

February 2009: Accomplishments and Look-Ahead

November/December 2008

- Dr. Todd Allen, NSUF scientific director, named Chair of the OECD NEA Expert Group on Innovative Structural Materials
- Hosted NSUF Colloquium at Idaho National Laboratory -- Dr. Roger Staehle, Staehle Consulting, "Development of Nuclear Power in China"

January

- Registration opened for the June 1-5 ATR NSUF User Week hosted at Idaho National Laboratory
- Hosted NSUF Colloquium at Idaho National Laboratory -- Dr. Robert Daum, Electric Power Research Institute, "Hydride-induced Degradation of LWR Fuel Cladding and Assembly Components"

February and Beyond

- Awarded four new experiments, one each to Utah State University, Massachusetts Institute of Technology, University of California, Santa Barbara, and University of Wisconsin
- Feb. 15-19, The Minerals, Metals and Materials Society annual meeting, San Francisco (see related feature in Newsworthy Notes below)
- Feb. 20, dedication of the Center for Advanced Energy Studies, which houses ATR NSUF staff in Idaho Falls
- Feb. 27, application deadline for scholarships for ATR NSUF User Week 2009 (see additional information in Newsworthy Notes below)
- The Test Train Assembly Facility to support NSUF experiments to be irradiated in the Advanced Test Reactor is on schedule for completion in May
- The North Carolina State University and University of Florida experiments are scheduled for insertion in the ATR (see Experiment Updates below)

Newsworthy Notes:

Symposium at TMS annual meeting marks Robert Odette's technical accomplishments

Prof. Robert Odette, professor in the University of California, Santa Barbara's Mechanical Engineering and Materials departments and lead experimenter on one of the four inaugural Advanced Test Reactor National Scientific User Facility's university experiments, has 40-plus years of technical contributions in studying the effects of radiation on materials. His longevity and scientific contributions will be recognized in February at the Annual Meeting of The Mineral, Metals and Materials Society in San Francisco, compliments of four of his former students.

Prof. Brian Wirth, UC Berkeley Nuclear Engineering Department, said Prof. Odette will be recognized in a symposium entitled "Embrittlement and Fusion Materials: Measuring, Modeling and Managing Irradiation Effects" that will span two sessions. On Feb. 18, the topic will be Prof. Odette's technical contributions to reactor pressure vessel



Dr. Robert Odette (L) and Dr. Takuya Yamamoto (R)

embrittlement entitled "RPV Embrittlement: Technical Contributions of Professor G. Robert Odett," and on Feb. 19, "Fusion Reactor Materials: Technical Contributions of G. Robert Odette."

Early in 2008, an experiment proposed by Odette, Dr. Takuya Yamamoto of UCSB, and their research team was accepted by Idaho National Laboratory's Advanced Test Reactor National Scientific User Facility (ATR NSUF) for irradiation in the Advanced Test Reactor. The experiment will provide a library of irradiated materials and material performance information in support of the development of advanced nuclear power reactors.

Todd Allen, scientific director of the ATR NSUF, said, "I think Bob has really made three major contributions. He's led worldwide efforts in scientific understanding of embrittlement in reactor pressure vessels. He's been a leader in developing combined experimental and modeling techniques to analyze complex systems. And, finally, Bob is one of a handful of professors that kept the field of radiation materials science alive through the 1990s."

Reflecting on his achievements, Prof. Odette said, "I think that what stands out in my mind are the areas that our group at UCSB have created and pioneered that have been adopted and emulated in research groups all around the world."

User Week 2009 -- a Full Agenda

The ATR NSUF User Week June 1-5, hosted by INL, offers a week of workshops, a research forum, experimenters and fuels and materials courses a workshop on using the Advanced Photon Source, and tours of INL research facilities. User 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.

A research forum will be presented in two half-day sessions where participants learn about current research projects being conducted at the ATR NSUF. There will also be discussions on potential university collaborations and potential university/laboratory/industry collaborations

Full details are available on the ATR NSUF Web page under Users Week at www.inl.gov/atr

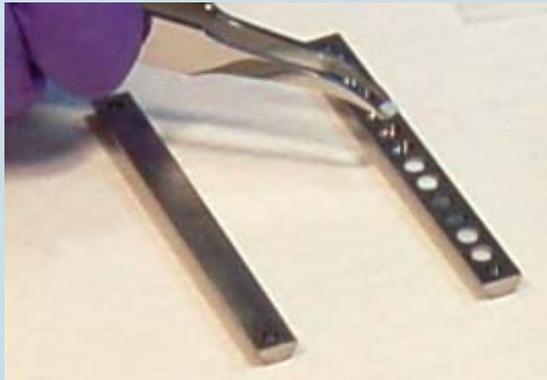


Users Week 2008

Experiment 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

The North Carolina State and University of Florida experiments, selected in 2008 to be put into the Advanced Test Reactor, will be inserted in February. Research representatives from each university are participating at INL in the final preparations of the experiments.



The image shows the stainless steel half-cylinder with pre-drilled cells and ceramic samples being loaded in the cells. The other half-cylinder acts as a lid and is secured by the stainless steel pins. After the lid is closed the sample holder is wrapped with a stainless steel wire. The wire is secured by tack welding. The team hopes that this design will also be utilized by other experimenters.

Assembly preparations for the Florida experiment included two Florida students. Sophomore Donald Moore was at the INL in January during assembly, and Ph.D. candidate Peng Xu participated by phone consultation. Peng Xu recently completed a six-month internship at INL prior to the experiment assembly work.

The Florida experiment (see figure to left) involves a large number of transmission electron microscopy samples, each measuring three millimeters in diameter and one millimeter thick. An innovative sample holder was developed to keep each sample in position to ensure the correct sample temperature during irradiation.

Prof. K.L. Murty and doctoral student Walid Mohammed from North Carolina State University will at INL on hand February 3-4 to finalize assembly of the NCSU their experiment.