Neutron Sciences Progress at Oak Ridge National Laboratory
February 2007

Summary

- High Flux Isotope Reactor (HFIR) Cycle 408 is projected to begin May 2007.
- Spallation Neutron Source (SNS) operations continue through mid-April 2007.

Instruments

- Furniture for the Polarization Laboratory arrived and is being installed in the Central Lab and Office Building.
- Framework was started for the second floor slab of the satellite building of the CNCS (Cold Neutron Chopper Spectrometer – BL 5).
- The 5-ton bridge crane was installed in the external building of the VULCAN engineering diffractometer (BL 7); occupancy of the external building is projected for June 2007.
- Installation of the supermirror neutron guide on the POWGEN3 powder diffractometer (BL11A) continues.
- Wall sections of the vacuum chamber are being assembled on SEQUOIA (high resolution chopper spectrometer – BL 17).
- The detector vessel of the ARCS (Wide Angle Chopper Spectrometer – BL 18) has been successfully vacuum tested.

Employment Opportunities

- The following positions are in the Neutron Sciences Directorate or are related to neutron scattering: Click on "View Open Positions" at http://jobs.ornl.gov/ for additional details
  - Neutron Scattering Instrument Scientist (Magnetism Reflectometer), Job ID 2262
  - SNS Beam Instrumentation Group Leader, Job ID 2247
  - SNS Mechanical Design Engineer, Job ID 2246
  - Theoretical Condensed Matter Physics, Staff Research Position, Job ID 2239
  - Mechanical Engineer, Job ID 2229
  - Electrical Engineer, Job ID 2228
  - NSSD Electrical Engineer, Job ID 2225
  - SNS Magnet Engineer, Job ID 2209
  - SNS Instrument Installation Supervisor, Job ID 2204
  - SNS Vacuum Engineer, Job ID 2202
  - SNS User Administration Lead , Job ID 2198
  - SNS Mechanical Designer , Job ID 2194
  - Superconducting RF Cavity Technology Engineer, Job ID 2177
  - SNS RAD Facility Mechanical Systems Engineer, Job ID 2173
  - Instrument Systems Scientific Associate , Job ID 2160
  - CNMS Nanomaterials Synthesis Research Staff, Job ID 2145
  - R&D Staff - Physical Chemist, Job ID 2134
  - SNS Mechanical Engineer/Analyst, Job ID 2121
  - SNS Cryogenic Systems Engineer, Job ID 2065
- **Post Doctoral Position with ORNL through Oak Ridge Associated Universities:** Position ORNL07-17-NSSD Neutron Scattering Postdoctoral Fellowship with the VULCAN Engineering Diffractometer at SNS; description available at http://www.orau.gov/orise/edu/ornl/postneeds.htm.

Operations

- The High Flux Isotope Reactor (HFIR) continues preparations for reactor restart. Cryogenic hydrogen testing of the cold source was completed earlier this week; completion of this significant milestone allowed for final shielding installation and guide installation activities to begin. Formal reviews to assess readiness for restart of operations are underway. Plans for neutron experiments, isotope production and materials irradiation in cycle 408 are being finalized.

- SNS operations will extend through mid-April 2007 and will begin again in June 2007. The current run includes about 30 days of neutron production. Goals for accelerator operations in this run include an increase to 60 kW in sustained beam power during neutron production and demonstration of the capability of 90 kW for 4-6 hours. On February 19, the proton beam was accelerated to 1.01 GeV, attaining the design energy and setting a new energy record for proton beam acceleration in a linear accelerator: this breaks the previous record of 0.95 GeV, which the SNS achieved in December 2005.

Awards and Honors

- Herbert A. Mook Jr., a senior ORNL researcher, has been elected to the Neutron Scattering Society of America's inaugural group of fellows.

Future meetings and deadlines of interest to SNS and HFIR users

- *Nano Nexus 2007: Innovation Through Collaboration,* April 2-4, 2007, Oak Ridge, TN; http://www.nanonexus.org/
- Joint meeting of the SNAP and NOMAD instrument development teams focusing on extreme environments for disordered materials, April 2-4, 2007, Oak Ridge, TN. Contact Chris Tulk, tulkca@ornl.gov for details.
- Educational workshop on neutrons in materials science, Oak Ridge Chapter of ASM, April 18, 2007, Oak Ridge, TN; http://www.sns.gov/workshops/edsym2007/
- *Neutron Stress, Texture, and Phase Transformation for Industry*, April 19, 2007, Oak Ridge, TN; http://www.sns.gov/workshops/nst2/
- *18th Meeting of the International Collaboration on Advanced Neutron Sources*, April 25-29, 2007, Dongguan, China; http://www.icans-xviii.ac.cn/
- Use of neutrons for diffraction/materials characterization/engineering, Denver X-ray Conference, July 30-August 3, 2007, Colorado Springs, CO; http://www.dxcicdd.com/07/callforpapers.htm.
- *SKIN2007 - Studying Kinetics with Neutrons* (joint with NMI3), September 27-28, 2007, University of Göttingen, Germany; http://neutron.neutron-eu.net/n_nmi3/n_networking_activities/SKIN2007
- *Residual Stress Summit*, October 2-4, 2007, Oak Ridge, TN; http://batman.mech.ubc.ca/~residualstress/
- **User Meetings**
  - *SNS-HFIR User Group Meeting,* October 8-10, 2007, Oak Ridge, TN
  - *Center for Nanophase Materials Sciences User Meeting*, October 10-12, 2007, Oak Ridge, TN
  - *SHaRE User Meeting,* TBD during October 8-12, 2007.
- Sessions on biointerphases and magnetism during the AVS-54 International Symposium, October 13 – 18, 2007, Seattle, WA, http://www.avs.org.
- 4th Workshop on Inelastic Neutron Spectrometers (WINS), Fall 2007, Oak Ridge, TN
- American Crystallographic Association, *Annual Meeting*, May 31-June 5, 2008, Knoxville, TN
- International Conference on Neutron Scattering, TBD 2009.