



U.S. DEPARTMENT OF **ENERGY**

DOE-FIU Science & Technology Workforce Development Program



FLORIDA
INTERNATIONAL
UNIVERSITY

DOE FELLOWS
FEATURED ALUMNI



DOE-FIU Science & Technology Workforce Development Program



Message from the Director

Dear Colleagues:

I would encourage you to browse our website at <https://fellows.fiu.edu>. You will be amazed at the type of work these students (DOE Fellows) are doing. If you are interested in recruiting well-rounded, smart, and hardworking students, you are in the right place. Our DOE Fellows are being specifically trained and mentored in DOE's Office of Environmental Management technical areas of need. Our Fellows are competitively selected among FIU's top STEM (science, engineering, technology, and math) students and support FIU's Applied Research Center research in support of the DOE EM mission. These areas include soil/GW, D&D, high level waste treatment/processing, robotics, and information technology. Their applied research has won awards at national and international conferences such as the Waste Management Symposia, American Nuclear Society, and American Chemical Society. Their practical knowledge and training of EM environmental challenges are unique. We take pride that our DOE Fellows are not only technically sound but well-rounded. Their presentation skills and project management knowledge have set our DOE Fellows apart from the rest of the college students across the US. Once hired, our DOE Fellows are ready to hit the ground running and will be able to immediately contribute to your organization without extensive and costly training. The five DOE Fellow Alumni featured here are a true affirmation of the program's value and success. We are proud of their accomplishments and their contribution to our industry.

"In the end it's the support the younger generation gets from us more "mature" humans that will not only make a difference in their lives but also in the world we all live in."

Sincerely,

Leonel E. Lagos, Ph.D., PMP®
Program Director



PROGRAM DESCRIPTION

The DOE-FIU Science and Technology Workforce Development Program is an innovative collaboration between the US Department of Energy's Office of Environmental Management (DOE-EM) and Florida International University's Applied Research Center, designed to create a "pipeline" of minority engineers specifically trained and mentored in technical areas of need. The program was designed to help address future workforce needs by partnering with academic, government and DOE contractor organizations to mentor future minority scientists and engineers in the research, development, and deployment of new technologies addressing environmental cleanup challenges.

VISION

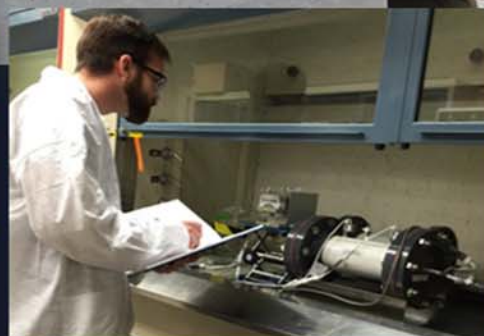
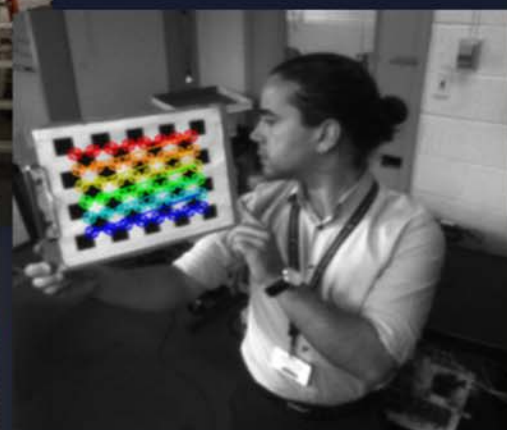
Build upon FIU's long research relationship with the US Department of Energy's Office of Environmental Management (DOE-EM) to create a "pipeline" of minority, STEM FIU students in an effort to fill a gap due to an aging workforce at DOE-EM.



DOE-FIU Science & Technology Workforce Development Program



THE DOE FELLOWS EXPERIENCE: Hands-On Research



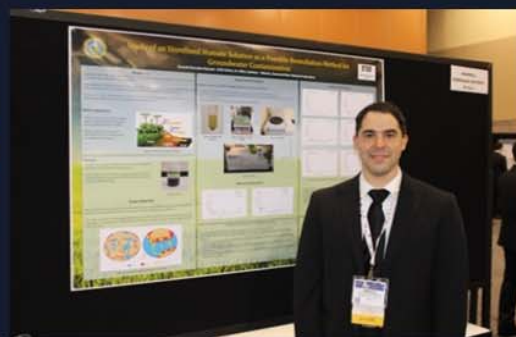
"Advancing the research and academic mission of Florida International University"



DOE-FIU Science & Technology Workforce Development Program



THE DOE FELLOWS EXPERIENCE: Conferences & Internships



"Advancing the research and academic mission of Florida International University"



DOE-FIU Science & Technology Workforce Development Program

Featured DOE Fellow Alumni **BIOGRAPHIES**





**Duriem
Calderin Morales**



Summary

DOE Fellow Class of 2008

Master in Business Administration, WA, 2018
MS, Biomedical Engineering, Miami, FL, 2010
BS, Nuclear Engineering, Havana, Cuba, 2006

Thesis Title

“Modeling of Loose Contamination Scenarios to Predict the Efficiency of Loose Contamination Removal”

Experience in DOE Related Projects

- ❖ Removal of Radioactive Contaminants on Selected Surfaces: “Evaluation of the SIMWyPES technology.”

Presentations

- ❖ *Wiped Film Evaporator Pilot Scale Experimental Design to reduce the volume of HLW and LLW at Hanford site tanks.*
 - WM Symposium Student Poster, Phoenix, AZ, 2010
 - FIU Engineering Center Student Poster, Miami, FL, 2009
 - Ronald E. McNair Post Baccalaureate Achievement Program, FIU, Miami, FL, 2009

Internship

- ❖ Summer 2009 – Columbia Energy & Environmental Services Inc. Worked under the supervision of Mr. Robert A. Wilson in the development of a statistical design to optimize the use of the Wiped Film Evaporator in reducing the volume of waste at Hanford site tanks.

Awards/Recognitions

- ❖ Certified Health Physicist, American Board of Health Physics, 2019
- ❖ Professional Engineer, Nuclear, Washington, 2016
- ❖ FIU Ronald E. McNair Post Baccalaureate Achievement Program Award, 2009

Employment

- ❖ Nuclear Engineer, Columbia Energy Environmental Services Inc., 2010 - 2012
- ❖ Safety Analysis Engineer, AREVA NP, 2012 - 2015
- ❖ Senior Nuclear Engineer, Bechtel Corporation, 2015 - 2016
- ❖ USHPRR Fabrication Pillar Risk Manager, PNNL, 2016 - Current



Hansell Gonzalez-Raymat



Summary

DOE Fellow Class of 2013

PhD, Chemistry, Miami, FL, 2018

MS, Chemistry, Miami, FL, 2016

Dissertation Title

“Unrefined Humic Substances as a Potential Low-Cost Remediation Method for Groundwater Contaminated with Uranium in Acidic Conditions”

Experience in DOE Related Projects

- ❖ Evaluation of a low cost humate solution as an in situ amendment to enhance the attenuation of uranium in groundwater plumes.

Presentations

- ❖ *Study of an Unrefined Humate Solution as a Possible Remediation Method for Groundwater Contamination.*
 - WM Symposium Student Poster, Phoenix, AZ, 2015-2018
 - DOE Fellows Student Poster, 2014-2017
- ❖ Gonzalez-Raymat et al. (2018). *Unrefined humic substances as a potential low-cost amendment for the management of acidic groundwater contamination.* J. of Environ. Manage., 212: 210-218.
- ❖ Gonzalez-Raymat et al. (2017). *Elemental mercury: Its unique properties affect its behavior and fate in the environment.* Environ. Pollut., 229: 69-86.

Internship

- ❖ Summer 2014 and 2016 - Savannah River National Laboratory. Worked under the supervision of Dr. Miles Denham on the development of low-cost solutions to remediate radioactively contaminated soil and groundwater at Savannah River Site (SRS).

Awards/Recognitions

- ❖ DOE Fellow of the Year, FIU, 2014 and 2015
- ❖ DOE Fellows Student Poster Competition (2nd Place), 2015
- ❖ WM Symposium Student Poster Competition (1st place), 2018

Employment

- ❖ Sr. Research Scientist, Savannah River National Laboratory, 2018 - Current



Merlin Ngachin



Summary

DOE Fellow Class of 2007

MS, Geosciences, Miami, FL, 2011
Post-Graduate Degree, Radiation Protection, Rabat, Morocco, 2003
Degree of Advanced Studies, Physics, Douala, Cameroon, 2001
MS, Materials Science, Yaoundé, Cameroon, 1997
Certified Health Physicist (Diplomate of ABHP)

Thesis Title

“Simulation of Rising Bubbles Dynamics Using the Lattice Boltzmann Method”

Experience in DOE Related Projects

- ❖ Evaluation of SIMWYPES® technology for Removal of Radioactive Contaminants on Selected Surfaces.
- ❖ Development of Lattice Boltzmann Model for multiphase flows, with implication to high-level radioactive waste management.
- ❖ Development of US county maps for external exposure due to NORMs in soil and based on Airborne Gamma Spectrometry.

Presentations

- ❖ *Terrestrial radioactivity and dose calculation to the public: the case of the Unites States of America.* WM Symposium Student Poster, Phoenix, AZ, 2009.
- ❖ *Lattice Boltzmann simulation of bubble dynamics under gravity.* International Conference for Mesoscopic Methods in Engineering and Science, Edmonton, Canada, 2010.
- ❖ *Lattice Boltzmann simulation of rising bubble using an effective buoyancy approach.* GSA Annual Meeting, Minneapolis, MN, 2011.

Internship

- ❖ Summer 2008 - Pacific Northwest National Laboratory. Worked under supervision of Daniel J. Strom on a project aimed at determining the radiation hazard to the US population due to terrestrial sources of radiation.

Awards/Recognitions

- ❖ Argonne National Laboratory Pacesetter Award, 2018
- ❖ NSF Travel Award, 2010
- ❖ DOE Fellows Student Poster Competition (3rd place), 2008

Employment

- ❖ Sr. Health Physicist, Waste Control Specialists LLC, 2011 - 2017
- ❖ Sr. Health Physicist, Argonne National Laboratory, 2017 - Current



Christine Wipfli



Summary

DOE Fellow Class of 2014

BS, Environmental Engineering, Miami, FL, 2018
BA, Journalism and Communications, Milwaukee, WI, 2008

Experience in DOE Related Projects

Investigated novel approaches for the abatement of uranium levels in groundwater at Savannah River Site.

- ❖ Evaluated the potential use of sodium silicates for immobilizing uranium from the aqueous phase in groundwater.
- ❖ Investigated the influence of pH variances, specifically from bicarbonates, on the mobilization of Tc-99 in groundwater at the Hanford site.

Presentations

- ❖ WM Symposium Student Posters: 2016, 2017, 2018
 - *Sodium Silicate Treatment for Uranium (VI) Bearing Groundwater Systems at F/H Area, Savannah River Site.*
 - *Investigating the Remobilization of Technetium-99 in the Presence of Bicarbonates at the Hanford Site.*
- ❖ *Engineering Wants and Needs*. WM Symposium Young Professionals Presentations, Phoenix, AZ, 2016 and 2019
- ❖ Young Professionals in the Nuclear Industry, 2017
- ❖ FIU Eng. Center Student Poster Presentation - 2016, 2017, 2018.

Internship

- ❖ Summer 2015 and 2017 - U.S. DOE EM HQ, Germantown, MD. Supported the Department of Environmental Remediation/Sub-surface Closure and the Department of Regulatory Compliance.
- ❖ Summer 2016 - International Atomic Energy Agency (IAEA). Supported the Nuclear Fuel Cycle and Waste Technology Division for a one year internship at the headquarters in Vienna, Austria.

Awards/Recognitions

- ❖ Roy G. Post Scholarship, WM Symposium, 2018
- ❖ Distinguished Young Professional Award for a National Conference, 2018
- ❖ DOE Fellows Student Poster Competition (1st place), 2015
- ❖ WM Symposium Student Poster Competition (1st place), 2015
- ❖ Life Sciences Conf. Student Poster Competition (3rd place), 2015
- ❖ Selected for a fellowship position with the Transportation Research Board, and authored a paper nominated for a poster presentation at the 2015 Conference in Washington, D.C.

Employment

- ❖ Nuclear Engineer, Radiological Engineering Division, U.S. Dept. of the Navy, Pearl Harbor Naval Shipyard & IMF: 2018 - Current



Stephen Wood



Summary

DOE Fellow Class of 2008

TN-Score Energy Scholar PhD Fellow, The Bredesen Center for Interdisciplinary Research and Graduate Education, TN, 2016
MS, Mechanical Engineering, Miami, FL 2011
BS, Mechanical Engineering, Miami, FL 2010

Dissertation Title

“Lattice Boltzmann Methods for Wind Energy Analysis”
MS *“Modeling of Pipeline Transients: Modified Method of Characteristics”*

Experience in DOE Related Projects

- ❖ Unplugging of High-Level Waste Pipelines : “Evaluation of the *Hydrokinetics* technology.”

Presentations

- ❖ *Unplugging of High-Level Waste Pipelines; Method of Characteristics.*
 - WM Symposia Student Poster, Phoenix, Arizona, 2011
 - FIU Engineering Center Student Poster, Miami, FL, 2010
 - Ronald E. McNair Post Baccalaureate Achievement Program, FIU, Miami, FL, 2010

Internship

- ❖ Summer 2009 - ORNL Computational Mathematics Group, Oak Ridge, TN. Verified, validated, and extended the functionality of AMROC-DYNA within the Virtual Test Facility.

Awards/Recognitions

- ❖ TN-Score Energy Scholar, 2011
- ❖ WM Symposium Student Poster Competition (1st place), 2011
- ❖ Ronald E. McNair Post Baccalaureate Achievement Program Award, Florida International University, 2009

Employment

- ❖ Postdoctoral Research Associate, University of Tennessee - Oak Ridge National Laboratory, 2016 - 2017
- ❖ Computational Scientist, University of Tennessee - Oak Ridge National Laboratory, 2017 - 2018
- ❖ Research AST, Data Analyst, NASA Langley Research Center, 2018 - Current



DOE-FIU Science & Technology Workforce Development Program



Contact Information

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Applied Research
Center

"Advancing the research and academic mission of Florida International University"

Applied Research Center
Florida International University
10555 West Flagler St., EC 2100, Miami, FL 33174
Website: <https://fellows.fiu.edu>

DOE-FIU Workforce Development Program

FIU

Applied Research
Center

Designed for Minority STEM Students

DOE Fellows Research Areas:

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- Tanks and High Level Waste
- Deactivation and Decommissioning
- Soil and Groundwater
- Information Technology

153 FIU STEM Students inducted since 2007

210 Poster presentations at Waste Management Symposia and other conferences

136 DOE Fellows Internships since 2007

11 Students hired by DOE, national labs, and DOE contractors

17 Students hired by federal, state, and local government agencies

61 Hired by private STEM industry



98% Hiring Rate
After Graduation



Tomorrow's
Workforce

