Research Partnerships

A continuing look into research enterprise

NORTHERN ILLINOIS UNIVERSITY

BOT/LARI

November, 2015

Institutional Partners

- **NIU has enjoyed a long tradition of close collaboration with the two nearby national laboratories.**
- **Those relationships tend to wax and wane but currently are at a high point.**
- **Recent partnership expansions:**
  - **Internationally, with CERN in Geneva, Switzerland**
  - **Regionally, with Rosalind Franklin University of Medicine and Science.**

ANL

- CEET: CEET/EE/ET
- CLAS: Chem/CS/Geo/Physics

ANL	FY2013	FY2014	FY2015	Total
CEET	$862k	$556k	$181k	$1,188k
CLAS	$4,022k	$1,946k	$2,709k	$8,714k
Total	$4,884k	$2,503k	$2,890k	$10,312k

FNAL

- CEET: ME
- CLAS: Physics

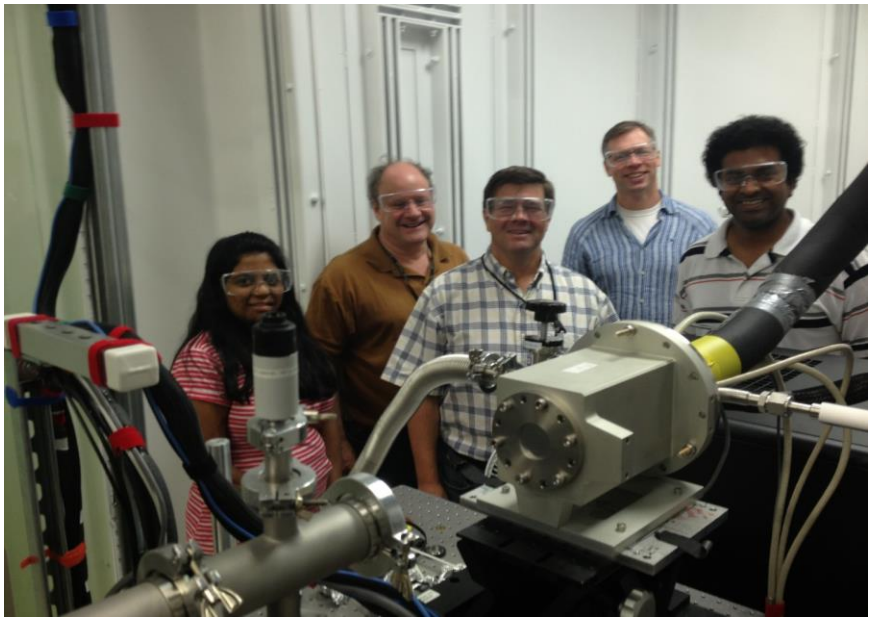
FNAL	FY2013	FY2014	FY2015	Total
CEET	$136k	$136k	$272k	$544k
CLAS	$2,124k	$2,380k	$2,093k	$6,720k
Total	$2,260k	$2,516k	$2,365k	$7,264k

Laboratory Faculty Appointments

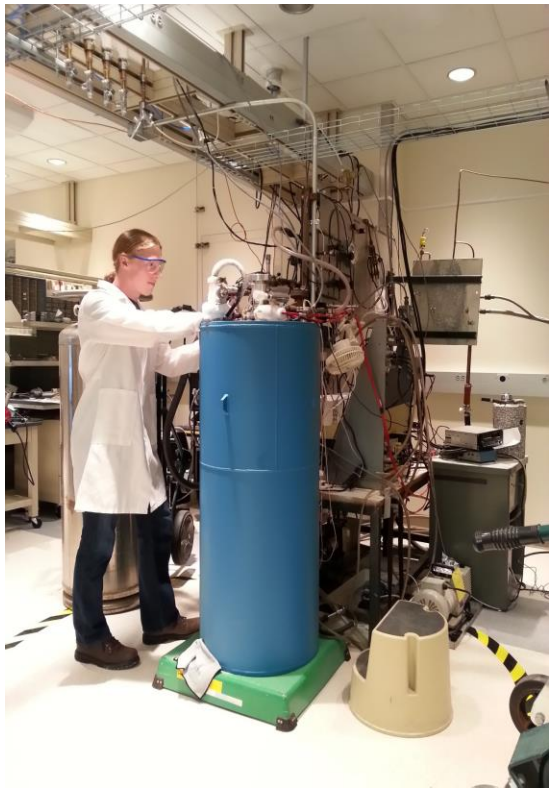
- **ANL:**
  - Zhili Xiao (Joint, Condensed matter physics)
  - Andreas Glatz (Joint, Condensed matter physics)
  - Mike Papka (Joint, Computer Science)
  - David Schroeder (Joint, Technology)
  - Liping Guo (Sabbatical, Technology)
  - Michel van Veenendaal (Summer, Condensed matter physics)
  - Carol Thompson (Summer, Condensed matter physics)
  - Omar Chmaissem (Summer, Condensed matter physics)
- **FNAL:**
  - Michael Syphers (Joint, Beams Physics)
  - Swapan Chattopadhyay (Joint, Beams Physics)
  - Philippe Piot (Joint, Beams Physics)
  - Young-Min Shin (Joint, Beams Physics)
- **Of course these appointments lead to numerous opportunities for our students.**

Current ANL Collaborations

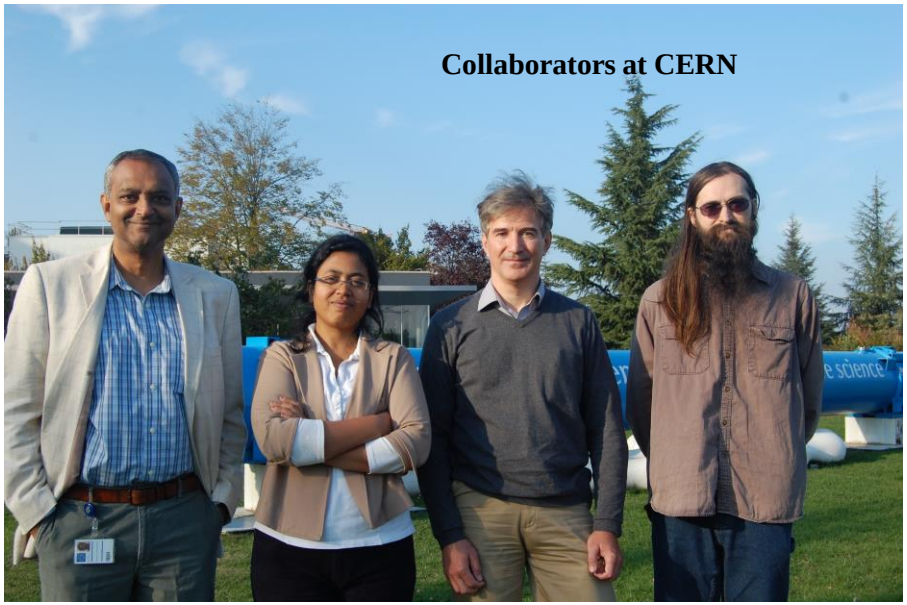
- **Argonne Collaborative Center for Energy Storage Sciences (ACCESS)**
- **Advanced Photon Source**
- **Electron Microscopy Center**
- **Materials Science, Energy System, and High Energy Physics Divisions**

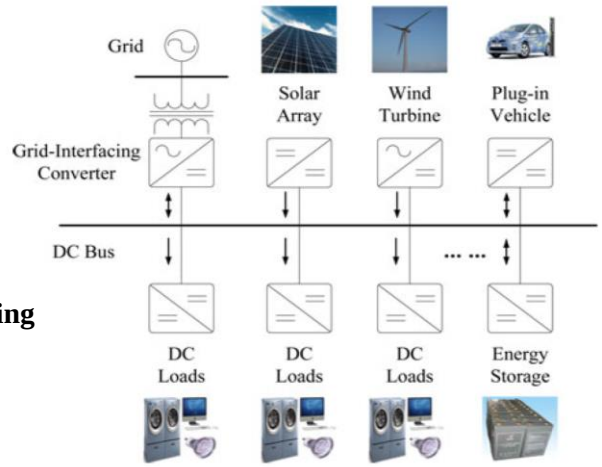


NIU Students (Preeti Vodnala, and Nuwan Karunaratne) NIU Faculty (Laurence Lurio) and ANL Staff Alec Sandy and Jon Weizeoric) installing a new detector in the experimental hutch At beamline 8-ID-I of the Advanced Photon Source.

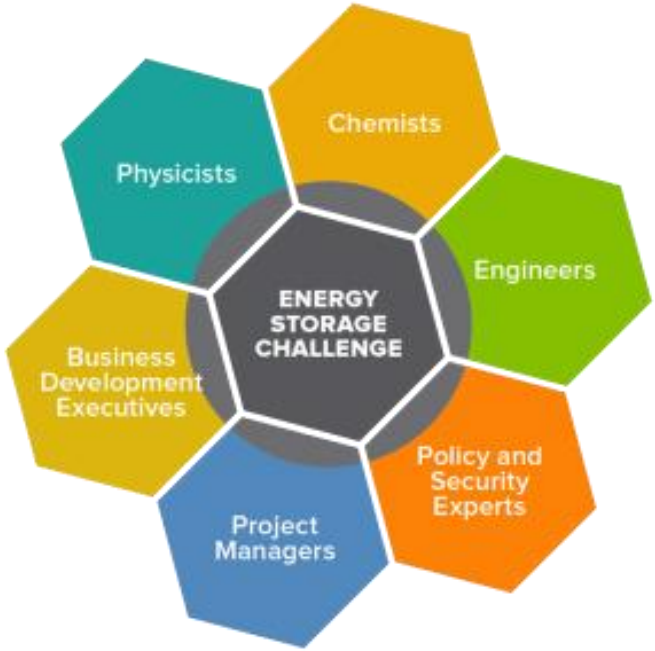


PhD Student Keith Taddei measuring superconducting samples at the Energy Building labs, ANL



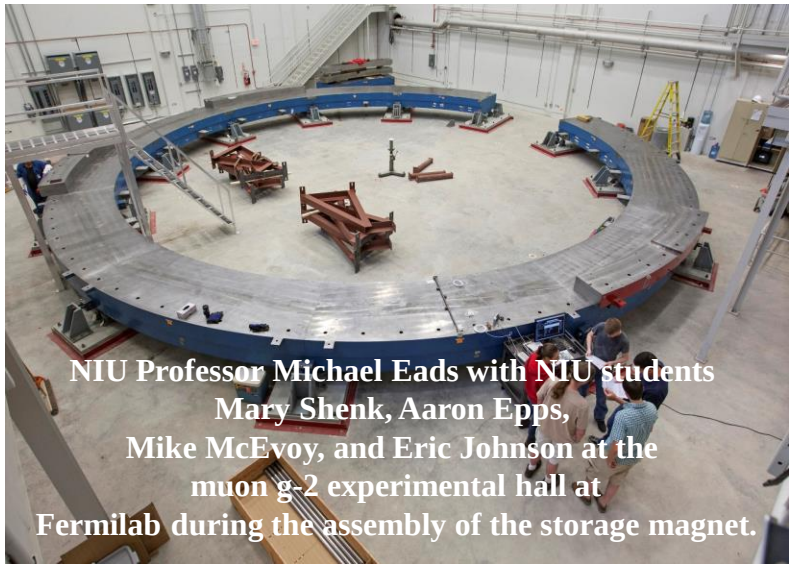


Microgrid system including renewable sources



Current FNAL Joint Projects

- **Housed at NIU within NICADD**
- **High Energy Physics**
  - **Mu2e collaboration**
  - **g-2 collaboration**



NIU Professor Michael Eads with NIU students Mary Shenk, Aaron Epps, Mike McEvoy, and Eric Johnson at the muon g-2 experimental hall at Fermilab during the assembly of the storage magnet.

Construction site for mu2e project at Fermilab.

- **Accelerator Science**
  - **Fermilab Accelerator Science and Technology (FAST) program**
  - **High-Brightness Electron Source Lab (HBESL) at Fermilab's Illinois Accelerator Research Center**
  - **Fabrication of structured nano-cathodes for field emission studies (FNAL and ANL!)**

Accelerator Research Concentration of Excellence

- **Joint venture with FNAL to build regional strength in accelerator science.**
- **Embodied in a $6M Cooperative Research and Development Agreement (CRADA)**
- **Will eventually lead to six NIU accelerator scientists – the 2nd or 3rd largest university group in the US.**
- **Led by Dr. Swapan Chattopadhyay and Michael Syphers.**
- **Return through external funding from FNAL (~$3M), NSF and DHS ($2.7M) exceeds investment.**

Harsha Panuganti in the High-Brightness Electron Source lab (HBESL) laser room working on the Spectra-Physics Spitfire Ti:Sapph laser amplifier.

NIU-RFMUS Collaborative Seed Grants

- During first half of CY2015, at the invitation of the two Administrations, researchers from both institutions met and proposed collaborative seed grants.
- The complementary expertise and capabilities leads to excellent collaborative benefits.
- Five of nine were selected by VPRS; a total of $227k dispersed in September (NIU/$150k and RFUMS/$77k).
- Six investigators from each institution; all grants in varying stages of progress.
- Extremely well received by faculty: "great initiative" and "critical in developing collaborative research"
- Expected outcomes:
  - All grants anticipate publications
  - CY 2016 submissions to Natl. Institutes of Health and Natl. Science Foundation.

NIU/RFUMS CSGs

- Role of GLI-2 in inflammatory breast cancer / Elsawa- Biology
- Vestibular Function in Usher Syndrome Mice Following Restorative Antisense Oligonucleotide Therapy / Wallace- Psychology
- Nanobodies of glucose transporters for structural studies and drug design / Horn- Chemisry
- Mitochondrial permeabilization by the B-cell lymphoma-2 proteins during apoptosis / Lurio -Physics, Gaillard - Chemistry
- GLI-mediated inflammation in response to HCV/HBV infection/ Elsawa -Biology, Bode - Biology

Final Comments

- **Collaborations with regional institutions have been and remain strong.**
- **Very diverse and covers many disciplines***
- **Working to expand and leverage our partnerships into the future.**

*** Apologies for overlooked initiatives**