining the Workforce

#### Silvina Di Pietro Ph.D. Chemistry NNSA Graduate Fellow and Postdoctoral Researcher

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- Presented her research findings at numerous conferences, including the Waste Management Symposia, the American Chemical Society
- Written scientific discoveries in five peer-reviewed publications
- Won the Innovations Award in Nuclear R&D Program sponsored by DOE
- Selected as the U.S. delegate to the International Younger Chemists Network within the International Union of Pure and Applied Chemistry (IUPAC)

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# **Overall Accomplishments**

- **188 FIU STEM** minority students (graduates and undergraduates) have been inducted as DOE Fellows since program inception.
- **13** DOE Fellows hired throughout the DOE Complex: DOE EM HQ (3), DOE national laboratories (8), NNSA (1), and DOE EM contractors (1).
- 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).
- 77 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.).
- 29 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 96%.

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#### **Project 4: DOE-FIU Science & Technology Workforce Development Initiative**

#### **FIU Year 2 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

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

#### **FIU Year 2 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.

- Study the mechanism of U removal/sequestration from groundwater by apatite.
  - $\circ$  Determine whether uranium is forming new mineral phases or forming surface complexation
- Investigate the effects of climate change on environmental remedies at DOE-LM sites.
  - Monitoring methods and technologies will be explored in support of meeting LM goals climate resiliency goals for long-term monitoring of DOE-LM sites
- 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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#### **DOE Fellows Induction Ceremony**

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# Thank You. Questions?