



4th Quarter Report—July/Aug/Sept 2013

ACCOMPLISHMENTS & LOOK AHEAD

July

- The ATR NSUF Scientific Review Board met July 16.
- Jennifer Jarvis, MIT, led a colloquium on PWR primary water chemistry modeling for studying zircaloy-4 fuel cladding July 11.

August

- Elsevier journal publisher Baptiste Gault presented on atom probe tomography and “An Insider View on Scientific Publishing” on Aug. 1 & 2.
- David Frazer, UC Berkeley student, presented a colloquium on “Nano/Micro Scale Characterization of SiC/SiC Composite Materials” on Aug. 8.
- Nigel Browning, PNNL Laboratory Fellow, presented on in-situ TEM research and met with ATR NSUF and INL staff to discuss establishing a regional materials characterization network.

September

- ATR NSUF Panel Committee met Sept. 4 on the fall FY13 Call for Proposals. This call was aligned with NEUP and after the panel met, NEUP made a final decision and NEUP proposal awards were made.
- The ATR NSUF Industry Advisory Committee met at EPRI Sept. 10 in Charlotte, NC.
- Frances Marshall attended a meeting at IAEA to support development of protocols for International Centers based on Research Reactors (ICERR).

October

- Frances Marshall will present a seminar at Virginia Tech on Oct. 25 about ATR and the ATR NSUF program.

Open Calls for Proposals

- First quarter call for RTE proposals closes Dec. 31, 2013.
- Spring call for irradiation, PIE and APS experiments closes in spring 2014.
- 2014 FSRT call closes Dec. 2013.

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NOTEWORTHY NEWS

Meet our new Scientific Director: his vision for ATR NSUF

In August, we announced Illinois Institute of Technology (IIT) associate professor Jeff Terry as our new ATR NSUF Scientific Director. As Scientific Director, Jeff provides strategic direction for ATR NSUF, leadership to the program staff and a dedicated team of INL scientists and engineers, and works closely with potential academic and industrial ATR NSUF users. He also serves as the lead interface between the program and various stakeholder groups such as the Department of Energy, university researchers and the ATR NSUF User Group.



Jeff Terry, ATR NSUF Scientific Director

Jeff has long been a supporter of the user facility concept and has experience working with user facilities. For the three years prior to coming to ATR NSUF, he worked as the Radioactive Sample Coordinator for the Materials Research Collaborative Access Team (MRCAT) beamline at Argonne National Laboratory’s Advanced Photon Source – one of our ATR NSUF partner facilities.

Jeff strongly believes in the partner facility concept as a top method to advance scientific research, particularly in a time of depressed budgets. “ATR NSUF merges the national nuclear research infrastructure with intellectual capital to pair the best ideas with needed capability,” he said. He explained that back in the 1950s and 1960s everyone could afford to buy everything and it was common to see duplicates of the same instrument in use at various places. With budgets now, that kind of instrument duplication is just not a possibility. “Being a user facility with multiple partners is unusual in the current model of single site user facilities. The multiple partner, multiple site concept allows ATR NSUF to bring in as many top notch researchers as possible to maximize the use and get the greatest benefit from the equipment that is available,” Jeff said.

Now that he has had a month or two to settle into the position, Jeff has further developed his vision for ATR NSUF. He has several ideas for how to increase the influence and research potential of ATR NSUF. One goal is to remove some of the limitations on proposers. Because the majority of users are from universities and there has been low national laboratory and industry participation on proposals, the program is widely looked at

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Scientific Director vision for ATR NSUF cont.

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as a university program, but it has the potential to be so much more. He would like to see more participation from national laboratories and industry. ATR NSUF use will be optimized if more joint industry-laboratory-university experiments are encouraged.

The program's current criteria require that proposals always be led by a university. Industry and national labs can still participate, but cannot lead the experiment. Jeff is considering re-visiting that criteria and looking at the potential of having experiments led by a non-university institution. All proposals would still have the university component, but they would have flexibility in who leads the experiment.

Jeff also wants to explore a way to actively match university researchers with INL researchers - possibly like an online dating site for scientists to link up to do great research. Researchers would tell us what their research strengths are and what they are missing and we would tie them to outside expertise or research capabilities that their own facility might be missing.

Another goal Jeff has for ATR NSUF is to do an enhanced communication and outreach push. He plans to do this by opening up more lines of communication through media like the new website, expanding the user base, and continuing to do great experiments. "I want to make sure the entire world knows about ATR NSUF and the excellent research done here," Jeff said.

Jeff began his joint appointment position August 5 and splits his time between ATR NSUF and his faculty responsibilities as an associate professor of physics at IIT. He is excited to be part of the program and looks forward to furthering the reach of ATR NSUF. "ATR NSUF is the most unique user facility in the U.S.," Jeff said. "The combination of the facilities at INL and at the partner facilities gives ATR NSUF great ability to solve materials challenges in nuclear energy generation."

What industry wants from ATR NSUF

The ATR National Scientific User Facility Industry Advisory Committee (ANIAC) meeting to brief industry organizations and solicit feedback on the direction and status of ATR NSUF took place September 10, 2013 at the Electric Power Research Institute (EPRI) office in Charlotte, NC.

ANIAC meets every 18 months and gives industry an opportunity to provide input into determining capabilities needed to support industry experiments. In addition to updates from ATR NSUF staff and industry representatives, ATR NSUF researchers whose projects are most relevant to industry present their research results.

Attendees at the September meeting came from companies all over the world including EPRI, ATI Consulting, North Carolina State University, Électricité de France/Materials Ageing Institute, Oak Ridge National Laboratory, Atomic Energy of Canada Limited (AECL), Radiation Effects Consulting, AREVA, Westinghouse, University of Florida, and University of Tennessee.

CAPABILITY THROUGH PARTNERSHIPS

When ATR NSUF began as a user facility in the spring of 2007, we offered users access to capabilities only at INL's Advanced Test Reactor and Materials and Fuels Complex.

Six years later, we now have 11 partner facilities (8 universities, 2 national laboratories, and 1 industry) and offer access to a range of post-irradiation examination, reactor, and beamline capabilities spanning the country.



What industry wants cont.

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According to ATR NSUF Industry Programs Lead John Jackson, the overall goal for the ATR NSUF Industry Program is to take current programs and capabilities and, with industry support, expand them so that they may be utilized to address current, relevant research topics. Both industry and ATR NSUF benefit; ATR NSUF gets industry backing to do even more research, and ATR NSUF helps industry by linking their ideas for research with university and laboratory researchers who have new ideas and expertise.

In his status update on industry projects, John explained how industry can get involved with ATR NSUF and why they should. "Industry input helps us develop and set priorities," he said. "Key examples are the irradiation-assisted stress corrosion cracking (IASCC) test rig and the reactivation of the pressurized water loop in the Advanced Test Reactor. Industry told us these two capabilities were priorities for them and we got them done because of that. Completing these capabilities was a direct result of us asking industry, 'What facilities do you need? What facilities would you use?'"

Industry Feedback

At each industry advisory committee meeting, a session is reserved for group discussion where each participant can provide feedback to ATR NSUF. One of the recurring comments that came from industry this year was a desire for an open and transparent process to gain access to ATR NSUF. Meetings like ANIAC are one good method to help with transparency, but the ATR NSUF industry pilot projects currently underway are a direct response to that transparency request.

"ATR NSUF wanted to give industry a chance to stick their toes in, test the waters, and get familiar with our facilities, capabilities, and processes," said John. "These first industry pilot projects allow for just that. They give indus-

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INDUSTRY Q&A

ANIAC exists not only to get feedback from industry, but also to open up dialogue and answer industry questions about ATR NSUF. Here are some of the more common questions and answers:

Q: Since it can take years for project results to be published, how can we get results from experiments in a timely manner?

A: ATR NSUF Annual Reports come out each year with updates on each experiment. Industry may be particularly interested in the 2012 Annual Report because some of the university-led projects in the Report have industry partners and there is also new section on industry projects.

Q: Does ATR NSUF have an annual meeting to bring all researchers with projects together to discuss results and progress? Can industry attend?

A: Yes, ATR NSUF hosts an annual meeting for users to share research progress. In the past this meeting has been called "Users Week," but this coming year (June 2014) it is restructured as a Users Meeting and shortened to about 3 days. ATR NSUF welcomes industry attendance.

Q: What does it mean that proposals must be non-proprietary? Does research have to be published and made public? What is the time frame for sharing the results?

A: The non-proprietary requirement for awarded research proposals to have cost-free access to ATR NSUF capabilities applies to industry just as it does to universities and national labs. It requires research findings resulting from an ATR NSUF-funded project to be made public. There is no set time frame for when results must be published, but it needs to be within a reasonable time frame.



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What industry wants cont.

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try a window into the ATR NSUF process. We wanted to give industry a chance to get acquainted with ATR NSUF, so they were not required to have university partners for these initial experiments. New proposals from this point forward, however, will require industry to work with a university partner.”

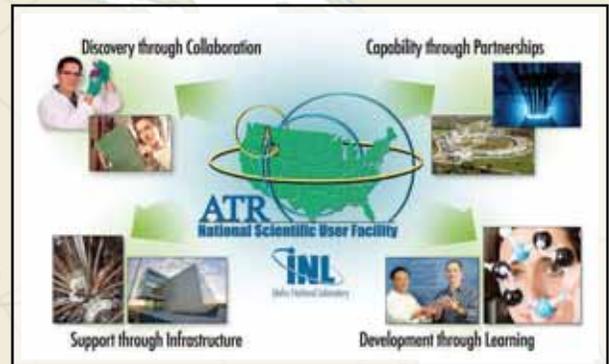
Another common sentiment expressed at the meeting was widespread support for ATR NSUF Scientific Director Jeff Terry’s “dating service” idea to actively match university researchers with ATR NSUF projects and capabilities (*see front page article for more details*).

TG Lian of EPRI said EPRI wants to actively participate with ATR NSUF. He is particularly interested in connecting with universities through ATR NSUF because that is where the new ideas come from. Mike Burke from Westinghouse agreed. He is interested in how industry can work with ATR NSUF to communicate knowledge gaps to researchers.

Michele Manuel, an ATR NSUF principal investigator from University of Florida who presented her research to ANIAC, brought the researcher perspective to the conversation. She said hearing from industry and having help from ATR NSUF to make connections is beneficial. Lots of university researchers do not have the resources to make these connections on their own, so ATR NSUF helping link researchers to industry or laboratory projects is extremely helpful.

Malcolm Griffiths of AECL highlighted another benefit industry receives when working with ATR NSUF: doing research through ATR NSUF gives them a cost-effective means to conduct research. Industry can accomplish much more research for the money when working through ATR NSUF and collaborating on research. Having ATR NSUF connect people is great, but working through ATR NSUF also makes irradiation experiments more affordable.

“The input we receive from industry contributes to the direction ATR NSUF will take in the future,” said John. “Thank you to all of those who participated and made this year’s ANIAC meeting a success.”



John Jackson, ATR NSUF industry Programs Lead, explains how ATR NSUF is supporting the nuclear industry.

VIDEO: ATR NSUF research supports the Light Water Reactor industry

ATR NSUF Industry Programs Lead John Jackson explains how the ATR National Scientific User Facility is working with the Electric Power Research Institute and the U.S. Nuclear Regulatory Commission to help the nuclear industry improve safety and efficiency in reactor systems and to help extend the life of existing light water reactors. Click the link to watch the video: <http://www.youtube.com/watch?v=f-5YDkuqNa0&feature=c4-overview&list=UUUiMjf6eg6V8fGlcNFfj-HA>



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Changes to the rapid turnaround experiment proposal process



The initial intent for rapid turnaround experiment (RTE) proposals was to have them reviewed upon receipt. If they passed the review and had a high priority ranking, they were awarded immediately. Challenges with finding reviewers led us to move to a quarterly review cycle with the hope that by moving to a quarterly review cycle, reviewers could be easily found. The quarterly review process was implemented in the spring of 2012.

Unfortunately, the challenges with finding reviewers continued, so we decided to move to a panel committee review process. Under this process, proposals will continue to be reviewed quarterly, but the reviews will be done by a four-member panel committee. Panel members will first perform an independent technical review on each proposal and then will meet together to rank the proposals. Awards will be made based on this ranking. It is our belief that this new process will help speed up the time from proposal submittal to award, while still ensuring the best science is awarded.

We just completed the first round of reviews utilizing this new process on the 3rd Quarter RTE Call. As with any new process, we encountered a number of challenges and the reviews took longer than anticipated. Now that we have completed one full review and worked through the system glitches, the process will move more quickly for proposals received in the call that closed October 15.

If you have any questions about these changes or the proposal process in general, please do not hesitate to contact Mary Catherine Thelen at mary.thelen@inl.gov or (208) 526-5209.

ATR NSUF Quarterly Report

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To learn more about ATR NSUF, visit
<http://atrnuf.inl.gov>.