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FIU Nuclear Research Program

The FIU Nuclear Research Program consists of over 30 researchers from 6 academic departments in 3 colleges and the Applied Research Center under the Division of Research. The group's mission is to develop million dollar programs in research and to develop the curricula and approval for a Masters of Applied Radiological Sciences (MARS) degree. The expected approval for MARS is late 2014 with the first class by Fall 2015. FIU's research spans from basic to applied engineering and technology deployment.

Research and engineering expertise involves the following nuclear fields:

* Nuclear physics	* Clean up of nuclear contamination	* Nuclear forensics
* Nuclear measurements	* Engineering for nuclear power	* Nuclear medicine
* Nuclear security	* Nuclear chemistry and radioactive waste	* Health Physics

Current Nuclear Research Programs:

1) Cleanup of soil, groundwater, facilities and waste contaminated with radioactivity ($4M/yr)
2) Nuclear physics research at U.S. Dept of Energy's Jefferson Laboratory ($1M/yr)
3) Nuclear radiation measurement projects for 1) and 2) above
4) Molecular imaging using PET for diagnosing and treating specific cancers and diseases

12 Nuclear Laboratories host a wide variety of specialized equipment including:

* 4 Gamma Spectrometers	* Permacon Facility with HEPAs	* 20+ Spectrometers
* 3 Liquid Scintillation Counters (a & b)	* KPA Uranium Detector	* Radiochemistry Lab
* Trace and Ultra-Trace Level Detector	* Multiport Glovebox	* 10+ Dosimeters

Multiport glovebox facility **(left)** housed in a 20'x24' Permacon Rad facility **(right)** with 3 stage HEPA filters**.**

This Radiological Lab also hosts an ICP-OES (Optima 7300 DV), a liquid scintillation counter, a uranium detector and other nuclear detectors.

Current Sponsors and Clients:

U.S. Dept. of Energy's Office of Science
U.S. Nuclear Regulatory Commission
Dept. of Justice
Dept. of Homeland Security
U.S. Dept. of Energy's Office of Environmental Management
National Institute of Health
Nuclear remediation firms (2 smaller task order contracts)
International Atomic Energy Agency

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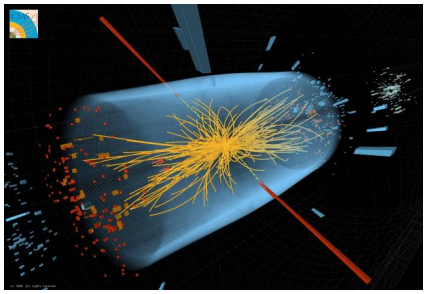
FIU Nuclear Researchers

Particle Detectors for U.S. DOE Jefferson Lab and CERN in Europe and Experimental & Theoretical Nuclear Physics Professors

Joerg Reinhold, Werner Boeglin, Rudolf Fiebig, Lei Guo, Laird Kramer, Stephan Linn, Pete Markowitz, Oren Maxwell, Stephan Mintz, Brian Raue, Jorge Rodriguez, Misak Sargsian

- FIU professors & students have contributed to Nobel Prize Discovery of the Higgs Boson.



Left: Modeling of particle trajectories detected as candidates for Higgs decay before analysis.

Right: FIU helped design, build and operate the Large Hadron Collider accelerator at CERN with the Compact Muons Solenoid experiment.

Environmental Cleanup of U.S. DOE Nuclear Weapons Complex

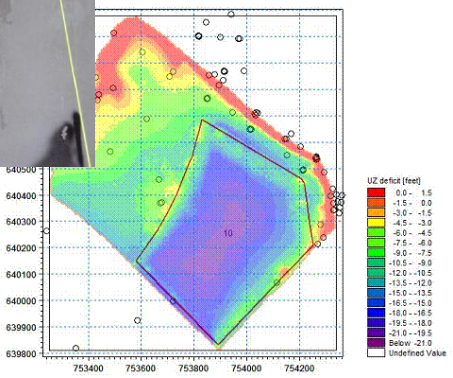
Applied Research Center

Ines Triay, Leonel Lagos, David Roelant, Seckin Gokaltun, Dwayne McDaniel, Georgio Tachiev

- Characterization, transport and treatment of radioactive waste
- Modeling and treatment of radionuclides and metals (contaminants) in soil and groundwater
- Deactivation and decommissioning of facilities contaminated with radioactivity
- Creating tomorrow's nuclear cleanup workforce

Above: Testing strippable coating removal by ICM robot.

Below : Modeling Uranium transport in soil & groundwater at Moab Site, Utah.



Additional FIU Capabilities and Infrastructure

Laboratories of FIU's International Forensic Research Institute (IFRI)

http://ifri.fiu.edu/facilitiesequipment/

Left: Forensics, Trace and Ultra-Trace Analyses are performed in several Chemistry Labs, within IFRI and the Advance Mass Spectroscopy Facility. *Jose Almirall - Director*

Right: NaI gamma ray imaging and dosimetry for differentiated thyroid cancer.
Seza Gulec, Anthony McGoron

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