



June 2009: Accomplishments and Look-Ahead

April

- ATR NSUF sponsored a workshop on irradiation testing at the American Nuclear Society (ANS) student meeting on April 3. The workshop covered current research issues in Nuclear Energy (NE) programs (including LWRs) and an overview of how these can be addressed using ATR and other supporting facilities.
- Todd Allen presented the materials keynote presentation at the ANS Student Conference on April 4.
- The NSUF staff chose two “Best Material Science” presentations at the ANS Student Conference. These two students will visit INL in June to present their work.
- John Jackson, Sebastien Teyseyre, and Mitch Meyer attended the ICG-EAC (International Cooperative Group on Environmentally Assisted Cracking) April 20-24 in Boston, MA. The meeting focuses on understanding material degradation in Light Water Reactors. This is the primary issue in nuclear plant life extension.

May

- Todd Allen presented an NSUF paper at the International Congress on Advances in Nuclear Power Plants (ICAPP) in Tokyo, May 11-14.
- ATR NSUF summer interns began arriving.
- Todd Allen visited China May 18 – 30, 2009 and met researchers from many Chinese organizations, including the new Chinese Advanced Research Reactor.
- Mitch Meyer submitted an invited paper abstract to the IGORR (International Group on Research Reactors) meeting in Beijing, October 28-30.
- Initiated testing of specimens in the new crack growth rate systems in CAES.
- Began detailed post-irradiation testing planning with EPRI for first industry experiment.

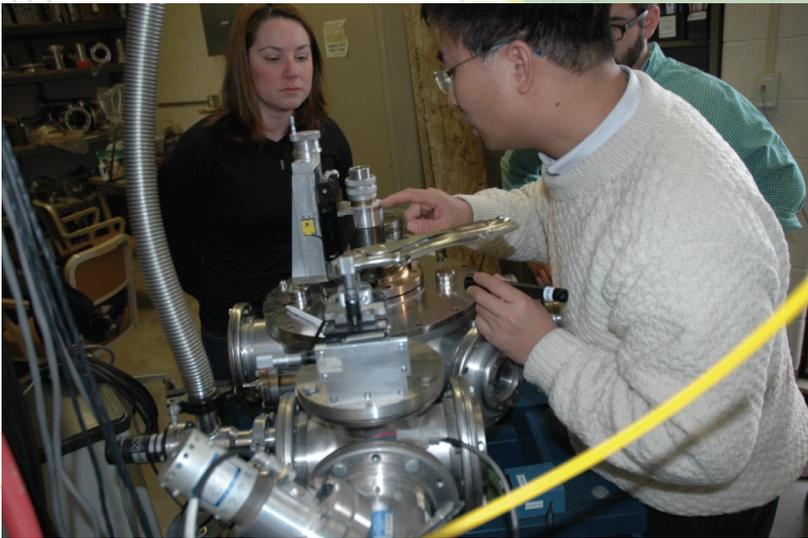
June and Beyond

- ATR NSUF User Week 2009 was held June 1-5. Users Week is intended for researchers from industry, national laboratories, and for students, faculty, and post-docs interested in materials, fuels, irradiation testing, and post irradiation examination facilities.
- Joy Rempe will present the paper, “New Sensors for In-Pile Testing at the ATR NSUF,” at the Advancements in Nuclear Instrumentation, Measurement Methods, and their Application (ANIMMA) in Marseille, France and serve as a member of the Scientific Committee at the conference June 8th.



Newsorthy Notes:

As part of an ongoing effort to promote collaboration between Idaho National Laboratory and faculty and students of universities across the country, INL nuclear engineer Heather MacLean, Ph.D., spent two weeks on a faculty-staff exchange at the University of Wisconsin-Madison.



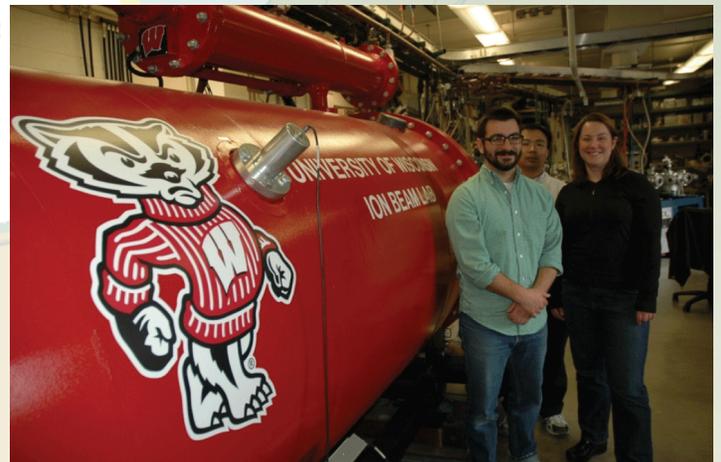
Heather MacLean learns about using Rutherford Backscattering to study diffusion from postdoc Guoping Cao and graduate student Tyler Gerczak

While there, MacLean was able to interact with university faculty and students who had taken part in conceptualizing and designing one of the first projects taking place at the INL's Advanced Test Reactor facility. The test examines different materials for possible use in next generation nuclear power facilities and for extending the life of current plants.

While there, MacLean presented a colloquium on fuels research and spoke about her experience with the Advanced Fuel Cycle Initiative fuels programs. She gave a brief summary of the work being done on the Next Generation Nuclear Plant and Reduced Enrichment for Research and Test Reactor programs at INL.

According to MacLean, one of the main goals of the trip was to build up the relationship between INL and the university's students and staff. MacLean sat in on the senior design class presentations on reactor design concepts. She also made herself available to answer the students' questions about things like fuel selection. This was all an important part of what MacLean calls "pre-recruiting" some of the best nuclear students in the nation.

Tyler Gerczak, a graduate student at the University of Wisconsin, is one example. Gerczak, who has worked on – among other projects – coating performance for uranium dioxide fuel kernels for high temperature reactors, had the chance to team up with MacLean during her visit. He says this allowed him the opportunity to ask questions about different projects at INL, learn new analysis techniques, and gain a different perspective on his educational experience.



Heather MacLean in the Wisconsin Ion Beam Laboratory with Guoping Cao and Tyler Gerczak



And speaking of his plans for after his time at Wisconsin, Gerczak said, “The national lab environment is one possibility that I’m very much interested in ... a place like the INL is someplace I would envision myself ending up.” To continue promoting this type of collaboration, a second trip is scheduled for MacLean to follow up on what was begun in this first trip.

The first part of the University of Wisconsin’s experiment is due to finish in the ATR in October, when INL and the university will begin working together to analyze the results. The samples included in the first test batch will have spent a full year being irradiated. After the data from this first batch is gathered, it will be compared to the second batch of samples, due to leave the reactor in December 2010, after more than two years of irradiation.

Experiments Update:

FY 2008 Projects				
Project	Position	Target Temperature(s)	Scheduled Insertion Date	Scheduled Removal Date
University of Wisconsin	East Flux Trap 4	300°, 400°, 500°, 700°	August 2008	September 2009 October 2010
North Carolina State University	East Flux Trap 7	250°	Inserted February 2009	June 2009 November 2009
University of Florida	B-1	300°	Inserted February 2009	April 2010
University of Illinois	A-9, or HSIS (B-7)	300°, 450°, 550°	August 2009	December 2010
University of California Santa Barbara	A-10	300°, 550°, 650°	August 2009	August 2010
FY 2009 Projects				
Project	Position	Target Temperature(s)	Scheduled Insertion Date	Scheduled Removal Date
MIT	MIT Reactor			
University of California Santa Barbara	I-10	310	October 2010	October 2011
University of Wisconsin	PIE only	N/A	N/A	N/A
Utah State University	B-2	400°	February 2010	February 2011