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Accelerator Commissioning Continues

Commissioning of the Spallation Neutron Source (SNS) linear accelerator continued in September with the third through sixth tanks of the drift-tube linac (DTL) and the first three modules of the coupled-cavity linac (CCL). The ion source, radio-frequency quadrupole, and first three tanks of the DTL have already been commissioned. The final energy of the August 2004 commissioning phase will be 157 MeV. The beam stop for this phase will be at the end of the fourth CCL module, which also serves as the boundary with the superconducting linac. Next spring, commissioning of the accelerator will include all 250 m of the room-temperature and superconducting linac sections, with a pulse energy of ~1 GeV and the linac beam dump serving as the beam stop for this exercise.

Staff Completes Move to CLO

By the end of June, the SNS staff at the Scarboro Road Building had relocated to the partially completed Central Laboratory and Office Building (CLO) on the Chestnut Ridge site. Those staff involved with ongoing construction efforts are benefiting greatly from the 14-km move. Additional CLO offices and conference rooms will be completed later this fall. Eventually, the CLO will contain user and support labs for detectors, sample environments, accelerator techniques, choppers, neutron optics, and data analysis, in addition to an auditorium, cafeteria, and the bridge to the Target Building.

Core Vessel Inserts Installed

The first SNS target core vessel insert, containing the first optical component of a beam line, was placed in the core vessel on July 27 of this year. Each insert weighs between 1500 and 2500 kg and must be aligned within 1 mm. These inserts are designed to be removed and installed remotely to enable future modifications to the beam lines. To date, 15 inserts have been installed.

The target heat exchanger and mercury pump arrived on August 9 for installation in the target service bay. The heat exchanger is designed to remove energy from the mercury after it's hit by a proton beam of up to 2-MW power and to keep the temperature of the mercury below 90°C. The exchanger is double walled and uses water as the coolant. The mercury pump circulates about 1 m^3 of mercury through the system every minute.

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Left: target core vessel insert.
Right: two views of the SNS CLO.

Director's Comments

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By November 2004, less than 20 months will remain until the project's scheduled completion date. In less than six months, the Knight/Jacobs team will leave Chestnut Ridge, as their work as architect-engineer and construction manager concludes. SNS staff and their contractors will then continue with the installation. I'm pleased to write that SNS continues on schedule and on budget for completion in 2006. The project's continued success is possible only because of the hard work and dedication of SNS staff and contractors.

Installation of the core vessel inserts–the first optical components of beam lines–began in July of this year, and in August commissioning of the room-temperature portion of the linac continued to the 150-MeV level. Visible progress is also being made with instruments, as poured-in-place shielding is being installed. Project instrument designs are being finalized, and significant procurements are being issued. Equipment is arriving in the Target Building with an ever-increasing frequency.

Project staff completed the move to the Chestnut Ridge site in June. All of our offices are now collocated with the construction, and this is improving communications among SNS staff and construction contractors.

As of this writing, discussions are under way in Congress regarding the FY 2005 budget. We anticipate that funding for FY 2005 will be $114 million, as requested by the president.

As always, safety is paramount on the project. About six million hours have been worked by construction and project staff, with only one possible lost-workday case, which is still being investigated. This remarkable achievement is the result of everyone's focus on all aspects of safety, from design to construction to the continuous analysis of job hazards. It is my goal that we continue to accept our accountability to each other and, looking ahead, to those who will visit our facility.

SHUG Update

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Congratulations and kudos to the organizers and participants at the second American Conference on Neutron Scattering (ACNS, www.ncnr.nist.gov/acns/), held in College Park, Maryland, June 6-10, 2004. The excellent scientific program was well received by all and by many standards was a wonderful success! The users' group reception was very informal this year, yet provided ample opportunity for new channels of communication among the users.

The SNS-High Flux Isotope Reactor (HFIR) User Group (SHUG) is one of the few neutron facility user groups in the United States for which the Executive Committee members are elected entirely by the users themselves, as opposed to being appointed by source management. The Charter Committee believed strongly that the inherent independence of the Executive Committee would allow its members to be better advocates for user needs. A major disadvantage, however, is that an active user community is absolutely essential to its success. Alas, the neutron user community is relatively small, compared with the synchrotron user community, for example. Nonetheless, now is a critical time for the current users of neutrons to communicate their needs and to drive the development of facilities and instruments that will be amenable to growing and expanding the user community. Decisions are being made at SNS and HFIR that will directly affect tomorrow's users. SHUG Executive Committee elections are held every fall; I urge all of you to get involved in the election process either by running for the committee, nominating a leader in your field of interest, or simply by voting and/or maintaining communication with the committee.

Current issues that are addressed at SHUG Executive Committee meetings include monitoring and assessing the effectiveness of the newly restarted user program at HFIR; developing a fast access policy; providing input to management on lodging, information technology, ancillary laboratory and equipment needs, as well as security and access issues; and, of course, staying abreast of instrument development and time lines for SNS and HFIR. The Executive Committee meets regularly (about once a month) by conference call to discuss these and other issues. Users are invited to peruse the web site (www.sns.gov/shug) to read announcements and minutes from these meetings. Being an active member in SHUG will ensure that you are aware of developments and have an opportunity to influence the policies that will govern access to these important facilities. A list of the currently elected Executive Committee members can be found at the SHUG web site, and we encourage you to contact a member of this committee with any questions or concerns.

SNS Contributes to Data Analysis Software Collaborations

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The fall 2003 *Neutron Pulse* article "Data Analysis at SNS" describes the reasons why SNS must provide a wide range of software analysis for its users. Briefly, users with different backgrounds or levels of experience in neutron scattering have different software needs. While initially focusing on the data acquisition and control system, along with data storage and visualization, SNS has begun to focus on data analysis software. Toward this goal, the project sponsored the Neutron Scattering Software Initiative (NeSSI) Workshop in October 2003, a report of which can be found at www.sns.gov/workshops/nessi/NESSI_Report.pdf. The resulting requirements document is in draft form and provides the basis for further work.

As discussions continued after the workshop, significant interest arose for a coordinated approach in developing data analysis techniques. In particular, new neutron sources SNS (on-line in 2006), J-PARC (2007), and the second target station at ISIS (2008) will have orders of magnitude increases in data volume generated by large detector arrays, increases in flux, and state-of-the-art instrumentation. Current data visualization and analysis software will be seriously challenged to keep pace with these changes.

Data volumes, however, are not the only challenge these facilities will face. NeSSI participants had another request: deliver the analysis within the timescale of the experiment. The cost of operating neutron facilities is high; their use will be far more efficient if the results of an ongoing measurement can be evaluated in time for the user to intelligently "steer" the experiment. This process of intelligent control of experiments could even be automated. Is technology up to these challenges? Although SNS could produce terabytes of data annually, this is small compared with the petabytes produced in high-resolution sky surveys or high-energy physics experiments. In addition, modern computing also allows improved intercontinental communication. Realizing that no one facility would have the resources to develop comprehensive, modern software that could meet the new challenges, the three aforementioned facilities intend to share their resources and coordinate their efforts.

In a "top-down" approach, the first step was to define the requirements of the software using input from both users and professional software developers. Since then, the three major partners have continued to participate in regular video conferences to coordinate activities. "Data visualization and analysis" covers a wide range of data management topics. Following a data flow diagram (below) developed by Robert McGreevy (ISIS) and Al Geist [Oak Ridge National Laboratory (ORNL)], a wide range of topics are being

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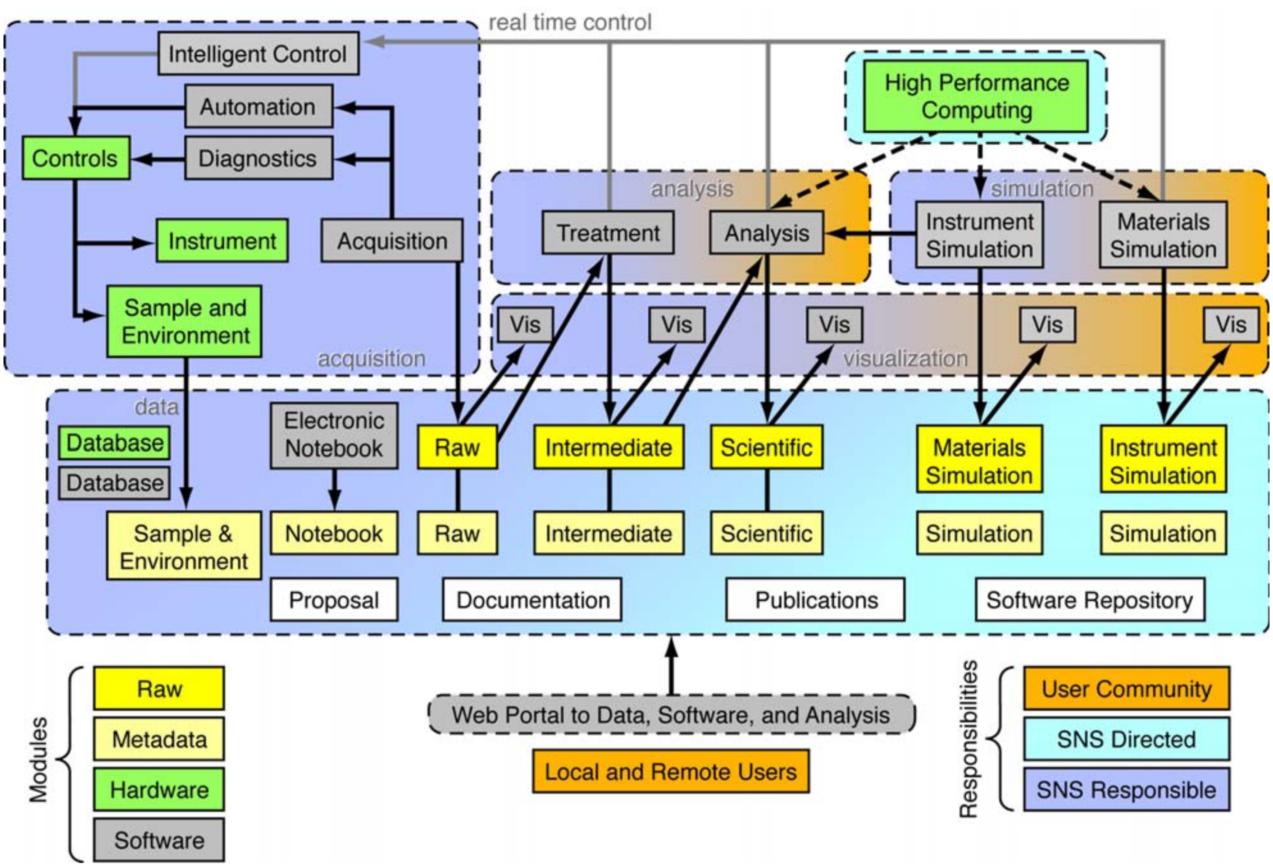

Software architecture illustrating major functional areas and their interrelationships.

The SING Project

The SNS Instruments–Next-Generation (SING) Project is a set of five neutron-scattering instruments that are being managed as one major item of equipment (MIE) project funded through the DOE Office of Science. Kristin Bennett is the DOE-Office of Science program manager, and Larry Radcliffe is the DOE-Oak Ridge Office project director for the SING MIE Project.

The instrument concepts were developed by instrument development teams (IDTs) in consultation with the scientific community through a series of workshops, conferences, and focused review committees. These concepts and associated instrument conceptual designs were endorsed by the SNS Experimental Facilities Advisory Committee, an international team composed of senior neutron-scattering scientists, and were awarded funding by DOE in late 2003.

The project's Critical Decision-0 (CD-0), which signifies approval of the mission need, was granted in May 2003, and Critical Decision-1 (CD-1), which approves the cost range for the project, was granted in April 2004. The remaining critical decisions will be staggered for each instrument, based on the phased execution and completion of the five instruments. The first SING instrument becomes operational in March 2008, and the final SING instrument is scheduled for completion in September 2011.

The technical objective of the SING MIE Project is to design, build, and install a suite of five best-in-class neutron instruments that supplement the instruments included in the SNS construction project. A team of staff members from the SNS Experimental Facilities Division is responsible for executing this project.

The five instruments and their capabilities are described in the following.

High-Pressure Diffractometer (SNAP)

Chris Tulk, tulkca@sns.gov

SNAP is a high-pressure instrument dedicated to expanding the knowledge base of high-pressure neutron science. Capitalizing on a number of recent developments in studies of materials under pressure, this unique instrument will use the high neutron flux of SNS together with state-of-the-art high-pressure devices. It will advance the current pressure range of neutron studies well beyond present limits (tens of Giga Pascals or GPa), making entirely new classes of experiments possible. Materials behavior spanning many orders of magnitude will be examined—for the first time into the megabar range (>100 GPa)—with unprecedented resolution, accuracy, and sensitivity at all conditions. With the dramatic advances in techniques for preparing and investigating single crystals, studies of more complex materials become tractable. This instrument will advance the frontier of high-pressure science in the United States and will set a new standard for the world neutron research community.

High-Resolution Chopper Spectrometer (SEQUOIA)

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SEQUOIA is a direct-geometry, time-of-flight chopper spectrometer, with fine energy (E) and wave-vector (Q) resolution. It will be used to conduct forefront research on dynamic processes in materials. In particular, this instrument will enable unprecedented high-resolution inelastic neutron-scattering studies of magnetic excitations and fluctuations and lattice vibrations. The impact on condensed matter and materials science will span a wide cross section of important research areas. Today these would include strongly correlated electron systems; high-temperature superconductors; colossal magneto-resistive materials; quantum and molecular magnetism; itinerant magnets and multilayers; alloys; ferroelectric, piezoelectric, and thermoelectric materials; and soft condensed matter. This spectrometer complements the capabilities of the high-resolution, direct-geometry, time-of-flight chopper spectrometer (ARCS), currently under construction at SNS.

Single-Crystal Diffractometer (SCD)

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The SCD is optimized for the rapid measurement of Bragg intensities on materials with moderate-sized unit cells (up to ~50 Å) and provides the capability to study small 0.1-mm^3 samples, approaching the size that is routinely used in a broad range of laboratories for single-crystal X-ray investigations. To maximize the scientific impact, the instrument design will include functionality for magnetic-scattering experiments using polarized neutron beams and for diffuse scattering measurements. By greatly expanding the range of materials that can be explored, this instrument will revolutionize single-crystal neutron diffraction, especially from the viewpoint of the practicing synthetic chemist. Great advances are also expected in the study of critical structural problems in biology, earth science, materials science and engineering, and solid-state physics.

Disordered Materials Diffractometer (NOMAD)

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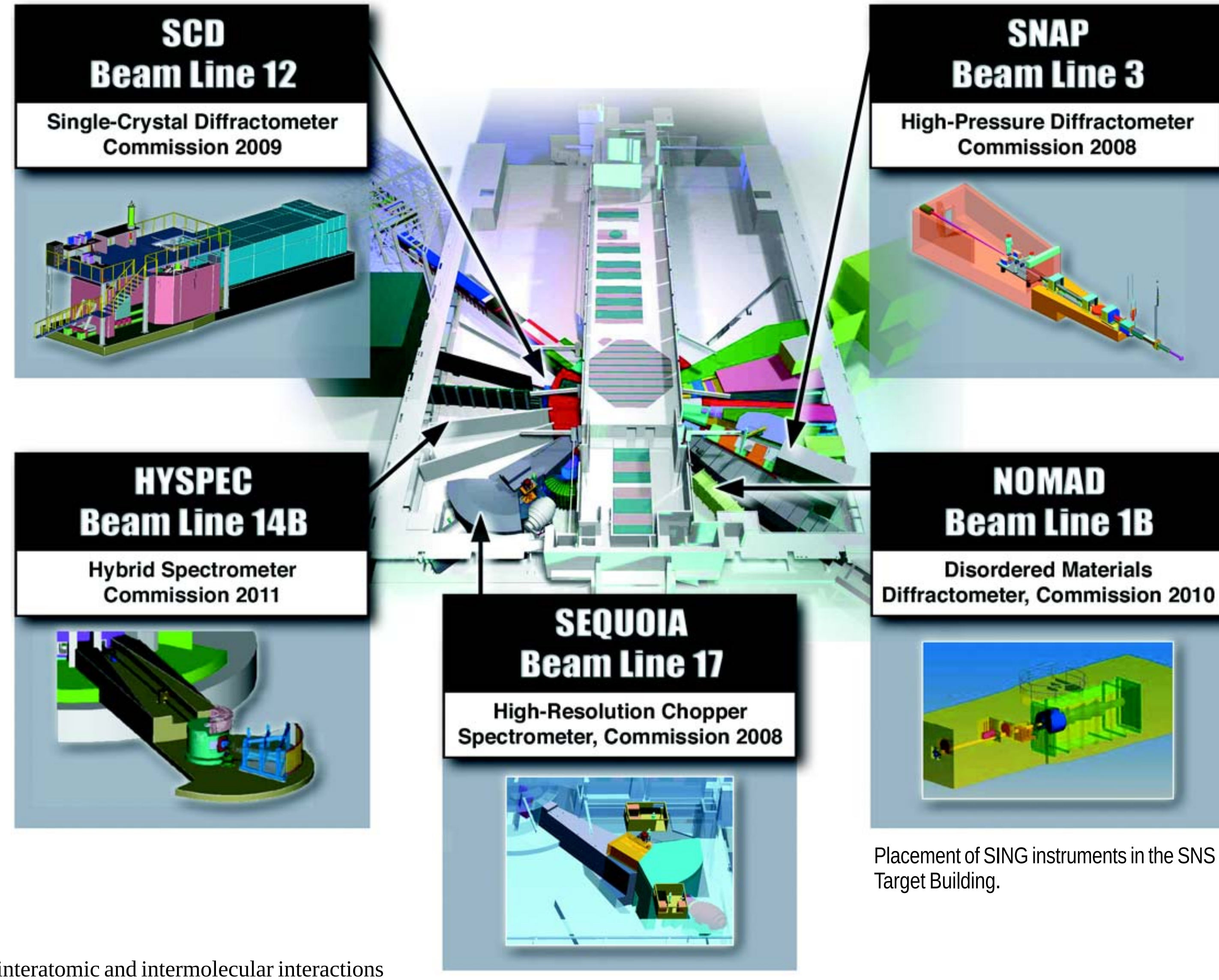
NOMAD is designed for investigation of systems with no long-range order, where



Placement of SING instruments in the SNS Target Building.

interatomic and intermolecular interactions can be probed only through detailed investigation of short-range order. The ability to synthesize and use novel nanoscale systems, including crystalline materials, can be enhanced through accurate determination of structural features of materials from interatomic to nanometer-length scales. The structural characterization of new materials provides critical feedback for further improvements in synthesis and in tuning of desired properties. This diffractometer is designed to effectively and efficiently use the high flux at SNS for studies of atomic-level and nanoscale structure to provide the basis for continuing advances in understanding and exploiting the fundamental interactions that control the properties of materials.

Hybrid Polarized Beam Spectrometer (HYSPEC)

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HYSPEC will be a world-class inelastic-scattering instrument with neutron polarization analysis capabilities. The polarization feature makes it a unique instrument among those to be installed at SNS and makes it essential in any detailed study of the magnetic properties of condensed matter systems. Such studies extend from the determination of the magnetic form factor to a detailed analysis of magneto-vibrational scattering studies, providing invaluable information about the static magnetic properties and the interactions between magnetic and other excitations in condensed matter systems. This instrument will meet the challenge posed for neutron inelastic spectroscopy in a wide range of science applications, including complex alloys (high Tc super-conductors, spin valves, and photonic switches), nanosize magnetic molecules (spintronics and quantum computing), functional materials (superconducting cuprates and colossal magnetoresistance), strongly correlated electron systems, and quantum magnetism.

SNS Instrument Update

Backscattering Spectrometer

Ken Herwig, herwigkw@sns.gov

Installation of poured-in-place shielding for the backscattering spectrometer has been completed. The first section of guide (1 m) will be installed this fall in the core vessel close to the target/moderator assembly; this will be one of the first two uses of a metal substrate neutron guide in the United States. The remaining shielding and guides will be installed by mid-year 2005. Detailed engineering design of the instrument has been completed, and final procurements are in progress. The evacuated final flight path has passed acceptance tests on deflections and vacuum performance and is ready for equipment installation. The first equipment to be installed in the final flight path will be supports for the crystal analyzers (December 2004). Instrument installation is scheduled for completion in March 2006.

Magnetism Reflectometer

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The 90% design review is completed. Shielding calculations are finished, shielding components have been designed, and the safety review has been passed. The sample stage will undergo acceptance testing before the end of this year. Together with the guide vendor, the technology was developed for laser tracking-based guide alignment that will serve as a prototype for installation of most of the SNS guides.

Liquids Reflectometer

John Ankner, anknerjf@sns.gov

Guides in the shutter will be installed in the fall, and choppers will be delivered by the end of 2004. The remainder of the guide sections will be here in early 2005, in time for installation when the Target Building is ready for equipment. Stacked shielding designs are complete and will be procured later this fall, in time for spring 2005 installation. The sample "cave" has been designed, and the instrument final design review was held in September 2004.

With SNS at full power (1.4 MW), this instrument will be 20 to 50 times as bright as existing instruments. A two-dimensional, position-sensitive detector from Brookhaven National Laboratory has been adapted for time-of-flight use and features 1.3-mm-pixel resolution. The goniostat will position sample and detector for measurements both within and outside the specular reflectivity scattering plane. These features will enable routine collection of off-specular reflectivity data and allow exploration of the potential for grazing incidence small-angle neutron scattering.

Wide-Angle Chopper Spectrometer (ARCS)

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The new lead engineer began his duties with ARCS earlier this year. Because of their complementary scientific needs, funding of beam line neighbor SEQUOIA (high-resolution chopper spectrometer), as part of the SING initiative, allows for common development and approvals of components such as shielding, choppers, detectors, and sample areas. A new T_0 chopper with a vertical axis was developed; this compact design allows passage of a very select range of neutron wavelengths while minimizing the need for shielding. The ARCS team is developing software to analyze data for this direct-geometry, time-of-flight instrument. Specific software modules are being developed to produce graphs of energy and momentum transfer. There is close collaboration with the SNS project software effort. The ARCS project installation plan is being integrated and coordinated with the other SNS instruments. The construction progress review in August 2004 went well, and ARCS is well on its way to scheduled completion in 2006. ARCS is the first instrument to be developed on a water moderator, and plans are to use it as a test station for measurement of the target's neutron production.

Engineering Diffractometer (VULCAN)

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In November 2003, SNS accepted initial funding for VULCAN from McMaster University, which had received a grant from the Canada Fund for Innovation. Detailed design work followed immediately on multiple fronts. The new design for the neutron guide system included an option for focusing in the vertical scattering plane. Specifications for a bandwidth chopper were defined and are now ready for procurement. The core vessel insert was installed in July. The scope of construction is expanding because of a request by the IDT to construct an external building for the experiment station. This will allow a robust sample stage to be built that can handle large, industrial-sized components. This request resulted in relocating VULCAN from beam line 9 to 7. In July, the NSF awarded $2 million to the University of Tennessee, with more than 30 other institutional partners (including ORNL), for state-of-the-art in situ and real-time characterization instrumentation for VULCAN. This instrumentation will include a suite of load frames and furnaces. Preliminary discussions are under way to develop support software. IDT meetings were held in February and June 2004, with another planned for November 2004. VULCAN completion is anticipated in spring 2008.

Clockwise from top left: evacuated scattering chamber for the backscattering spectrometer (installed in final position on the instrument); schematic of VULCAN; (middle images) poured-in-place base beam-line shielding for the backscattering spectrometer (viewed from opposite ends); bandwidth-selection choppers for the backscattering spectrometer being tested in the lab; and installation of the guide sections in the shutter insert for the backscattering spectrometer.

HFIR Instrument Update

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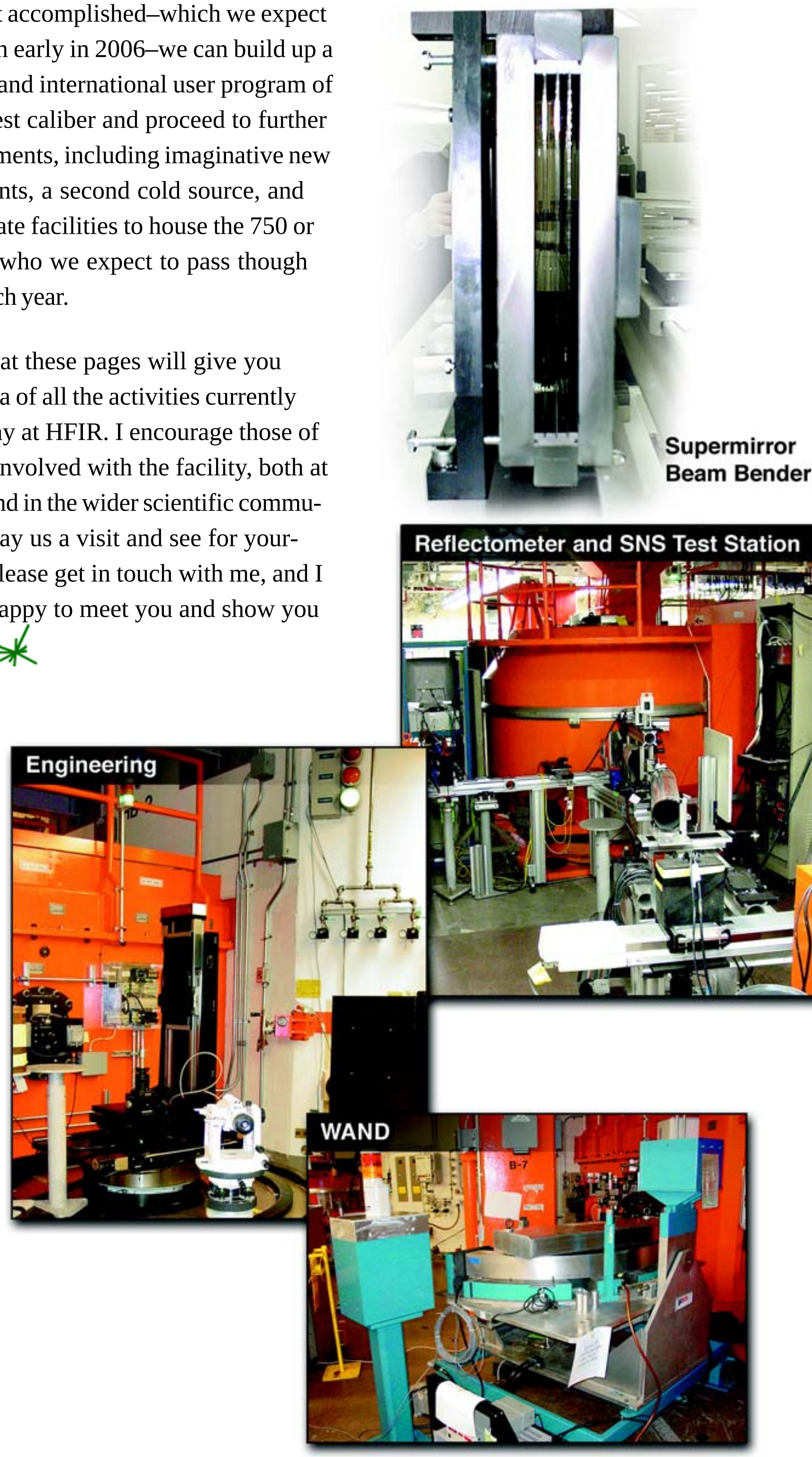
HFIR Executive Director David Price

It's a great honor to be appointed executive director of HFIR and its Center for Neutron Scattering (CNS). I look forward to helping establish our facility as a world-leading research reactor, providing unique scattering and other neutron capabilities to the scientific community and, in collaboration with our SNS colleagues, to making ORNL a great center for neutron science.

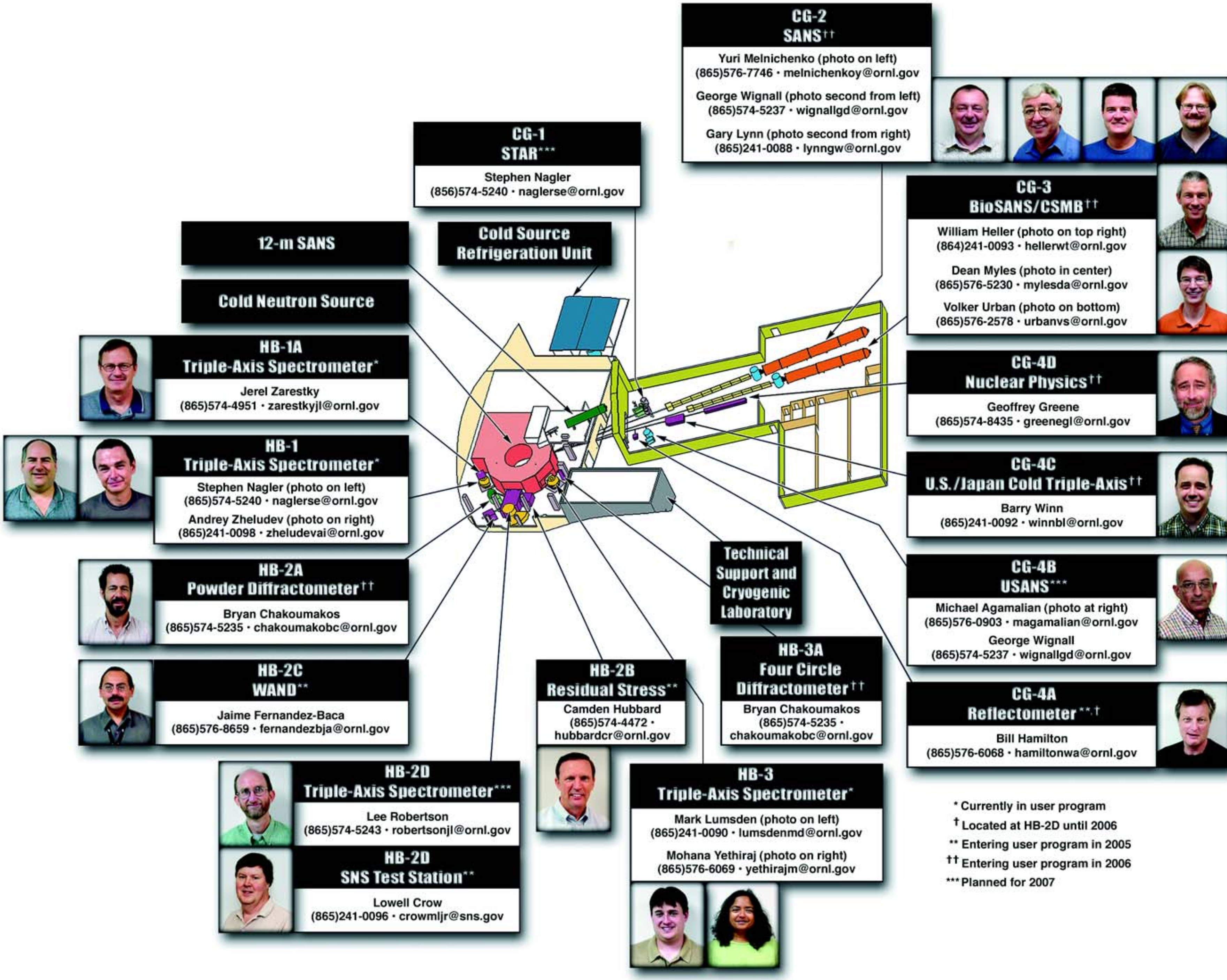
The collocation at Oak Ridge of the world's leading spallation source and a world-class research reactor presents an opportunity unparalleled in the history of neutron scattering. Having been on the spallation side of the fence for most of my career, I am keenly aware of the complementary aspects of the two kinds of sources. We must take advantage of the wide range of experience and skills represented in SNS and HFIR to exploit this opportunity to the fullest, and my colleagues at SNS and I would like to encourage interaction and cross-fertilization of ideas between the two organizations. In the words of the late Yoshikazu Ichikawa of Tohoku University, "Every neutron, good neutron!"

HFIR itself is currently going through the most dramatic transition of its 40-year life, with a complete overhaul of the reactor infrastructure to ensure sustained and reliable operation, installation of its first liquid hydrogen cold source, a new neutron guide hall housing seven new cold-neutron instruments, and a significant upgrading of the eight thermal-neutron spectrometers in the beam room. With that accomplished–which we expect to happen early in 2006–we can build up a national and international user program of the highest caliber and proceed to further enhancements, including imaginative new instruments, a second cold source, and appropriate facilities to house the 750 or so users who we expect to pass though HFIR each year.

I hope that these pages will give you some idea of all the activities currently under way at HFIR. I encourage those of you not involved with the facility, both at ORNL and in the wider scientific community, to pay us a visit and see for yourselves. Please get in touch with me, and I will be happy to meet you and show you around.



Top: supermirror beam bender being installed for new cold guide hall instruments. Bottom: new CNS instruments being installed and commissioned on the HB-2 beam port. The reflectometer and SNS Test Station currently share the HB-2D beam, the engineering instrument resides on HB-2B, and the wide-angle diffraction instrument (WAND) resides on HB-2C.



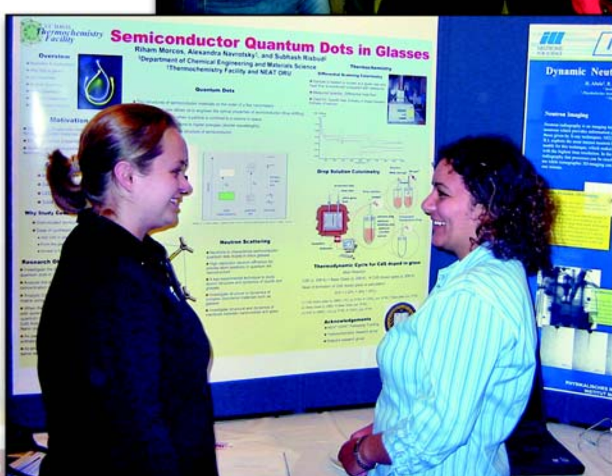
HFIR CNS instrument layout.

Workshop Summaries

Neutrons & Energy for the Future

Significant challenges are ahead to identify reliable and economic sources of energy that can be produced in the needed quantity without increasing pollution. It is expected that basic research will contribute to this need by providing understanding that will both expand the available options in technological approaches and identify new concepts. Neutrons offer unique opportunities to achieve the needed understanding of materials structure and dynamics in energy research. Neutron scattering will likely find use in resolving issues related to energy generation, transmission, storage, and end use. International collaboration and interactions are, of course, key aspects of many basic research programs, particularly in the neutron-scattering area.

To meet these needs, a workshop was organized by representatives of SNS, the University of Tennessee/ORNL Joint Institute for Neutron Sciences, and NMI3–the Neutron Scattering and Muon Spectroscopy Integrated Infrastructure Initiative (a European Union Framework 6 Program). The goals of the workshop were for researchers from the international community to (1) present open scientific questions in high-impact areas of energy research and the roles neutron scattering can play and (2) hear perspectives from funders of research and representatives of industry and policy institutes on global energy needs and the associated research



Top: Tom Gentile, NIST, explains the magic of polarized ^{3}He gas. Middle: Lisa Cowan (left), CalTech, joins Riham Morcos (right), UC-Davis, to discuss her poster at the Neutrons & Energy Workshop. Bottom: Polarized Neutron School participants in front of the NIST spin echo spectrometer.

priorities. The result of the workshop was to update the scientific case for the use of neutrons in energy research through preparation of a foresight study document.

The workshop was held June 4-5, 2004, in Washington, D.C., as a satellite meeting of the 2nd ACNS. Ninety-three participants from 10 countries (one-third from overseas) heard oral presentations arranged in four themes: (1) setting the energy scenario; (2) hydrogen economy; (3) soft matter, neutrons, and fossil fuels; and (4) neutrons' contributions to other energy topics. In addition, 16 posters were presented. The presentations are available at www.sns.gov/jins/nmi3/.

Workshop sponsors include the NSF Chemistry Division, Oak Ridge Associated Universities (ORAU), the DOE Office of Basic Energy Sciences (BES), SNS, the University of Tennessee, and NMI3.

Planning is under way for a follow-on workshop with NMI3, *Symposium on Neutrons, Earth Sciences, and Environment*, as a satellite event to the EGU2005 European Geosciences Union-2nd General Assembly, Vienna, Austria, April 25-29, 2005. See www.copernicus.org/EGU/ for details.

PNCMI 2004: Polarized Neutrons in Condensed Matter Investigations

The 2004 PNCMI Workshop was held in Washington, D.C., on June 1-4, 2004, as a satellite of the 2nd ACNS. This was the fifth workshop in the PNCMI series (the first in the United States) and successfully gathered scientists working on condensed matter investigations using polarized neutrons and on development of polarized neutron-scattering techniques. More than half of the 120 participants were from institutions outside the United States. The workshop program included invited lectures and contributed papers. Invited speakers were chosen by the International Advisory Committee and the Program Committee, and the contributed papers were selected based on the abstracts submitted.

The focus of the workshop included the many research areas and techniques traditionally associated with polarized neutrons. It also included science opportunities at the next-generation sources, as well as using polarized neutrons as a tool for instrumentation and novel polarized neutron optics.

The workshop also featured poster sessions on science and instrumentation, with 50 posters accompanied by vendor displays. More information on the workshop is available at www.sns.gov/pncmi2004/. The proceedings of this workshop will be published in a future issue of *Physica B–Condensed Matter*. That issue will be dedicated to Ralph Moon, a pioneer in polarized neutron scattering, who died in Oak Ridge on June 1, 2004.

Following the workshop, the first Polarized Neutron School in the United States (to our knowledge) was held on June 4-5 and focused on postdoctoral scientists and students familiar with neutron-scattering techniques. The first day involved a tutorial on the theoretical background of polarized neutron scattering. On the second day, the 20 attendees studied the practical aspects of these experiments at the NIST Center for Neutron Research. Sponsors of the workshop and school were the NSF Division of Materials Research, ORAU, DOE-BES, and SNS.

Neutron-Scattering Publications Continue to Climb

Compiled by Peggy Anderson, andersonpc@sns.gov

According to information compiled from the Institute for Scientific Information Web of Science, the relative ranking of country affiliation of authors of neutron-scattering publications has not changed from the 2001-2002 analysis in the spring 2003 issue of *The Neutron Pulse*. A total of 5445 articles were indexed on neutron scattering, neutron diffraction, neutron spectroscopy, or neutron reflection during this period, up about 10% from the 2001-2002 total. These top 16 countries have authors in about 94% of the total publications for 2002-2003. The two-year period is used to even out the potential distortions of a one-year period.

Country affiliation of authors of neutron-scattering articles for 2002-2003 (>100 articles) are as follows.

1.	USA	1369
2.	France	1307
3.	Germany	1060
4.	Japan	785
5.	England	752
6.	Russia	475
7.	Italy	318
8.	Spain	231
9.	Switzerland	227
10.	India	186
11.	Poland	175
12.	Canada	170
13.	Netherlands	162
14.	Sweden	132
15.	China	129
16.	Australia	118

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discussed, including data storage and curation, metadata, data policies, data access, visualization, treatment, analysis, simulation, electronic notebooks, software repositories, web portals, data acquisition and control, high-performance computing, materials and instrument simulation, publication, and documentation. Covering all these aspects of data management is a formidable task!

The momentum of the new neutron facilities and the realization of the potential benefit of modern software has enabled us to benefit from resources available in other related disciplines. In the United States, support for this effort has been obtained from both the Department of Energy (DOE), which funds software activities at SNS and within the Computational Sciences Division at ORNL. The National Science Foundation (NSF) is also supporting analysis software development at the California Institute of Technology and the Visualization Software at Argonne's Intense Pulsed Neutron Source. In addition, efforts at other facilities such as the National Institute of Standards and Technology (NIST) are being incorporated. Similarly, ISIS and J-PARC have wide-ranging and effective advances in these and related components.

The similarities between the schemes being developed in the three facilities lead the way to the possibility of coordinated development approaches. The partners are looking at ways to share software, data, and metadata so that data taken at one facility can be easily compared with that taken at another and so that the software developed at one facility can be easily integrated into the other facilities.

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For the latest user updates, see the SNS users web site at www.sns.gov/users/users.htm.