

Neutron Sciences Progress at Oak Ridge National Laboratory August 2008

Summary

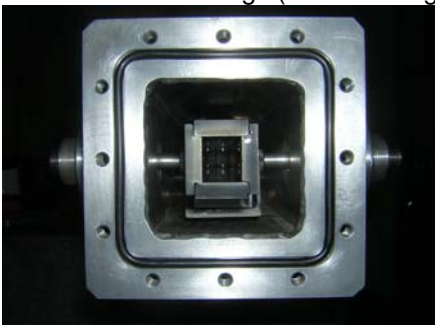
- **HFIR** Cycle 416 began July 16, 2008, and ended August 6, 2008.
- **SNS** neutron production cycle began August 21, 2008, and will end January 3, 2009.
- **“Dynamics of Soft Matter” Workshop** will be held December 4-6, 2008, in Boston MA, as a satellite event of the MRS annual meeting. Sessions on complex fluids, biology, polymers, and surfaces are planned. See the website <http://neutrons.ornl.gov/conf/dsm2008/index.shtml> for more information. Contributed talks and posters are being solicited through October 1, 2008.
- **User publications:** users are requested to provide lists of their publications from 2007 to present resulting from research at HFIR and SNS. Please click on the hyperlink below to submit bibliographic citations: <[Bibliographic Citations](#)>
- The first annual report of ORNL's Neutron Sciences Directorate “Neutron Sciences Annual Report 2007”, including HFIR and SNS activities, is posted at http://neutrons.ornl.gov/nscd_2007_annual_rpt.pdf.

Instruments and Users

- Installation of the US-Japan Cold Triple Axis Spectrometer at HFIR CG-4C continues (see image below left). The Powder Diffractometer (HFIR HB-2A) sample table pedestal and table component of the shield assembly have been installed (see image below right).



- Following the closing of Argonne's Intense Pulsed Neutron Source (IPNS), the repository of the IPNS data has moved to Oak Ridge. Cataloging of the IPNS experimental data is now complete and all of the data formerly stored at IPNS is now available through ORNL. Experimenters should contact Pete Peterson at peterpsonpf@ornl.gov or telephone 865-241-3626 for information on how to access the data.
- Several guide subassemblies of the Single Crystal Diffractometer (TOPAZ, SNS BL12) were aligned in their vacuum housings (see the image below).



- A sample activation calculator has been incorporated into the Neutron Scattering Portal (<https://neutronsr.us>) which enables users to calculate the approximate amount of radioactive dose that a particular sample will possess after being in a particular beamline for a specified amount of time. The calculator is available for most operating beamlines at SNS and HFIR and is used to help manage sample handling. Note that the calculations do not replace, but rather are used to supplement measurements of sample activation.
- Through August 2008, HFIR has 229 unique users on 7 instruments and SNS has 106 unique users on 3 instruments.
- Over 160 reviewers contributed to the recent external review of over 200 proposals submitted for the general user program at HFIR and SNS. In an effort to improve the functionality of the external reviews

of the scientific proposals, these reviewers were surveyed about the proposal system with a 25% response. About 80% noted that the proposal review system is good to excellent and a few indicated improvements are needed. We continue to enhance the proposal system and welcome feedback from our users.

- Articles on HFIR and SNS appeared in the recent issues of *Neutron News* [v.19 # 3] <http://www.informaworld.com/smpp/title~content=g902343321~db=all>, and *Notiziario Neutroni e Luce di Sincrotrone* [v.13 # 2] <http://www.fisica.uniroma2.it/~notiziario/2008/volume13n2.html>.

Operations

- Operating Cycle 416 began on July 16 and continued until August 6 when the reactor was manually shutdown because of a servo malfunction. A decision was made to begin the End-of-Cycle 416 outage at this time, shortening Cycle 416 by approximately 2 days. Cycle 416 was the sixth cycle of FY2008. Cycle 416 operation accounted for a total of 1813.65 MW-Days supporting neutron scattering experiments; 77 in-vessel irradiation capsules; and irradiation of 27 neutron activation analysis samples. Of this total, 463.13 MWd were produced in August. At the end of August, HFIR had produced 12,024 MW-Days in fiscal year 2008; well above the goal of 10,200 MWd.
- The SNS accelerator turn-on for the Operating Cycle 2008-3 began August 19, 2008, with neutron production beginning on August 21, 2008. The maximum beam power delivered in August was 550 kW. The beam availability for August was 54.4%. There were a total of 60 MW-Hours of beam delivered for neutron production in August. Run 2008-3 will transition to Run 2009-1 on September 30, 2008 with no interruption of the beam delivery cycle. Neutron production for Run 2009-1 will end on January 3, 2009.
- The SNS schedule in the coming months may be perturbed by the planned, but undetermined, end of life of the first mercury target. This foreseen operational event will cause the shutdown of SNS for about two weeks while a new target is installed. Users will be notified as soon as possible and rescheduled to a future time. Our goal is to predict the target end of life and schedule future target replacements within normal maintenance periods.

Employment Opportunities

Positions in the Neutron Sciences Directorate or related to neutron scattering are available for browsing. Click on "View Open Positions" at <http://jobs.ornl.gov/>. A recently announced open position is:

- NScD Software Engineer, ID 2917

Neutron Scattering Postdoctoral Fellowship Positions with ORNL through Oak Ridge Associated Universities [description available at <http://www.ornl.gov/orise/edu/ornl/postneeds.htm>. Recently announced open positions are listed below.

- Postdoctoral Research Associate in Accelerator Physics, [ORNL08-125-RAD]
- Postdoctoral Research Associates in Condensed Matter Science, [ORNL08-124-NSSD]
- Postdoctoral Research Associates in Neutron Scattering with Triple Axis Instrumentation, [ORNL08-107-NSSD]
- Postdoctoral Research Associates in Beam Instrumentation, [ORNL08-97-NSD]
- Post Master's Research Associate in Neutron Scattering Research, [ORNL08-92-NSSD]
- Post Master's Research Associate in Software Engineering, [ORNL08-84-NSSD]
- Postdoctoral Research Associate Experimentalist in Neutron Sources Mechanical Engineering, [ORNL08-81-NFDD]
- **Other Postdoctoral Fellowships**
 - **Clifford G. Shull Fellowship** – The goal of the Shull Fellowship is to attract new scientific talent to ORNL for the development of its neutron science program. We are looking for candidates with exceptional ability who are capable of developing innovative research programs and who show the promise of outstanding science leadership. **Applications will be accepted July 1 – December 12, 2008.** For additional information about the Fellowship, see <http://neutrons.ornl.gov/shullfellowship/> or contact Bob Martin at martinrg@ornl.gov.
 - **Instrument Development Fellowship** - This fellowship opportunity is for the development of novel neutron instrumentation and instrument components to be used for neutron science at ORNL or other U. S. neutron centers. For additional information, see the website at <http://www.ornl.gov/orise/edu/ornl/postneeds.htm> for position ORNL08-51-NSSD.
- **Educational and Research Experiences:** ORNL has educational programs covering many scientific disciplines with the education continuum from pre-college through postgraduate including teachers and faculty. The main link to all of these programs is <http://www.ornl.gov/orise/edu/ornl/>

Future meetings of interest to SNS and HFIR users

- User Meeting of the Center for Nanophase Materials Sciences and Shared Research Equipment user facilities, September 24-26, 2008, Oak Ridge, TN.
http://www.cnms.ornl.gov/upcoming_events/events.shtm
- 10th United States National School on Neutron and X-ray Scattering, September 24-October 11, 2008, Argonne National Laboratory and Oak Ridge National Laboratory. <http://www.dep.anl.gov/nx/> and <http://neutrons.ornl.gov/conf/NXS2008/>. [Applications are closed.]
- Neutron Imaging at the Spallation Neutron Source, November 3, 2008, Oak Ridge, TN.
<http://neutrons.ornl.gov/conf/nisns2008/index.shtml>
- Dynamics of Soft Matter, December 4-6, 2008, Boston MA. This is a satellite of the Fall 2008 MRS annual meeting. <http://neutrons.ornl.gov/conf/dsm2008/index.shtml>.
- Physics Diversity Summit and the Joint Annual Conference of the National Society of Black Physicists and National Society of Hispanic Physicists, February 11-15, 2009, Nashville, TN.
<http://www.nsbp.org/conference/>
- International Conference on Neutron Scattering, May 3-7, 2009, Knoxville, TN. Contact Al Ekkebus at ekkebusae@ornl.gov for details.
- 20th Annual VM Goldschmidt Conference June 14-18, 2010, in Knoxville, TN.