



Applied Research Center
FLORIDA INTERNATIONAL UNIVERSITY

The DOE-FIU Cooperative Agreement - Addressing DOE-EM's Technical Challenges

Leonel Lagos, PhD, PMP®
(Principal Investigator & Director of Research)
Waste Management Symposia 2014
Phoenix, Arizona

Worlds
Ahead

Advancing the research and academic mission of Florida International University.



Florida International University

FIU, is a vibrant, 52,000 student-centered public research university located in Miami, Florida. FIU is worlds ahead in its commitment to learning, research, entrepreneurship, innovation, and creativity so that graduates are prepared to succeed in a global market.

FIU is among the largest Hispanic-Serving Institutions in the U.S., designated a Minority-Serving Institution.

As a top-tier research institution, FIU emphasizes research as a major component in its mission.

FIU averages over \$100 million in research annually.



FIU's Applied Research Center (ARC) Serves as a Portal to FIU

- Founded in 1995, ARC has executed over \$100 million in research with DOE, DoD, DARPA, FAA, USAID, other Federal and State Agencies as well as private industry.
- ARC's Portal Concept provides ease of access to FIU's Colleges and Centers to facilitate collaborative research.
- ARC's mission is to provide world-class R&D and technology solutions to clients.
- ARC's multicultural, multilingual staff are client service-oriented professionals and include Project Management Professionals (PMP®) and Professional Engineers (PE).
- Successful Workforce Development Programs.





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The Applied Research Center at Florida International University
would like to thank its domestic sponsors!



Advancing the research and academic mission of Florida International University.

DOE-FIU Cooperative Agreement



"Working together for a safer and cleaner environment."

Dr. Leonel E. Lagos, Principal Investigator



FIU

Applied Research
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Technical Support to DOE– Office of Environmental Management (DOE-EM)

- DOE-FIU Cooperative Agreement program was established in 1995 as a partnership between Florida International University and DOE's Office of Science & Technology (EM-50)
- Since 1995 the Center has executed over 300 applied research projects for DOE in the areas of:
 - Deactivation & Decommissioning (D&D)
 - Soil & Groundwater Research & Modeling
 - Waste Processing/High Level Waste
 - Information Technology Development for Environmental Management
 - Workforce Development & Training
- The Center counts with five research facilities, a radiological lab, a high bay facility, and a Large Scale Technology Test Site
- The Center collaborate with other FIU's Centers & laboratories (Dept. of Chemistry, Dept. of Earth & Environmental Sciences, Southeastern Research Center) to accomplish DOE-EM applied research
- The Center supports 18 full time researcher (scientists and engineers), FIU faculty and about 30 students per year being trained in DOE-EM research (DOE Fellows Workforce Initiative)



DOE-FIU Research Website

The DOE Research website has been deployed to provide a centralized location for the research information developed under the FIU-DOE Cooperative Agreement and includes technical reports, quarterly progress reports, end of year reports, peer-reviewed journal articles, conference papers and presentations, industry news.



doereseach.fiu.edu



Applied Research Center Facilities

Large Scale Testing Facility: This outdoors facility is available to conduct large scale demonstration of technologies



Radiological Laboratory: This laboratory is equipped with state-of-the-art glove boxes, a three-stage HEPA-activated charcoal filtration system, fume hood, and a shielded enclosure for conducting studies on any material emitting alpha, beta, or gamma radiation



Applied Research Center Facilities

Soil & Groundwater Laboratory:

Research on fate, and transport of contaminants in soil, sediments, water, and biota; water and wastewater treatment; and soil sorption analysis



Analytical Chemical Laboratory: Analytical Chemistry (wet chemistry) laboratory supports applied environmental research



Applied Research Center Facilities

Robotic & Sensors Laboratory:

Development of innovative cleanup, monitoring, security, maintenance, and surveillance technologies for contaminated facilities



Multifunction Technology /Deployment & Testing Facility: This 8,000-square-foot high-bay building is the primary laboratory resource for large scale applied research activities and technology prototyping and testing



Applied Research Center Facilities



Modeling, Simulation and GIS Research Laboratory: This laboratory hosts servers and workstations to support soil & groundwater, waste processing, and GIS research work.



FIU-DOE Cooperative Agreement

Project 1: Chemical Process Alternatives for Radioactive Waste (Dr. Dwayne McDaniel)

Project 2: Rapid Deployment of Engineered Solutions to Environmental Problems (Dr. Yelena Katsenovich)

Project 3: Remediation and Treatment Technology Development and Support (Dr. Georgio Tachiev)

Project 4: Waste and D&D Engineering and Technology Development (Dr. Leonel Lagos, Mr. Himanshu Upadhyay)

Project 5: DOE-FIU Science and Technology Workforce Development Initiative (Dr. Leonel Lagos)



FIU Project 1: Dr. Dwayne McDaniel

Chemical Process Alternatives for Radioactive Waste



High-level Waste R&D for Hanford and Savannah River Sites

This project objectives is to support the retrieval, processing and disposal of high-level radioactive waste (HLW) at the DOE Hanford and Savannah River sites. Specific activities include:

- Technology Development
- Technology Assessment
- Pilot-Scale Studies for Waste Processing
- Computational Modeling and Simulation



Project Tasks and Scope Overview

Task 2 Pipeline Unplugging and Plug Prevention

- develop novel technologies that can be utilized to remove plugs formed in HLW transfer pipelines at Hanford's Tank Farm
- computational simulation and evolution of HLW pipeline plugs

Task 17 Advanced Topics for Mixing Processes

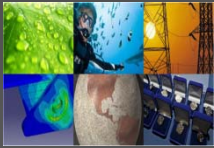
- develop a multiple-relaxation time, lattice Boltzmann model (LBM) for high-density ratio multiphase flows within the tanks

Task 18 Technology Development and Instrumentation Evaluation

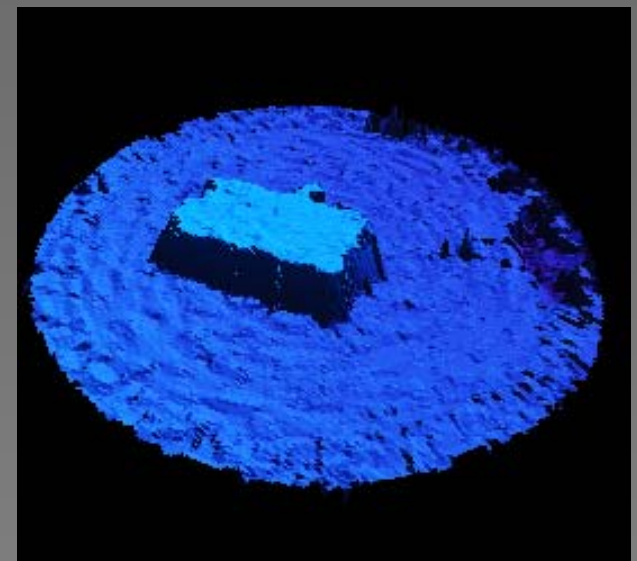
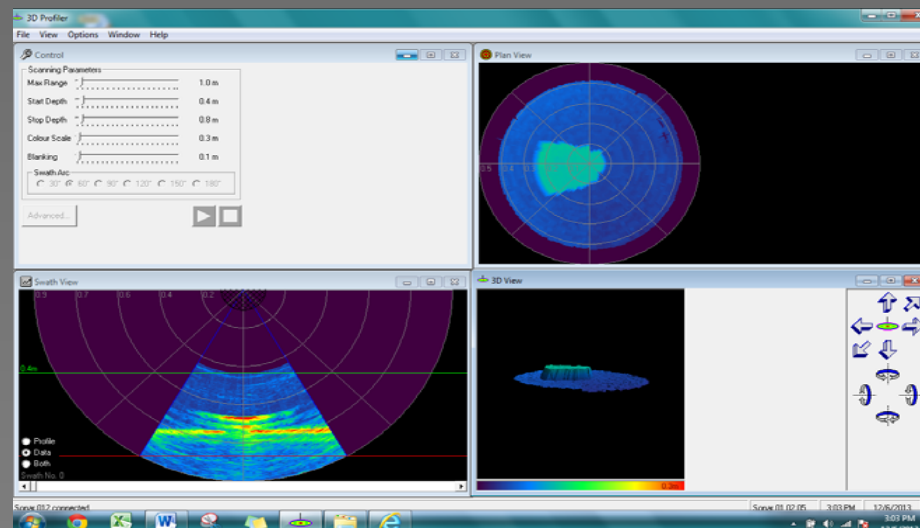
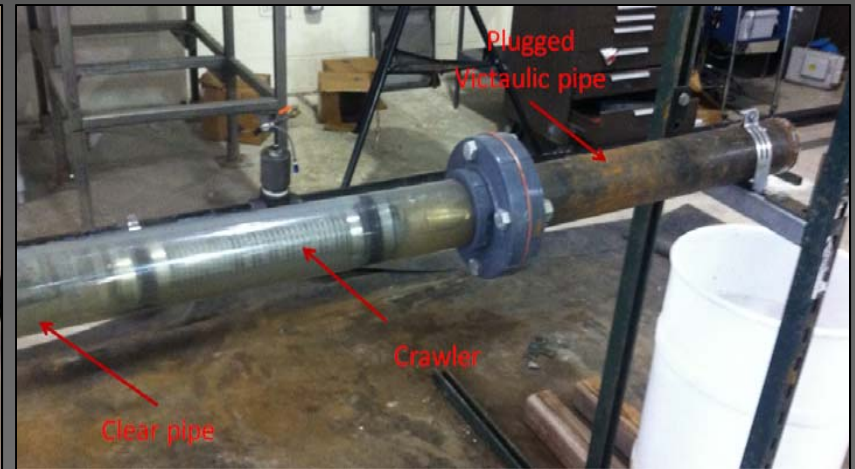
- evaluation of FIU's Solid Liquid Interface Monitor (SLIM) for rapid measurement of HLW solids on tank bottoms (new)
- development of inspection tools for double shell tanks (DST) primary tanks (new)

Task 19 Pipeline Integrity and Analysis

- pipeline corrosion and erosion evaluation (new)



Peristaltic Crawler Pipeline Unplugging Tool & SLIM Technologies





Conferences/Publications

Waste Management 2014

Professional Papers/Posters

- *Computational Fluid Dynamics Modeling of High Level Waste Plug Formation*
- *Experimental Testing of Innovative High-Level Waste Pipeline Unplugging Technologies*

Student Posters

- *Innovative High-Level Waste Pipeline Unplugging Technologies for Hanford Site (Asynchronous Pulsing)*, Alexandra Fleitas (DOE Fellow) – **Selected Best Student Poster WM14 !!!!!**
- *Rapid Imaging of Settled Solids in Hanford HLW Staging Tanks*, Dayron Chigin (DOE Fellow)
- *Computational Simulation and Evolution of High-Level Waste Pipeline Plugs*, Deanna M. Moya (DOE Fellow)
- *U.S. Low Level and Mixed Low Level Waste Treatment Technology Identification*, Gabriela Vazquez (DOE Fellow)
- *Analysis of Life Expectancy for Waste Transfer Lines Located at Hanford Site*, Jennifer Arniella (DOE Fellow)
- *Computational Fluid Dynamics Simulations of Fluid Transients in a Pipeline at Hanford Site*, Michael Abbott (DOE Fellow)
- *GPU Accelerated Lattice-Boltzmann Method for Fluid Flows in Nuclear Waste Tanks at Hanford Site*, Sasha Philius (DOE Fellow)
- *Engineering Scale Pipeline Unplugging Testing Using the Improved Peristaltic Crawler System for Removal of High Level Waste Plugs at Hanford Site Pipelines*, Carmela Vallalta (DOE Fellow)



FIU Project 2 & 3: Dr. Yelena Katsenovich Dr. Georgio Tachiev

Soil/Groundwater Remediation Projects



Soil/Groundwater Research for PNNL, Hanford and Savannah River Sites

- FIU is assisting EM-12, PNNL, and Hanford in developing a strategy to improve the efficiency of uranium stabilization in the subsurface. Uranium is a key contaminant of concern at many DOE sites due to its high persistence in the environment and toxicity to living organisms.
- The project conducts scientific studies on carbonate promoted uranium release from autunite minerals created as a result of polyphosphate injection to sequester uranium in the subsurface
- At Savannah River, FIU is investigating the synergy between silica and humic acid (HA) to understand the mobility behavior of radionuclides in the groundwater at F/H area
- FIU is also conducting a microcosm study to investigate if contaminants remain sequestered after the ARCADIS demonstration of in-situ molasses addition for U(VI) remediation via the Enhanced Anaerobic Reductive Precipitation (EARP) process at SRS F-Area



Soil/Groundwater Research and Computer Modeling for Oak Ridge, Y-12 and Moab Sites

- Soil and groundwater research also provides technical assistance to EM-12 in remediation and treatment technology development for the Oak Ridge, Y-12 and Moab sites, including modeling of soil and groundwater and simulation of fate and transport of contaminants and remedial activities.
- Modeling is being used by the sites to determine the impact of remediation alternatives on the complete hydrologic cycle, the transport overland and in surface water and rivers, sediment transport & reactions, and the mercury exchange with sediments.
- Commercially available software (MIKESHE, MIKE11, ECOLAB) and engineering solutions are implemented to accomplished these objectives



Conferences/Publications

Waste Management 2014

Professional Papers/Posters:

- Rate of Uranium Release from Calcium Meta-Autunite: Effect of Bicarbonate Solutions on the Dissolution (14218), Ravi Gudavalli, Yelena Katsenovich, Leo Lagos, Dawn Wellman (PNNL).
Presenter: Yelena Katsenovich
- The Effect of Ca Ions on the Removal of U(VI) via In Situ Ammonia Gas Injection at the Hanford Site 200 Area (14434), Yelena Katsenovich, Claudia Cardona (DOE Fellow), Leo Lagos.
Presenter: Claudia Cardona (DOE Fellow)

Student Posters:

- A Study of Cell Viability on DOE Hanford Soil Isolates: Effect of U (VI) and Bicarbonate – Paola Sepulveda-Medina (DOE Fellow)
- Characterization of the Uranium-Bearing Products of Novel Remediation Technologies – Robert Lapierre(DOE Fellow)
- Microcosm Study on Mineralogical Changes of Post-Molasses Injection with Savannah River Site (SRS) F-area – Valentina Padilla (DOE Fellow)
- The Effects of Silica and Humic Acid on U(VI) Removal from Savannah River Site (SRS) F/H Area Groundwater – Joel McGill (DOE Fellow)
- Environmental Remediation Optimization: Cost Savings, Footprint Reduction, and Sustainability Benchmarked on DOE Sites – Natalia Duque (DOE Fellow)



Peer Reviewed Journal Publications - 2013

- Gudavalli, R.P.; Katsenovich, Y.; Wellman, D.; Lagos, L.; and Tansel, B. (2013). "Quantification of kinetic rate law parameters for the dissolution of sodium meta-autunite as a function of aqueous bicarbonate concentration." *Environmental Chemistry*, 10(6), p. 475-485.
- Gudavalli, R., Katsenovich, Y. Wellman, D., Idarraga, M., Lagos, L., Tansel, B. (2013). "Comparison of the Kinetic Rate Law Parameters for the Dissolution of Natural and Synthetic Autunite in the Presence of Aqueous Bicarbonate Ions." *Chemical Geology*, p 299-309.
- Malek-Mohammadi, S., Tachiev, G., Bostick, K., and Daniel, A. (2013). "Migration of VOC Plume in the Subsurface Domain at the Y-12 National Security Site." Accepted for publication in *the Journal of Remediation*, Winter 2013 issue.
- Katsenovich, Y, Carvajal, D., Guduru, R., Lagos, L., Li, C. (2013). Assessment of the Resistance to Uranium (VI) Exposure by *Arthrobacter* sp. Isolated from Hanford Site Soil, *Geomicrobiology Journal*, 30(2), 120-130.



Peer Reviewed Journal Publications - 2012

- Carvajal, D., Katsenovich, Y., Lagos, L. (2012). "The Effects of Aqueous Bicarbonate and Calcium Ions on Uranium Biosorption by *Arthrobacter* G975 Strain." *Chemical Geology*, 330-331, 51–59.
- Malek-Mohammadi, S., Tachiev, G., Cabrejo, E., and Lawrence, A. (2012). "Simulation of flow and mercury transport in Upper East Fork Poplar Creek, Oak Ridge, Tennessee." *Remediation Journal*, 22(2), 119–131.
- Li, Y., Yin, Y., Liu, G., Tachiev, G., Roelant, D., Jiang, G., and Cai, Y. (2012). "Estimation of the Major Source and Sink of Methylmercury in the Florida Everglades." *Environ. Sci. Technology*, 46(11), 5885–5893.
- Dickson, D., Liu, G., Lib, C., Tachiev, G., Cai, Y. (2012). "Dispersion and Stability of Bare Hematite Nanoparticles: Effect of Dispersion Tools, Nanoparticle Concentration, Humic Acid and Ionic Strength." *Science of the Total Environment*. 419(1). 170–177.
- Katsenovich, Y., Carvajal, D., Wellman, D., Lagos, L. (2012). "Enhanced U(VI) release from autunite mineral by aerobic *Arthrobacter* sp. in the presence of aqueous bicarbonate." *Chemical Geology* 308–309, 1–9.
- Öztürk, Z., Tansel, B., Katsenovich, Y., Sukop, M., and Laha, S. (2012). "Highly organic natural media as permeable reactive barriers: TCE partitioning and anaerobic degradation profile in eucalyptus mulch and compost." *Chemosphere*, 89(6), 665-671.



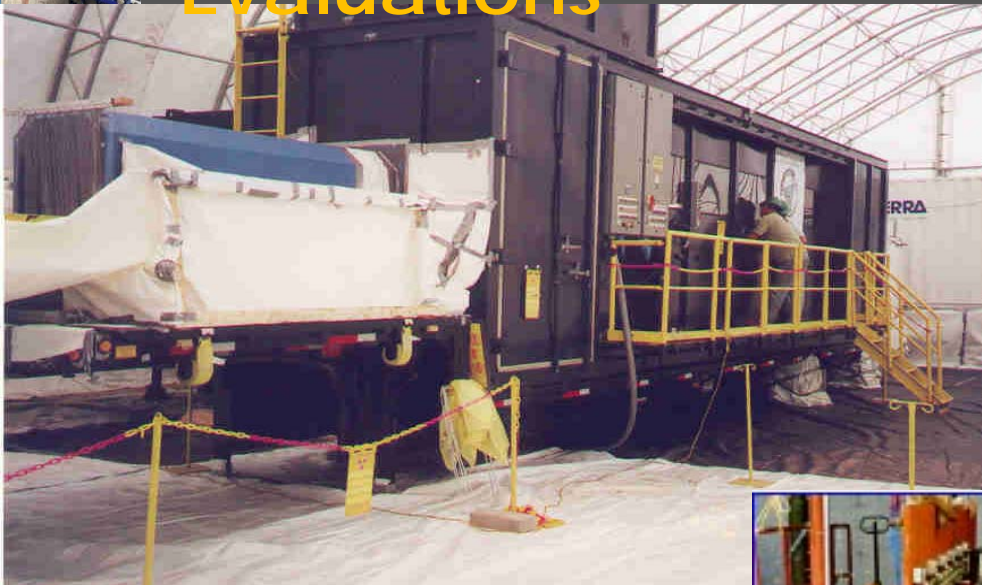
FIU Project 4:

Dr. Leonel E. Lagos

Mr. Himanshu Upadhyay

Waste and D&D Engineering and Technology Development

D&D Technology Development & Evaluations





Overview of Project Tasks

Task 1. Waste Information Management System (WIMS)

Maintenance and enhancement of the web-based waste forecasting and transportation system. Integration of a new forecast waste streams on an annual basis.

Task 2. D&D Support to DOE EM for Technology

Innovation, Development, Evaluation, and Deployment – Innovative technologies and methodologies for SRS 235-F. Support to EFCOG and EM-13 on special topics of interest. Development of lessons learned and best practices with EFCOG.



Overview of Project Tasks

Task 3. D&D Knowledge Management Information Tool (D&D KM-IT) – Outreach and training. Application development. Mobile application development. Data and content management. Administration of the system, database, and network.

Task 4. FIU-DOE Research Website – New task to capture and make available all the resulting research documents developed under the CA.

Task 5. Cyber Security Compliance and Deployment of Environmental Contamination and Remediation Models – New task to publish and deploy an environmental contamination and remediation model over the web using ArcGIS.



Decontamination Agents/Materials for Rad Surface Contamination

FIU is working with the SRS to investigate the decontamination agents and materials available on the market

Conducted literature search (KM-IT, ALARA Reports, web search, vendor)

Worked with SRS to identify parameters based on application needs

40 strippable/fixative coatings identified

Report sent to Savannah River Site





Decision Model for Mobile Device Application

A decision model for mobile application use is being created to better guide the product end users in the selection of the appropriate products depending on their specific needs and site application.

Preliminary work done on decision model:

Type of Radiation	Surface Properties	Location	Surface Type	Isotopes Involved	Product	% Decon
Beta	Carbon Steel	N/A	Smooth	Plutonium 239	Decon Gel 1101	98%
Type of Radiation	Surface Properties	Location	Surface Type	Isotopes Involved	Product	% Decon
Beta	Plexiglass	N/A	Smooth	Plutonium 239	Decon Gel 1101	53%
Type of Radiation	Surface Properties	Location	Surface Type	Isotopes Involved	Product	% Decon
Beta	Concrete	N/A	Rough	Plutonium 239	Decon Gel 1101	71%



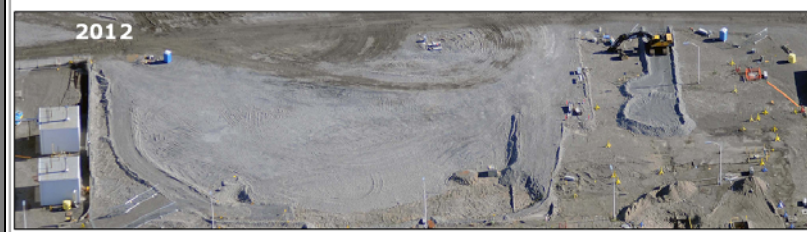
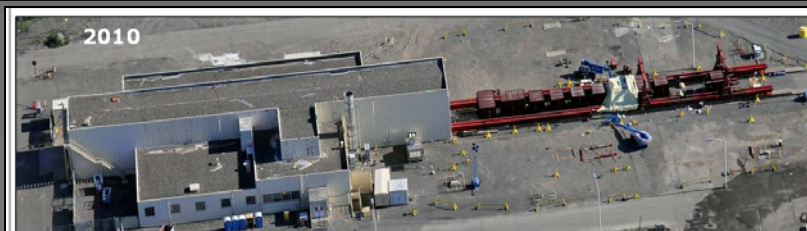
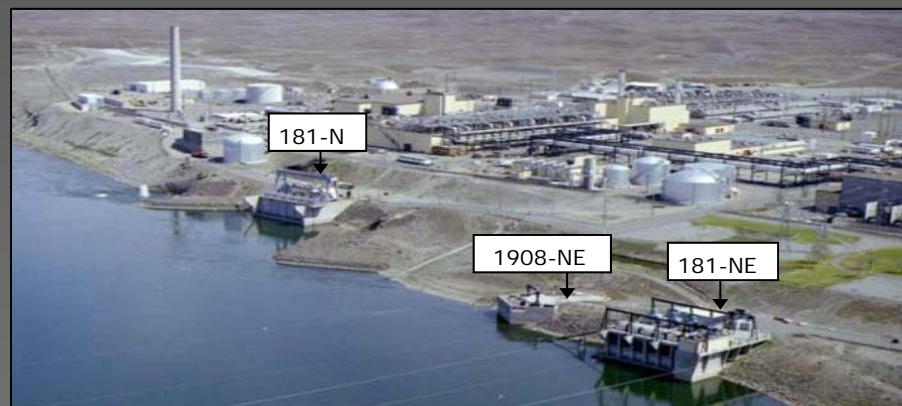
Lessons Learned/Best Practices

Collaboration with Energy Facilities Contractors Group (EGCOG) in the development of Lessons Learned and Best Practices.

A total of 13 have been developed.

7 final and published on the D&D KM-IT and EFCOG websites.

6 in review process: 2 at DOE HQ, 3 at EFCOG, 1 at FIU.





D&D Knowledge Management

Knowledge Management for D&D

- D&D Hotline
- Technology Module
- Vendor Module
- Collaboration tools
- Mobile application for vendor and specialist modules
- Currently:
 - 535 registered users
 - 64 registered subject matter specialists
 - 662 vendors
 - 688 technologies



A simple interface was developed to illustrate the connection between all the independent applications or systems developed for DOE-EM under different projects.





Conferences/Publications

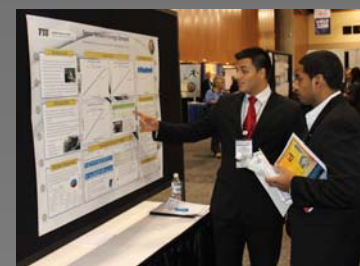
Waste Management 2014:

Professional Presentations/Posters

- Knowledge Management Information Tool – 2014
- Waste Management System with 2013-14 Waste Streams

Student Posters at Waste Management 2014:

- Investigation of Permanent and Removable Coatings for Decontamination of Savannah River Site (SRS) Plutonium Fuel Form Facility - Mariana Evora (DOE Fellow)
- Native Android Application for Deactivation & Decommissioning Technologies - Pedro Cordon (DOE Fellow)
- Design and Development of Geographical Information System (GIS) Map for DOE Waste Streams - Sandhya Appunni (FIU Graduate Student)
- Performance Evaluation of Mobile Applications with D&D Technology Services – Revathy Venkataraman (DOE Fellow)





FIU Project 5: Dr. Leonel E. Lagos

DOE-FIU Science and Technology Workforce Development Program



DOE Fellows Program Description

*FIU's Applied Research Center (ARC) is supporting the U.S. Department of Energy's Office of Environmental Management in the training of STEM, minority FIU students in an effort to create of **pipeline** of scientists and engineers that will enter DOE's workforce upon completing their degrees and research at FIU.*

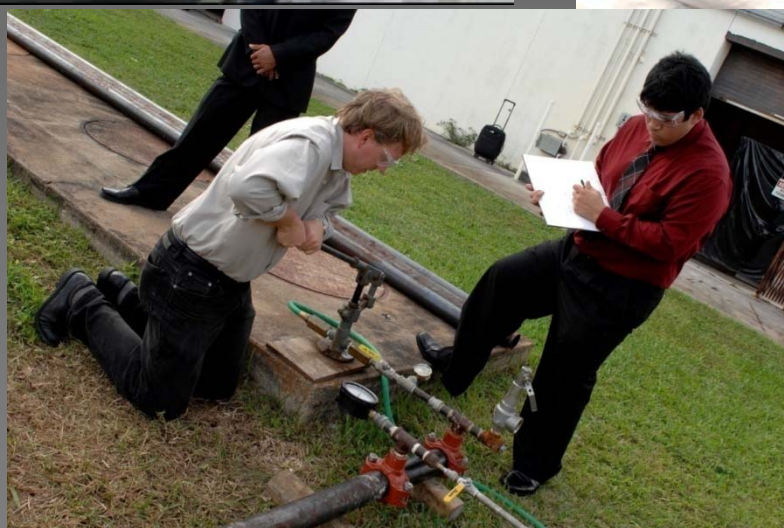


DOE Fellows at Work





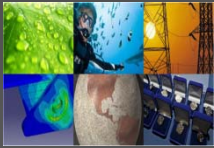
DOE Fellows Hands on Research at FIU





Program's Components

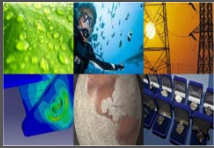
- Paid 10-week summer internships at DOE national laboratories, DOE sites, DOE-HQ or DOE contractors, working under the supervision of DOE scientists (mentors).
- Paid 20 hours/week Student Research Assistantship at ARC during school year.
- Research experience with ARC scientists at FIU during school year: one-on-one mentoring performing “hands on” DOE-related applied research.
- Tuition waiver for graduate studies (Master, PhDs).
- 2 to 4 years Developmental Training Program (depends on masters or PhD track).
- DOE Lecture Series and technical seminars.
- Participation in conferences/workshops.



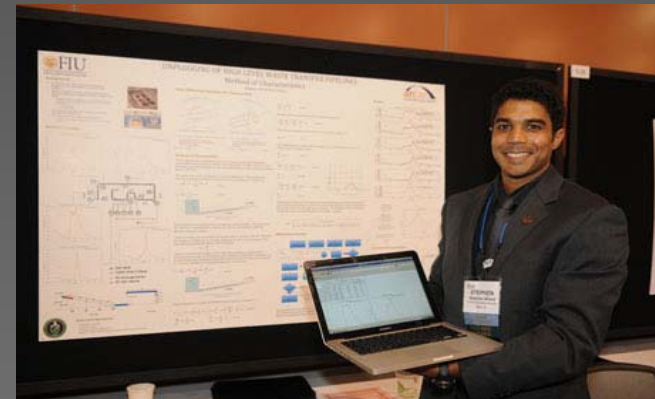
DOE Fellows Induction Ceremony



Conducted a total of 6 Induction Ceremonies since program inception in 2007. A total of **93 FIU minority STEM students** have been inducted as DOE Fellows.



DOE Fellows at Waste Management Symposia



A total of **91 DOE Fellows** have presented at Waste Management Symposia since 2008. Obtained Best Student Poster 3 years in a row and Best Professional Poster in 2009 (DOE Fellow, Leydi Velez).



DOE Fellows at WM Conference



WM Student Posters Sessions



Panel Member – Young Professionals



81 DOE Fellows Internships Completed





Annual DOE Fellows Poster Exhibition





Major Accomplishments

- **81** internships completed at DOE sites, DOE national labs, DOE-HQ, and DOE contractors
- **18** DOE Fellow internships conducted at Oak Ridge National Lab
- **93** students recruited/inducted as DOE Fellows since program inception in 2007
- **115** presentations (student posters and professional papers) at Waste Management conferences (2008 to 2014), and **6** student presentations at American Nuclear Society and American Society of Mechanical Engineers conferences
- Won Best Professional Poster (Leydi Velez) and **4** Best Student Posters (Denisse Aranda, Danny Carvajal, and Stephen Wood), **Alexandra Fleitas** at Waste Management Conferences 2008-2012, 2014
- **31** Fellows have continued and obtained master and PhD degrees at FIU and conducted their research at ARC or DOE national labs
- 2 DOE Fellows participated in the International Conference for Radioactive Waste Management (ICEM13), students were being fully sponsored by ASME



Major Accomplishments

- **3** DOE Fellows (Rosa Ramirez, Lee Brady, Edgard Espinosa) hired into DOE-EM at DOE-HQ in Washington, DC
- **1** DOE Fellow (Charles Castello) hired at Oak Ridge National Laboratory
- **8** DOE Fellows hired by other federal and state agencies including, Department of Defense (1) , Department of Commerce (1), Department of State (1), Internal Revenue Service (1 Fellow), Department of Health & Humans Services (1), Florida Department of Environmental Protection (1 Fellow), NASA (2 Fellows)
- **3** DOE Fellows hired by DOE contractors – AREVA (1 Fellow), Waste Control Specialists (1 Fellow) , and Bechtel (1 Fellow)
- **Other** DOE Fellows have graduated FIU with bachelors or masters degrees and obtained employment at Boeing Company (3 Fellows), Florida Power & Light (2 Fellows), General Electrics (1 Fellow), Lockheed Martin (1 Fellow), Mount Sinai Medical Center (2 Fellow), Johnson & Johnson (1 Fellow), PriceSmart Inc. (1 Fellow), Bouygues Civil Works Florida (1 Fellow), Crane Aerospace and Electronics (1 Fellow), HP Foundation (1 Fellow), PSI (1 Fellow)



Masters & Ph.Ds

DOE Fellow	Exp. Degree	Major	Topic of Research
Robert Lapierre	M.S.	Chemistry	Characterization of the uranium-bearing products of novel remediation technologies
Joel McGill	M.S.	Civil engineering	The synergy effect of SI and humic acid on the removal of U(VI)
Valentina Padilla	M.S.	Environmental engineering	A microcosm study on mineralogical changes of post molasses injection with SRS F-area sediments
Mariela Silva	M.S.	Engineering management	SharePoint based secured collaboration system
Revathy Venkataraman	M.S.	Information technology	Performance analysis of mobile applications accessing web services built using windows communication foundation
Claudia Cardona	Ph.D.	Civil engineering	Evaluating the effects of Si and Al concentration ratios on the removal of uranium
Elicek Delgado-Cepero	M.S.	Electrical engineering	Developing wireless monitoring systems and instrumentation
Heidi Henderson	M.S.	Environmental engineering	Developing water balance model to similar surface water and total suspended solids transport
Janty Ghazi	M.S.	Engineering management	Asynchronous pulsing as a means of unplugging high level waste transfer pipelines
Jose Matos	B.S.	Mechanical engineering	Development of peristaltic crawlers for unplugging of Hanford waste transfer pipelines
Joshua Midence	B.S.	Civil engineering	Saltstone Processing of Low-Level Waste at Savannah River Site
Lillian Marrero	M.S.	Civil engineering	Modeling of mercury and suspended solids



Masters & Ph.Ds

Paola Sepulveda-Medina	M.S.	Biomedical Engineering	Investigating the role of a less uranium tolerant strain, isolated from the Hanford site soil, on uranium interaction in polyphosphate remediation technology
Jaime Mudrich	M.S.	Mechanical engineering	Multiphase simulations with an emphasis on solid-fluid interaction in complex domains
Eric Inclan	M.S.	Mechanical engineering	Asynchronous pulsing method for unplugging high-level waste pipelines
Yulyan Arias	M.S.	Environmental engineering	Sequestering uranium by in situ subsurface pH manipulation using NH ₃ gas
Melissa Sanchez	M.S.	Environmental engineering	Uranium remediation in the vadose zone
Elsa Cabrejo	M.S.	Environmental engineering	Modeling interactions of sediment with mercury
Denny Carvajal	B.S.	Biomedical Engineering	Uranium remediation in the vadose zone
Mario Vargas	B.S.	Mechanical engineering	Development of a remote platform for characterization of nuclear stacks
Amaury Betancourt	M.S.	Environmental engineering	Effects of mercury in anaerobic bacteria
Lee Brady	M.S.	Mechanical engineering	Technologies for unplugging of high-level waste pipelines
Duriem Calderin	M.S.	Biomedical Engineering	Pilot scale experimental design for a wiped film evaporator
Charles Castello	Ph.D.	Electrical engineering	Development of a methyl-mercury analyzer



Masters & Ph.Ds

Melina Idarraga	B.S.	Civil engineering	Quantifying the dissolution of autunite as a function of aqueous bicarbonate.
Rosa Ramirez	M..S.	Biomedical Engineering	Study of mercury speciation in a contaminated watershed
Stephen Wood	M.S.	Mechanical engineering	Investigation of methods for high-level waste pipeline unplugging
Edgar Espinoza	M.S.	Mechanical engineering	Design Optimization of Submerged Jet Nozzle to Enhance Mixing.
Serkan Akar	M.S.	Biomedical engineering	Developing a Biosensor for Detection of Phosphate Species in Uranium Contaminated Ground Water and Wastewater Sediments by Employing Advanced Biotechnological Methods
Merlin Ngachin	M.S.	Geosciences	Tests and evaluate a new technology, namely SIMWyPES®, by Babcock & Wilcox and used at the Y-12 National Complex at Oak Ridge National Laboratory (ORNL)
William Mendez	M.S.	Engineering Management	Development of a conceptual design of a robotic mechanism. This device was developed as a survey tool for physical and chemical characterization of contaminated nuclear stacks.
Erika McKinney	M.S.	Biomedical Engineering	Department project
Leydi Velez	M.S.	Engineering Management	Lessons Learned (LL) and Best Practices (BP) acquired in most DOE sites. Also, involved in the development of the D&D Knowledge Management Information Tool (KM-IT)
Nantaporn Noosai	Ph.D.		Developing thermodynamic database of mercury species and integrating interactions within a flow and transport model



Program Website and Facebook

<http://fellows.fiu.edu>

Follow us in Facebook at:

FIU Science and Technology Workforce Development Initiative

The website features a navigation menu on the left with links to Program Home, Program Description and Components, How to Apply, DOE Fellows Bios, DOE Fellows Internships, DOE Fellows Highlights, Events & News, Contact Us, DOE EM Newsletter, and Links. The main content area includes a 'First Place at FIU Libraries UG Student Research Award' announcement for Rinaldo Galdamez, a 'Congratulations Rinaldo Galdamez' banner, and a 'Featured DOE Fellow' section for Rinaldo Gonzalez Galdamez. A 'Latest News' section at the bottom mentions the DOE Fellow's Poster Exhibition.

The Facebook page shows the profile of the 'FIU Science and Technology Workforce Development Initiative'. It includes a cover photo with the ARC logo and a post from October 25, 2010, celebrating 'DOE Fellow of the Week - Nada Lima'. The post includes a link to her profile and a photo of her. Below this, another post from October 13, 2010, celebrates 'DOE Fellow of the Week - Edgard Espinosa'. The page also shows a 'Like' button and a 'Share' button.