NSLS Users’ Meeting 2000 Emphasizes Users’ Vital Role at BNL

More than 260 users of BNL’s National Synchrotron Light Source (NSLS) were on hand at the annual meeting, which took place at the Lab May 22-24, to participate in workshops, a poster session, vendor exhibits, lectures, and a variety of social interactions.

At the welcoming session, Laboratory Director John Marburger emphasized the importance of the NSLS within the framework of Brookhaven as a "multi-facility" lab.

"Brookhaven now has two major science facilities in operation: the relativistic Heavy Ion Collider and the National Synchrotron Light Source. Both are important, but the NSLS serves by far the largest number of users and spans the widest spectrum of science. Our track record for keeping the NSLS available and useful is very good, and we are determined to maintain the quality and accessibility of this important facility. We will need all the help we can get from our users to make this possible."

The NSLS produces very intense and highly focused beams of light — including x-rays and ultraviolet and infrared radiation — which can be used for state-of-the-art research in the agricultural, biological, chemical, medical, pharmaceutical, and physical sciences. Its importance was emphasized by the range of applications covered in the scientific workshops that proceeded and followed the main users’ meeting, from analyzing soil contaminants to solving protein crystal structures to observing chemical reactions at the molecular level.

After his welcoming remarks, Marburger introduced Richard Osgood Jr., BNL’s new Associate Laboratory Director for Basic Energy Sciences (see story below). Then, to give attendees an insider’s view on Presidential science policy, Arthur Bienenstock, Office of Science & Technology Policy Associate Director for Science, gave the keynote address.

Bienenstock emphasized that the presidential administration has a real concern about the funding lag experienced by the non-biological sciences over the past 25 years, but reminded attendees that their direct efforts could affect change.

The 2000 Users’ Meeting Planning Committee: (from left) Mark Chance, Albert Einstein College of Medicine and NSLS Users’ Group Chair; Barbara Ilman, U.S. Department of Agriculture (USDA) Forestry Service; and Arthur Bienenstock, Office of Science & Technology Policy Associate Director for Science.

Richard Osgood Jr. Associate Director For Basic Energy Sciences

Richard Osgood Jr. has been named Associate Laboratory Director (ALD) for Basic Energy Sciences (BES), effective May 15. Osgood succeeds Denis McWhan, who has retired from this position and is returning to research.

Osgood is the second Director of the Laboratory Directorate. He will give the 2000 Sambamurti Lecture, 11 a.m., July 21 at 3 to 6:30 p.m., in front of Berkner Hall.

35th Brookhaven Lecture

Wedding Lasers and Accelerators: The BNL DUV-FEL

In a very good marriage, the two partners’ strengths are apparent in the union. Lasers and accelerators each have properties that make them valuable scientific tools of investigation. But, by marrying these two instruments, scientists will be able to achieve new research goals, including the utilization of certain chemical reactions, that cannot be done by either laser or an accelerator separately.

Erik Johnson, National Synchrotron Light Source Department (NSLS), will discuss the benefits of combining laser and accelerator technology when he presents the 35th Brookhaven Lecture at 11 a.m. on Friday, July 21, in the Physics Large Seminar Room, Bldg. 510. Students and summer visitors are especially encouraged to attend.

2000 Sambamurti Lecture, 11 a.m., July 21

How Tasty Are Muons in a Donut?

Experiment 821 (E821) has collected data on more than ten billion decays of muon particles circulating about a shaped toroidal magnet. To describe E821 and explain why and how this enormous amount of data has been taken and is now being analyzed, one of the experimentalists, Associate Scientist Ralf Prigr at the Collider-Accelerator Department, will give the 2000 Sambamurti Memorial Lecture. Prigr will give his talk at 11 a.m. on Friday, July 21, in the Physics Large Seminar Room, Bldg. 510. Students and summer visitors are especially encouraged to attend.

As Prigr will explain, E821 is designed to advance one of high-energy physics’ most precise measurements, known as muon g-2 (g-2), which gauges the strength of an effect made by certain forces in the muon particle’s magnetism.
Empire State College’s On-Site Degree Program

Starting this fall semester, Empire State College (ESC) will offer degree programs at BNL. A comprehensive college of arts and sciences within the State University of New York, ESC offers associate’s and bachelor’s degrees in science, mathematics, and technology.

An outline of the potential uses of femtosecond x-rays, by Janos Hajdu, Upsala University, Sweden; John Sutherland, BNL; Peter Johnson, BNL.

New Challenges

Osgood said he faces several challenges in his new position. Since the Laboratory’s High Flux Beam Reactor (HFBR) — the major source of neutrons for the CNS — was closed in November 1999, a priority will be to develop a new plan for neutron science at the CNS. Osgood also plans to upgrade beam lines at the NSLS and explore new operating modes, including synchrotron soft-x-ray and visible light sources.

Other highlights at the meeting, new general members were elected for two-year terms on the UEC, including: Simon Bare, University of Pittsburgh; Mary Pat Gallagher, Brookhaven National Laboratory; and Michael Vaughan, State University of New York at Stony Brook.

Meeting attendees were given a “Disneyesque” virtual ride through protein crystallography beam line X11C by Robert Sweet, Biology Department. Using dual projection, home-built Web tools and a freely available Web-Cams and Audio Chat tool to provide “telepresence,” he and Bidigari’s John Skinner (on the other side of the ISL) demonstrated the capability for remote operation of synchrotron beam lines, which they have developed with support from DOE’s Office of Biological and Environmental Research and the National Center for Research Resources of the NIH.

Sweet and Skinner believe this approach would be especially powerful for other applications because it demonstrates the break down of Fermi liquid behavior in high temperature superconductors.

other scientific highlights included

an outline of the potential uses of femtosecond x-rays, by Janos Hajdu, Upsala University, Sweden; John Sutherland, BNL; Peter Johnson, BNL.

The Science Advisory Committee User Forum: (from left) Al Sievers, Cornell University, Michael Hart, BNL; Ernest Fontes, Lucent Technologies, Inc.; John Marburger, BNL; Barbara Illman, USDA/Forestry Service, Chair Sol Gruner, Cornell; Martin Blume, American Physical Society and BNL; and Sunil Sinha, Argonne National Laboratory. Not present, Samuel Rinz, BNL. Photos by Roger Stoumbough.

Richard Osgood (cont’d)

Department, the NSLS and the Center for X-Ray Chemistry (C-XRC) with a collective staff of 260, the BES directorate has an annual budget of about $76 million.

I have done research in chemistry using lasers, surface science and condensed matter physics, all of which are areas of current scientific interest. Osgood said.

I have still much to learn, especially in the area of neutron science, which is one to which my predecessor Denis McWhan has been a delight to work with, and he has helped me tremendously learning about his directorate. Also, Michael White, Michael Hart, and Jerry Hastings have been most helpful.

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Additionally, Osgood extensively recruit new talent to all the BES departmen and he plans to form collaborations with other departments and directoats at the Lab to broaden the scope of talent for working on interdisciplinary projects. Osgood plans to increase support for his directorate, do and to start new initiatives with fundin from sources such as the National Institutes of Health and the Department of Defense.

Osgood believes two new areas of scientific inquiry will be important to the future of BES. One is neuroscience, which is the study of the unique physical and chemical properties of the brain. The other is the discovery of new concentrations and applications of molecular electronics, computer chips, and tiny electronic devices. He adds that the idea of conducting experiments at BNL will be an important accelerator technology that will complement experiments performed at the NSLS.

Osgood’s professional background is matched to a wide range of current and future BES research. Known for his research in laser physics, optical physics, and materials science, he is a Fellow of the Optical Society of America (OSA), the American Physical Society, and the Institute of Electrical and Electronic Engineers. He was awarded the OSA R. W. Wood Prize in 1991.

Osgood earned a B.S. from the U.S. Military Academy, an M.S. in physics from Ohio State University in 1968, and a Ph.D. in physics from the Massachusetts Institute of Technology (MIT) in 1981. Osgood earned a B.S. from the U.S. Military Academy, an M.S. in physics from Ohio State University in 1968, and a Ph.D. in physics from the Massachusetts Institute of Technology (MIT) in 1981. After working at MIT’s Lincoln Laboratory from 1973 to 1981, he joined Columbia University as an associate professor in the Department of Electrical Engineering and has been on the faculty as Higgins Professor of Electrical Engineering and Applied Physics at Columbia University since 1991.

Osgood has served as Vice Chairman of the Brookhaven Science Association and the Science Advisory Committee, 1999-2000, and he has served on many national scientific committees, including DOE’s Basic Energy Sciences Advisory Committee.

— Diane Greenberg

Brookhaven Bulletin

july 14, 2000

NSLS Users (cont’d)

Members of the NSLS Users’ Ex-}
Three of the four known forces that govern the interactions of matter and energy are believed to cause this effect: the weak force, which is responsible for particle decay involving neutrino particles; the strong force, which holds an atom's nucleus together; and the electromagnetic force, in which electricity and magnetism are combined.

Prigl will recall, in experiments at CERN, Switzerland, during the 1960s and 1970s, g-2 was measured to exactly equal one. These results helped researchers learn more about muon behavior and validate the theory of quantum electrodynamics (QED), which links the theories of electromagnetism, quantum mechanics, and relativity.

Possible New Physics

In the present AGS experiment, some 70 researchers from BNL and 11 institutions in Germany, Japan, Russia, and the U.S. are using new technology to measure g-2 twenty times more accurately than the last CERN experiment, making sensitivities tiny from the weak force. At this level of precision, agreement with the standard model of elementary particles and forces—the standard model (SM)—would be a major success for the established theory of quantum electrodynamics (QED), which links the theories of electromagnetism, quantum mechanics, and relativity.

Agreement would impose severe constraints on theoretical efforts by physicists to reach beyond the SM to answer the many fundamental questions that it leaves open, such as why particles like muons exist and what exactly they are.

On the other hand, Prigl will explain, a significant deviation of the SM value could reveal breakthrough information on the laws of physics.

While Prigl joined BNL as an assistant scientist in the AGS in 1996, he had been working in particle physics for over 20 years because he did his thesis and then a postdoctoral fellowship on the nuclear magnetic resonance (NMR) probe system designed and then a postdoctoral fellowship on the nuclear magnetic-resonance (NMR) probe system designed to measure the magnetic field inside the EMU. After getting his PhD in 1996, he joined the National Institute of Standards and Technology as a postdoctoral fellow to perform experiments using electron magnetic resonance (EMR) to determine the magnetic properties of materials. During this time, he joined the BNL team to perform experiments on the EMR properties of materials for the development of materials for magnetic recording devices. He has also worked on the development of new materials for magnetic recording devices and has published numerous scientific papers on the magnetic properties of materials.

The Sambamurti Memorial Lecture (cont'd)


Q: What are your responsibilities for making sure these requirements are met? A: The Environmental Stewardship Policy Awareness (ESPA) workshop is open to the public.

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Environmental Stewardship Policy Awareness

BNL's Environmental Management System (EMS) is being audited during July-October. The audit is expected to reach beyond the SM to answer the many fundamental questions that it leaves open, such as why particles like muons exist and what exactly they are.

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Equipment Demos
Rent-a-PC Demo, 7/18

Rent-a-PC will be in Berkner Hall on Tuesday, July 18, 3:30-2:00 p.m., to discuss short-term computer rentals for BNL employees. Rent-a-PC provides desktops, notebooks, LCD projectors, servers, etc., for a day, a week, a month or more. They offer immediate availability as well as local delivery, setup and on-site support. Equipment is pretested, delivered and installed with a "no hassle" guarantee. For more information, call 273-8888.

CTP Wireless, 7/20

On Thursday, July 20, in Berkner Hall, 10 a.m.-2 p.m., CTP Wireless will discuss the AT&T corporate cellular rate that it offers BNLers. Service plans include one with airtime rates of 20 cents per minute and 40 minutes of airtime at $13.99 per month, 20 cents off airtime charges, and unlimited calls. There is also an additional $4.99 per month. Another plan includes 250 minutes any time for $20.99 per month with 500 free peak minutes for 12 months. Free features included are digital phone with caller ID, voice mail with notification, numeric paging, and more. For more information, call Dennis Amm, 585-2900.

GLOBE@BNL
BERA’s gay and lesbian club, GLOBE@BNL, will hold its monthly meeting today, July 14.

For more information and the meeting’s location, call Mike Lofts, ext. 2940, or Chris Gardner, Ext. 4537, or go to the club’s Web page at http://homestead.juno.com/nnl/globefiles/homest.html.

OPEN RECRUITMENT

- Opportunities for Laboratory employees and outside candidates.

- NO S. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. or equivalent degree in physics, chemistry, biophysics or related field. Experience with lasers, optics, and/or synchrotron, DNA, and computer software desirable. Research will involve developing a new method for quantifying damage to DNA by ionizing radiation and other physical and chemical agents. Time and location vary. (Ref. J. Sutherland, Biology Department)

- NO R. POSTDOCTORAL RESEARCH ASSOCIATE – Requires Ph.D. in experimental physics or materials science, with expertise in the field of grain boundaries and nanostructure, expertise in the processing and electron microscopic/characterization of superconducting and magnetic materials. Research involves the preparation and characterization of grain boundaries in high temperature superconducting films and bulk crystals, SQUID or high-resolution magnetic imaging, transport measurements, investigation of the correlation between transport properties and microstructure of superconducting and magnetic materials. Under the direction of G. L. Environmental Sciences Department

- NS6965. REAL-TIME PROGRAMMER – Requires an MS degree or equivalent experience in computing, electrical engineering or related field and several years C and real-time programming experience. Familiarity with VME hardware, writing device drivers interfacing with hardware and configuration of CPU boards is necessary. What kit and C/S experience is beneficial. Will be part of a team that will design and implement a control system using Epics. Spallation Neutron Source Project/Collaborator Accelerator Department

- NS6864. CYTOSCOPIC GROUP LEADER – Requires an advanced degree in engineering, physics, or related technical field and at least ten years experience leading multi-persontal efforts in a laboratory environment or an equivalent setting. Knowledge of cytoscopic system for superconducting magnets and related hardware is necessary. As well as knowledge of cytoscopic safety standards, vessel pressure design, vacuum system, mechanics, electronics, and controls systems. Excellent communication skills, physics background with an understanding of the interrelationships of optical, mechanical, electrical, and the knowledge to help define and guide technical and safety training for the facility. Experience with the preparation of cost estimates and management of budgets and schedules is necessary. Collider-Accelerator Department

- NS7813. ENTERPRISE SERVICE CENTER SPECIALIST – Requires an AAS degree in electronics, computer science, or the equivalent technical school certification. Microsoft operating system or office suite products or certification or the ability to obtain such certifications. Excellent customer service and communication skills. Knowledge of local area and City computer system, policies, and procedures. Shows initiative and ability to work as a team player in both internal and external situations. A minimum of two years’ experience working on Windows NT or UNIX in resolving service-ticket related issues is required. As an experience in the repair and troubleshooting of computer hardware, printers, moderns and other peripheral devices. Knowledge problem management tracking system, internet browsers, web publishing software, off-the-shelf applications such as virus eradication, disk repair, etc., network configuration, local and remote access skills are a plus. All positions report to J. Pappas, Ext. 5015, or toll free from off site, 1-888-352-7320.

BTL Wireless

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FREE SUMMER SUNDAYS CONTINUE THROUGH AUGUST 27
BIOLoGY IS THIS SUNDAY’S FEATURED FACILITY

Free Summer Sundays Continue Through August 27

Biology Is This Sunday’s Featured Facility

SUNDAY, JULY 16, BNL’s Biology Department opens its doors to display some of the world-class research being done by biologists at BNL and other institutions. For example, every year, at least 60 visiting biologists come to join BNL colleagues and do their experiments at the Scanning Transmission Electron Microscope known as STEM. This powerful instrument is one of only three in the world that can image single atoms by magnifying samples ten millions times their original size. BNL biologists also conduct unique investigations in the National Human Genome Project, discovering how DNA can be sequenced or copied. In the greenhouses, visitors will see front research flourishing on plant oils and growing cotton with stronger, finer fiber.

In addition to tours of Biology, guided bus tours of the Lab site will run continuously. The Whiz Bang Science Show, a lively, interactive demonstration of basic scientific principles, is presented in times between 10 a.m. and 3 p.m. Also on view, housed in a Camp Upton chapel, is the Camp Upton Historical Collection, which contains the history of the site during its use by U.S. Army camp during World Wars I and II. Organized by the BNL Museum Programs of the Community Relations Office, BNL’s Summer Sunday tours run from 10 a.m. to 3 p.m., but visitors must arrive before 3 p.m. The tours are free and open to the public, and no reservations are needed.

Volunteers Needed

Are you healthy and at least 20 years old? Then you are invited to participate in a PET imaging study here at BNL. Subjects will be paid for their participation and their confidentiality will be maintained. Transportation can be provided if necessary. For more information, call Naomi Pappas, Ext. 5015, or toll free from off site, 1-888-352-7320.

BTL Food Drive

The July Food Drive is on all next week. Don’t let your memory let you down — tie-a-knot in your Kohl’s, wear an elephant pin, whatever it takes — please give something, as needy kids and adults in Brooklyn Town depend on your generosity. Donations will be picked up from the food deposit bins in each building all next week. Or, send personal checks to BNL Food Drive, care of Rita Kito, Bldg. 460, or Donna Wadman, Bldg. 129.

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