

## December 2008: Accomplishments and Look-Ahead

### September

- Mitch Meyer, NSUF Scientific Program manager, and Jeff Benson, NSUF Education Program lead, contributed to finalizing a reactor testing textbook outline
- NSUF staff assisted INL staff in preparing a multi-year multi-million proposal for the Department of Energy Office of Science's Energy Research Frontiers Centers call for proposals. If awarded, the project will better integrate the nuclear engineering and basic science portions of the laboratory on important basic science and nuclear technology development

### October

- NSUF hosted Paul Voyles, University of Wisconsin, who gave a colloquium on advances in electron microscopy
- NSUF hosted Brian Wirth, University of California, Berkeley, who gave a colloquium on integration of multiscale modeling and experimental characterization
- NSUF staffed an information booth at the Materials Science and Technology (MS&T) conference October 8-9, 2008 in Pittsburgh, PA.
- Todd Allen, NSUF scientific director, presented an invited lecture on Materials for Generation IV Systems as part of a short course titled "Materials for Nuclear Power Workshop" at the MS&T 2008 conference.

### November

- NSUF staff hosted an information booth at the ANS Winter Meeting November 9-11, 2008 in Reno, NV.
- The first FY 2009 research solicitation closed November 3, 2008. Thirteen proposals were received. The second FY 2009 Solicitation released on November 17, 2008, is scheduled to close June 4, 2009. Both solicitations offer expanded irradiation testing capabilities. In addition, post irradiation examination only experiments are being offered as part of these solicitations. Two universities nominated their facilities as potential partners to supplement the NSUF capability.
- The call for 2009 Summer Faculty and Student Research Team (FSRT) Projects was released November 19, 2008. NSUF plans to award two teams to begin research in summer of 2009. FSRT provides another opportunity for university faculty and students to work closely with INL technical experts to increase nuclear research capability.

## Newsworthy Notes:



### NSUF has moved

ATR NSUF staff moved into new offices in the Center for Advanced Energy Studies (CAES), a 55,000-square-foot, energy efficient office and research building open to non-badged personnel.

Office occupancy began on Sept. 29, and research laboratories will be available for use by Jan. 2, 2009. Occupancy of the laboratories is pending completion of millwork and installation of specialty fume hoods.

Housed in new offices is the ATR NSUF Program Office, including Education Programs, Industry Programs, and outreach and proposal coordination functions, as well as laboratory space for some ATR NSUF equipment.

### PI for ATR User Facility experiment named Materials Society Fellow

Engineering Physics Distinguished Research Professor Kumar Sridharan, at the University of Wisconsin-Madison, has been named a Fellow by the American Society for Materials. He received his award in October at the Materials Science and Technology Annual Conference in Pittsburgh, PA.



Sridharan is the principal investigator from UW-Madison for an experiment currently being irradiated in Idaho National Laboratory's Advanced Test Reactor (ATR). Heather MacLean is co-principal investigator at INL and Julie Foster is project manager for INL. The experiment, a collaboration between the ATR National Scientific User Facility (NSUF) and UW-Madison, is the one in a series of partnerships between the User Facility and academic researchers at universities across the country. The UW-Madison experiment is the first to be put into the ATR for testing. Sridharan and the Wisconsin team coordinated with Westinghouse, Michigan, Penn State, and California-Berkely to prepare samples for the experiment.

The Fellowship recognizes Sridharan's distinguished contributions in the field of materials science and engineering and develops a broadly based forum for technical and professional leaders to serve as advisors to the society.

ASM is a premier society for materials science and engineering with a worldwide membership of about 34,000 and 98 regional chapters.

### NSUF installing new test equipment

Two systems for measuring fracture toughness and environmental cracking on unirradiated LWR core materials are being installed in the CAES building and will support future ATR NSUF research. The first is being assembled now and will be commissioned in March, with the second system coming on line a few months later. Systems for testing irradiated materials are also in planning for installation at the Materials and Fuels Complex in 2009.

The machines will test reactor core materials in boiling water reactor and pressurized water reactor environments. They will measure how fast stress corrosion cracks initiate and grow and if there is any effect of environment on fracture toughness.

The systems at CAES will initially be used for tests of materials supplied by the Electric Power Research Institute in collaboration with Massachusetts Institute of Technology. The systems later will be made accessible through the NSUF for collaboration among universities, industry and national laboratories.

### Experiments Update

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°	February 2009	June 2009 November 2009
University of Florida	B-1	300°	February 2009	April 2010
University of Illinois	A-9, or HSIS (B-7)	300°, 450°, 550°	June 2009	December 2010
University of California Santa Barbara	A-10	300°, 550°, 650°	June 2009	August 2010