

BNL Hits World High in Accurately Measuring Materials' Defects

At BNL, the tiniest defects in materials can now be measured with the highest accuracy ever achieved — akin to finding a speck of dust in an area the size of the United States. Researchers in the Energy Sciences & Technology Department (ES&T) have developed a technique to measure defects with picometer accuracy, a picometer being a trillionth of a meter.

The research was reported in the December 11 issue of the journal *Physical Review Letters*. The paper's authors are Lijun

The microscope can magnify samples up to 50 million times.

Wu and Yimei Zhu, both of ES&T, and J. Tafto, visiting BNL scientist from the University of Oslo, Norway. The work was also featured in *Physical Review Focus* (<http://focus.aps.org>), *Science News* ran a feature on

the research in their December 2, 2000, issue, and *Business News* has it in a January issue.

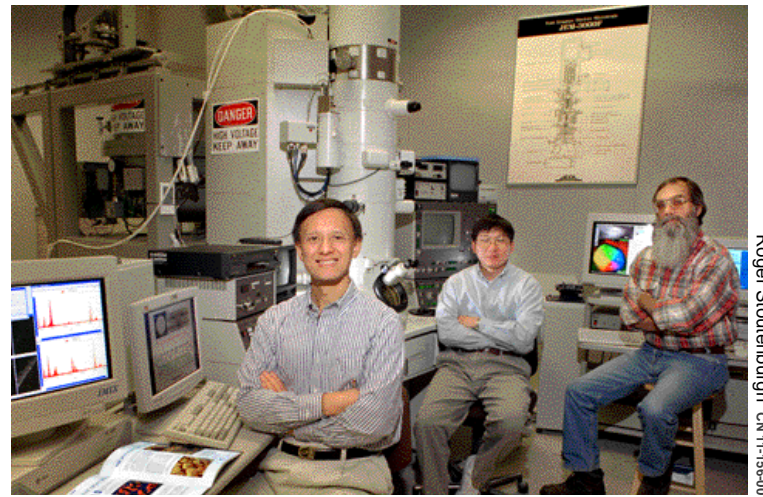
"Defects are tiny deviations from the normal positions of atoms in materials, and they often control a material's function," Zhu said. "For example,

At this magnification, an atom looks as big as a ping-pong ball, and a ping-pong ball — as big as the earth.

certain defects allow a larger current to be transported without resistance in superconductors, or improve the electronic, magnetic and optical properties of semiconductors used in computers or digital equipment. This new technique enables researchers to measure defects with unprecedented accuracy, which is important for designing advanced materials."

The researchers named the new technique interferometry in coherent electron diffraction. The method, which requires the use of a one-of-a-kind transmission electron microscope, is complementary to neutron-scattering techniques and x-ray scattering techniques.

Because of its small probe size and high spatial resolution, electron microscopy is particularly suited for the investigation of an extremely tiny area of a material, making it indispensable for research in nanometer-scale science and technology. In this new form of interferometry developed at BNL, electrons from a coherent source of light hit a sample from different directions and form particular "interference" patterns, which can be viewed by a detector. This information is then interpreted by scientists to measure defects in materials. The BNL researchers' exper-



From left, Yimei Zhu, Lijun Wu, and Douglas Gillette, all of the Energy Sciences & Technology Department.

tise in materials science coupled with a transmission electron microscope made the new technique possible. Built by JEOL of Tokyo according to Brookhaven researchers' specifications, the microscope on which the research was performed can magnify samples up to 50 million times. At this

magnification, an atom looks as big as a ping-pong ball, and a ping-pong ball would look as big as the earth. One of the best instruments of its kind in the world, the microscope is tailored for research in solid-state physics, chemistry and biology, as well as materials science. — Diane Greenberg

BNL Solicits Proposals for Research Projects

January 2 marked the beginning of the solicitation period for new Laboratory Directed Research and Development (LDRD) proposals. Applications must be submitted by this April 2 to be considered for fiscal year 2002 funding.

The LDRD program is designed to provide funding for highly innovative, exploratory research that enhances the ability of BNL to carry out its current and future mission objectives in line with DOE goals.

"The idea is to encourage and support the development of new ideas that could lead to new programs, projects, and research directions for the Laboratory," says Leonard Newman, BNL's Scientific Director for LDRD, a position recently created to provide oversight and direction for the expanding LDRD program.

"We would like to especially encourage 'emerging' scientists to submit proposals," Newman says. "These scientists and their creative development are crucial for the future of BNL for maintaining scientific excellence in the years to come."

LDRD projects usually range from \$50,000 to \$200,000 per year. They are generally funded for periods of two years, with a possible continuation for a third year.

The program focuses on projects in the forefront areas of basic and applied science and technology; advanced study of new hypotheses, concepts, or approaches to scientific or technical problems; "proof of principle" experiments designed to investigate

the potential utility of new scientific ideas; and conceptual and preliminary technical analysis of experimental facilities or devices.

The program will not provide funds to supplement support for projects that already receive funding from DOE or other sources, and cannot guarantee funding for permanent staff.

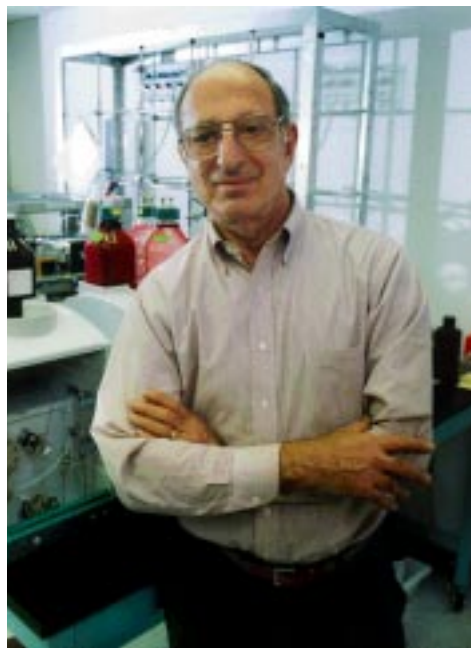
Focused initiatives that sup-

port the goals of BNL's Strategic Plan are especially welcome. At this time, scientific and technical ideas connected with free electron lasers in the UV and x-ray regime, new accelerator concepts involving energy-recovering electron linacs, and new detector and accelerator concepts for RHIC, the NSLS, and a muon storage ring are all high on BNL's agenda. Likewise, proposals that advance the Lab's nanoscience

initiatives, the study of membrane proteins, the understanding of Earth's carbon balance and ways to predict and control climate change, new technologies to advance energy efficiency, and the development of new diagnostic and treatment techniques using radionuclides and beams from the NSLS to address diseases such as cancer — as well as the computing capacity necessary to analyze and make sense of vast quantities of research data — are of particular interest to the LDRD Committee. The Committee — which consists of the Scientific Director for LDRD, the Deputy Director for Science and Technology, and all Associate Laboratory Directors, augmented by two senior scientists chosen from the Brookhaven Council — will review all applications and announce awards after May 15. The funding for awarded projects will be available at the start of the next fiscal year, on October 1, 2001.

The total amount of funding, and accordingly the number of projects supported, varies from year to year, depending on the amount approved by DOE. BNL presently allocates six million dollars per year, and plans to increase its commitment in years to come.

For more information, see: <https://sbms.bnl.gov/ld/ld03/ld03d011.htm>. If you would like counsel in preparing an LDRD proposal, contact Newman, Ext. 4467, newman@bnl.gov. — Karen McNulty Walsh



Leonard Newman is available to counsel anyone interested in submitting an LDRD proposal. Behind him in this photograph is a Particle-Into-Liquid Sampler (PILS) developed at BNL with LDRD funding.

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Quark Matter Conference Begins

Includes Free Talk by Science Populist Lawrence Krauss

Next week, nearly 700 of the world's leading physicists — including many from BNL — will convene at Stony Brook University (SBU), and on the afternoon of January 16, at BNL, to discuss the latest theoretical and experimental results from their searches for quark-gluon plasma (see <http://www.rhic.bnl.gov/qm2001/>).

Two of the highlights will be the presentations on the experiments at the Relativistic Heavy Ion Collider (RHIC), and a free public lecture by physicist and science populist Lawrence Krauss on "An Atom From Long Island," at 8 p.m. on Monday, January 15, at the Staller Center for the Arts, SBU. On the afternoon of Tuesday, January 16, conference participants will attend sessions in Berkner Hall and the Chemistry and Physics buildings, and tour the RHIC facility.

Federmann Wins DOE Award



At the Fifth Biennial DOE Audit Conference, held at BNL November 14-17, 2000, Frank Federmann (above, left), who heads BNL's Internal Audit Office, was honored with DOE's Cooperative Audit Strategy Founder's Award. Federmann was cited for "his vision as a cofounder of DOE's 'Cooperative Audit Strategy' . . . initiated in 1992 and designed to coordinate and leverage the skills, expertise, and resources of dedicated professionals employed by DOE, its contractor internal audit organizations, and the Office of Inspector General." The conference, titled "Audit Opportunities in the New Millennium," drew approximately 120 DOE and national laboratory participants. Speakers included DOE's Inspector General Gregory Friedman (above, right), Senior Policy Advisor David Heyman, and General Eugene Habiger, Director of DOE's Office of Security & Emergency Operations. Contractor presentations were made by BNL Laboratory Director John Marburger for Brookhaven Science Associates and by Frederick Bernthal, President of Universities Research Association, Inc. Other topics discussed included risk advice, computer security, data analysis, cybercrime, and fraud detection. Busloads of participants also visited the Relativistic Heavy Ion Collider and the National Synchrotron Light Source.

inside

Ribbon-cutting for expanded PET, MRI (p.2)

Nanoscience & Technology workshop (p. 3)

BNL gives student art prize (p. 3)

Calendar of Laboratory Events

- The BERA Sales Office is located in Berkner Hall. It is open on weekdays from 9 a.m. to 3 p.m. For more information on BERA events, contact Andrea Dehler, Ext. 3347 or M. Kay Dellimore, Ext. 2873.
- Additional information for Hospitality Committee events can be found at the Lollipop House and the Laundry Room in the apartment area.
- The Recreation Building is located in the apartment area.
- Calendar events flagged with an asterisk (*) have a longer story appearing in this week's Bulletin.

— EACH WEEK —

Tuesdays: Welcome Coffee

10-11:30 a.m. Recreation Bldg. Newcomers meet friends. Mimi Luccio, 821-1435 — Hospitality event

Wednesdays: On-Site Play Group

9:30 a.m.-11:30 a.m. Recreation Bldg. Parents can meet while children play. Free, drop in any time. Monique de la Bey, 399-7656. — Hospitality event.

Wednesdays: Dance Lessons

North Room, Brookhaven Ctr. Ballroom Latin & Swing Dance Club Beginner - Advanced Lessons Register for 1/24 now. Marsha Belford, Ext. 5053.

Wednesdays: Yoga Practice Sessions

Free, 12:10-12:50 p.m. Recreation Bldg. More information: Ext. 3924.

Tues. & Thurs: Aerobic Dance

5:15 p.m., Recreation Bldg. \$4 per class or \$35 for any 10 classes. Pat Flood, Ext. 7886, Susan Montelone, Ext. 7235.

Mon., Tues., & Thurs:

Cardio Kickboxing

Day Classes: noon-1 p.m. Mondays and Thursdays
Evening Classes
5:15-6:15 p.m. Tues. & Thurs.
Mary Wood, Ext. 5923, wood2@bnl.gov.

— TODAY —

Friday, 1/12

GLOBE Meeting

For more information and the meeting's location, contact Mike Loftus, Ext. 2960, or Chris Gardner, Ext. 4537.

— WEEK OF 1/15 —

There will be no Bulletin published this week due to a BNL holiday.

Monday, 1/15

Brookhaven is closed today in observance of Martin Luther King, Jr. Day.

Safety Shoe Office - Closed
Research Library - Closed
Credit Union - Closed
Post Office - Closed
Brookhaven Center -
open 5-9 p.m. (Sat. - Mon.)
Cafeteria -
open 7:30 a.m. - 2 p.m.

Tuesday, 1/16

New Exercise & Weight Lifting Room Opens

11 a.m.-12:30 p.m. - Exercise & Body Building Club members only (must show valid ID)
12:30-2 p.m. - Non Members (Employees, Guests, Visitors, and Users)

Center for Imaging, Neurosciences Expands



A ribbon-cutting ceremony held in Berkner Hall was attended by many Lab employees and guests, including, (from left) John Marburger, Laboratory Director; Michael Viola, Director of DOE's Medical Sciences Division; Nora Volkow, Associate Laboratory Director for Life Sciences; Nicholas Samios, former BNL Director; Linda Chang, Medical Department Chair; Timothy Condon, Associate Director of the National Institute of Drug Abuse; Joanna Fowler, Head of BNL's PET Program; Peter Bond, former interim BNL Director; Maurice Goldhaber, former BNL Director; Michael White, Chemistry Department Acting Chair; and Peter Paul, Deputy Director for Science & Technology.

On December 7, 2000, the Lab community celebrated the expansion of the Brookhaven Center for Imaging & Neurosciences.

The state-of-the-art center is dedicated to basic research on normal brain function, aging, and neurological disorders, focusing on addiction. In addition, researchers develop technology for two imaging methods for these studies — positron emission tomography (PET) and magnetic resonance imaging (MRI).

Said Nora Volkow, Associate Laboratory Director for Life Sciences, "BNL researchers and their collaborators have made important contributions to the understanding of addiction, aging, and neuropsychiatric diseases with the aid of these imaging facilities. The integration

of two imaging methods — PET and MRI — provides us with very detailed images of brain activity that would otherwise not be possible. With these expanded facilities, we plan to continue our research in these areas, which may lead to new treatments for illnesses such as addiction. We will also initiate new research, including studies of AIDS and cancer."

When completed, the research center will be nearly doubled in size to 4,821 square feet, providing space for new laboratories, patient-preparation areas, and two new PET scanners.

The \$4 million expansion is funded by DOE's Office of Biological & Environmental Research, the National Institutes of Health's National Institute on Drug Abuse, and BNL. It is expected to be completed by the end of January.

— John Galvin

Battelle, Stony Brook University Create Goldhaber Fellowships

Stony Brook University and Battelle Memorial Institute have established the Gertrude and Maurice Goldhaber Distinguished Postdoctoral Fellowships in honor of the Goldhabers' distinguished careers at BNL as nuclear scientists. These prestigious fellowships will provide an opportunity for outstanding postdoctoral men and women to perform independent research at BNL in a variety of areas, including, but not restricted to, the following:

Atmospheric Sciences

Work in collaboration with current members of the Atmospheric Sciences Division to develop new methods for measuring atmospheric trace gases or aerosols, deploy those techniques in planned field studies, and participate in interpreting resultant field data.

Structural Biology

Work in collaboration with current members of the Biology and Medical Departments to identify and isolate large DNA damage repair complexes and characterize their interactions.

Accelerator Physics

Work in collaboration with members of the National Synchrotron Light Source and Collider Accelerator Departments on various aspects of the Photo-Injected Energy Recovering Linac (PERL). PERL is a new direction in high-brightness, high-power electron beams. Potential applications include high-energy electron cooling of ion beams, a sub-picosecond light source and a high luminosity electron-ion collider.

The Goldhaber Fellowship program is managed by the Laboratory Directed Research & Development Office, now headed by Leonard Newman (see story, page 1). Fellowships will be awarded to candidates with exceptional talent and credentials and a strong desire for independent research at the frontiers of their field. The fellowships are three-year appointments with the expectation of leading to evaluation for a staff position with BNL. Fellowships awarded this year will each carry a salary of \$65,000 per annum and a modest amount of independent funds. Candidates should be at a maximum of three years past receipt of the Ph.D. Those interested should forward a letter of intent outlining their research interests, CV, list of publications, and names and contact information of three referees familiar with their work to Dr. Leonard Newman, BNL, Bldg. 815E, P.O. Box 5000, Upton, NY 11973-5000 (newman@bnl.gov). As an equal opportunity employer, BNL encourages applications from minorities and women.

Service Awards

The following employees celebrated BNL service anniversaries during December 2000:

40 Years

Paul Bezler *En. Sci. & Tech.*

25 Years

James E. Bullis *Medical*
Mei Han G. Chou *Chemistry*
Nicholas F. Gmur *NSLS*
Nancy Nelson *Nonp., Nat. Sec.*
Joan P. Smith *Info. Tech.*
Richard J. Spellman *Central Shops*

20 Years

David R. Dougherty *Nonp., Nat. Sec.*
Vasilis Fthenakis *Environ. Sciences*
George M. Leskody *Plant Eng.*

10 Years

Dolores A. Collins *Col.-Accel.*
Paul I. Freimuth *Biology*
Denise J. Hanley *Rad. Control*
Christopher M. Harris *Reactor*
Jih-Perng Hu *NSLS*
Annabelle Petway *Col.-Accel.*
Philip D. Plunkett *Col.-Accel.*

In Memoriam

Frank Winter joined Central Shops as a machinist on 7/25/66, retired as Tool & Instrument Maker Group Leader on 1/31/91, and died on 9/28/1999 at the age of 70.

Stanley Seltzer, who died on 12/2/1999 at the age of 69, had retired from the Chemistry Department as Senior Chemist with tenure on 3/31/96. He had come to Chemistry as a research associate on 1/13/58.

Martin Plotkin, who became a research assistant in BNL's Cyclotron Project on 11/12/46, retired from the Alternating Gradient Synchrotron Department as a senior electrical engineer on 12/31/84 and died on 12/17/1999 at the age of 77.

Norman Nelson, who had joined what was then the Lab's Plant Maintenance Division on 12/18/1950 to be a janitor, retired as a laundry operator A on 12/31/1981, and died on 1/24/2000. He was 84.

Kurt Rabe took a metalworker maintenance A position in the Plant Engineering Division on 8/28/1967, served the Lab until 1/28/1983, when, as a group leader, he retired, and died at age 79 on 2/1/2000.

Ralph Taylor, who had joined the Architectural & Engineering Design Group on 10/14/1947, died on 2/7/2000. He was 81 and had retired from the Alternating Gradient Synchrotron Department as a project engineer II on 5/31/81.

Rudolf Sternheimer, who died on 2/16/2000 at the age of 75, first came to BNL as a guest scientist in the then Proton Synchrotron Division on 3/5/1951. His contributions included work on what became known as the Sternheimer atomic shielding and anti-shielding of nuclear quadrupole moments, on which the first review paper was published in *Physical Review* in 1966. Sternheimer retired as a senior physicist with tenure from the Physics Department on 8/31/92.

Lazareth Ratner, who, on 3/7/2000, died at the age of 76, had held guest appointments from 1978-81 before joining BNL as a physicist in the Alternating Gradient Synchrotron Department on 10/1/81. He had retired on 9/30/93.

Arrivals & Departures

Arrivals

Dietrich Bodeker
Physics

Gaofeng Fan
Medical

Ayman J. Frook
Medical

Martin Gormezano
Information Technology

Kenneth J. Pedersen
C-A

Ji Shen
Medical

Wendy J. Spaeth
NSLS

Patrick J. Talty
C-A

Thomas S. Ullrich
Physics

Departures

Deidre Brown
Central Shops

Frank L. De Rosa
Plant Engineering

Luc Derrendinger
Environmental Sciences

John Dioguardi
C-A

Roger P. Hancock
Plant Engineering

Raymond H. Mayo
Plant Engineering

Sabina N. Sheikh
Biology

Andreas Lehrach
C-A

Dorian P. Mergen
Radiological Control

Renata Rogoz
Medical

Manoj K. Sammi
Medical

Michael H. Schlender
Director's Office

Joseph R. Walsh
Procurement & Property Management

Lothar E. Weissfloch
Medical

BNL Gives 199 Units of Blood

Many thanks are due to BNL's blood donors, says Susan Foster, Blood Drive Coordinator. At the December 14 blood drive, 215 employees attended to donate blood. On that day, 199 units were donated, donations from 16 employees being postponed.

When is a Reactor Not a Reactor

Hastings to Speak at Joint LIANS & ASM Meeting

Jerry Hastings, NSLS, will speak at the joint meeting of the Long Island Section of the American Nuclear Society (LIANS) and the Long Island Section of the American Society of Metals International (ASM) on Wednesday, January 17, at the Best Western MacArthur Hotel, North Ocean Avenue, Holtsville.

Hastings' talk, "When is a Reactor Not a Reactor," will deal with a steady-state spallation source for neutron beam research — which will look like a reactor from the experimentalist's point of view — and how the concept could be implemented at BNL.

After a social hour from 6 p.m., the meeting will continue with dinner at 7 p.m., and the talk at 8 p.m. For information and reservations, call Arnie Aronson, Ext. 2606, by January 16.

Research Subjects Wanted

Healthy women between 18 and 40 years of age are wanted to participate in an MRI study of the brain during different phases of the menstrual cycle. Candidates must have normal menstrual cycles, not be on oral contraceptives, and not have any medical electronic implants. Participants will receive up to \$400 for four MRI studies. Interested candidates should contact Mary Johnson, 444-3578.

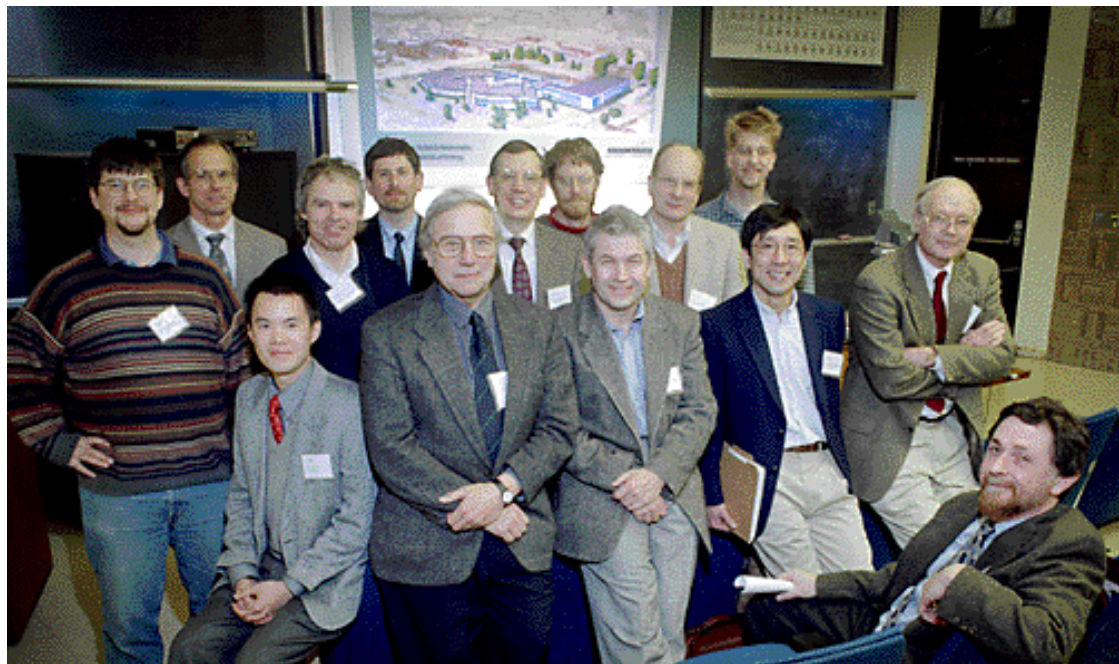
Computing Corner

The Information Technology Division (ITD) has scheduled the following PC training classes for January/February:

date	class	level
1/18	PowerPoint	beginner
1/19	Excel	intermediate
1/24-25 (2-day)	Project	intermediate
1/29	Excel	beginner
1/30	Word	beginner
1/31	Front Page	beginner
2/2	Word	intermediate
2/7- 8 (2-day)	Word	advanced
2/9	PowerPoint	intermediate

To register for the above classes or to request future classes, submit a training request form and an ILR or Web requisition for the appropriate amount to Pam Mansfield, Bldg. 515, and your name will be placed on a waiting list. Classes are scheduled based on the number of requests received. See the ITD training page at <http://www.bnl.gov/itd> for more information and course schedules.

Interest Increases in the Ultra-Small



On December 20 of last year BNL held a one-day workshop to bring together a number of institutions in the Northeast to discuss mutual interests and research programs in the area of nanoscience and technology. Nanoscience is the study of the unique physics and chemistry of ultra-small structures — on the scale of one-billionth of a meter — with possible future applications in molecular electronics, computer chips, and tiny electronic devices. The speakers and session chairmen shown in the photograph above include: (front row from left) Stan Wong, Stony Brook University (SBU); Joe Budnick, University of Connecticut; Kostya Likharev, SBU; Chi-Chang Kao, BNL's National Synchrotron Light Source Department; Rick Osgood, BNL Director's Office; (middle row) Chris Jacobsen, SBU; Horst Stormer, Columbia University and Bell Labs; Emilio Mendez, SBU; Louis Brus, Columbia; (back row) Bill Russel, Princeton University; Irving Herman, Columbia; Andy Millis, Rutgers University; and Chuck Black, IBM. Sitting in the foreground is Peter Johnson, BNL Physics Department, who organized the workshop. In the background is an architectural drawing of a proposed Nanocenter to be sited at BNL.

William Floyd's Julia Donovan Wins BNL Art Award

An outstanding photograph of a fisherman at the ocean's edge, his fishing line arched with a possible catch (at left of photo, below) won Julia Donovan BNL's 2000 High School Seniors' Art Prize.

The prize, a \$500 U.S. Savings Bond, was awarded for this year's best interpretation of the theme of "Discovery." To add to its considerable artistic and technical merit, this action photograph of an ocean fisherman can symbolize wrest-

ling knowledge from the unknown, evoking for scientists the voyages of discovery made by the early explorers and the adventure of scientific work.

On behalf of BSA, the BNL Art Society chose Donovan's work from the about 150 art pieces shown at the 2000 High School Art Show sponsored by the South Bay Art Association (SBAA) in Bellport. Donovan attends William Floyd High School, where she is taught photography by Mark Ferriss.

This is the second time that a William Floyd student has won the BNL Discovery Prize — in 1999, the first year that the prize was offered, Tara McManus, who was taught art by Susan Hersh, won with her "Self Portrait" sculpture.

After the SBAA show, Donovan showed her work in a November 20-22 exhibit at BNL's Berkner Hall. At the opening reception, BNL Deputy Director for Science & Technology Peter Paul congratulated Donovan, as well as her parents and teacher, and presented her with a certificate commemorating her win.

Donovan, whose talent is also evidenced in her portrait of a friend (at right of photo, left) plans to major in photography at college.

Said Robert Chrien, BNL Art Society President, "The consistent excellence of the entries submitted to the SBAA Students' Show makes it a special pleasure to present this annual prize for work suited to our 'Discovery' theme. We look forward to seeing what next year's students will create around this topic."

— Liz Seubert



Julia Donovan, pictured with two of her photographs shown at BNL's November Art Exhibit.

Lab Guests May Register On Line

Visiting scientists, facility users, consultants, and all other of BNL's guests now have a new, convenient way to register on line with the Lab — on the Web.

At <https://fsd84.bis.bnl.gov/guest/guest.asp>, a form is available for guests to complete which will enable visitors to be approved by appropriate laboratory management, get guest numbers, and process information required by DOE for foreign visits and assignments. This process can be initiated by prospective guests from their home or home institution through the Web. The form can be accessed under User Facilities and also under Science & Technology on the BNL Web Page.

"Previously, getting this information and/or training all had to be done by letter or by waiting until the person had arrived," said Peter Maier, Manager, Employee & Guest Information Services, who chaired the development of the Guest and Visitor Standards Based Management Systems subject area and led the team which provided specifications to the Business Systems Division for the development of the guest information system.

"To arrive at this point, we have benefited from the advice of many Lab administrators with firsthand experience of getting guests registered, and their help has been invaluable," said Maier. "The new system should result in less work and more convenience for all concerned."

Once the visitor provides the information, it is moved to a data base maintained by Department/Division Guest Administrators. Thus records will be kept for all non-employees for whom BNL needs to establish a permanent record. For training on how to use the system, contact Frances Ligon, Ext. 3709, ligon@bnl.gov.

Calendar

(continued)

*LabVIEW 6i Demo

10 a.m.-1 p.m., 2nd Floor Seminar Room, Bldg. 515. For more information, contact Allen Howard, 205-0920.

Wednesday, 1/17

Voicestream Wireless Demo

10 a.m.-2:30 p.m., Berkner Hall. For more information, contact Richard Goll, (516) 343-5900

Thursday, 1/18

BERA Bridge Club

7 p.m., Berkner Hall Cafeteria. For more information, contact Morris Strongson, Ext 4192, mms@bnl.gov.

Friday, 1/19

Women Engineer's Networking Brown Bag Lunch

Noon, Berkner Hall, Room D. Lunch for BNL women mechanical, electrical, computer, civil, and environmental engineers. Contact Arlene Zhang, arling@bnl.gov or Lorraine Merdon, merdon@bnl.gov.

—WEEK OF 1/22—

Monday, 1/22

*IBEW Meeting

Local 2230 will meet at 6 p.m., Knights of Columbus Hall, Patchogue, with a 3 p.m. meeting at the union office, for shift workers.

Safety Shoe Office Closed Today

Tuesday, 1/23

Exercise and Weight Lifting Facility Dedication

4 p.m. All BNLers are invited to attend the ribbon-cutting and dedication by Lab Director John Marburger. All BERA club members are welcome, contact M. Kay Dellimore, Ext. 2873, if your activity will be involved. (Gym will be closed today.)

Wednesday, 1/24

Dance Lessons Begin:

6 p.m. - American Ballroom 102 (beginner)

7 p.m. - Lindy & Swing IV (intermediate)

8 p.m. - Smooth Standard Technique (advanced)

For more information and registration information, contact Marsha Belford, Ext. 5053, belford@bnl.gov.

—WEEK OF 1/29—

Wednesday, 1/31

*Brookhaven Lecture

4 p.m., Berkner Hall. Chi-Chang Kao, NSLS, presents "A Softer X-Ray View into the Diamond Anvil Cell: Electronic Structure of Materials Under High Pressure."

Note: This calendar is updated continuously and will appear in the Bulletin whenever space permits. Submissions must be received by the preceding Friday at noon to appear in the following week's Bulletin. Please enter the information for each event in the order listed above (date, event name, description, and cost) and send it to bulletin@bnl.gov. Write "Bulletin Calendar" in the subject line.

Service Awards 2000

BNL Toasts Lab VIPs



CN 12-156-00



CN 12-134-00



CN 12-120-00



CN 12-152-00



CN 12-133-00



CN 12-142-00



CN 12-122-00



CN 12-160-00



CN 12-113-00



CN 12-138-00



CN 12-126-00



CN 12-127-00



CN 12-111-00



CN 12-150-00



CN 12-146-00

Photos by Roger Stoutenburgh

Laboratory Director John Marburger (above, at the podium) invited 178 Very Important Persons (VIPs) to the Service Award Reception he hosted in their honor in Berkner Hall on the evening of December 6, 2000.

The VIPs included Seymour Rankowitz, Instrumentation Division — who marked his 51st year of service during the past calendar year (see Brookhaven Bulletin, August 11, 2000);

Elinor Norton, Chemistry Department — who has logged 49 years at the Lab; David Rahm, Physics Department — with 46 years at BNL to his credit; and Lawrence Leipuner, Physics — who joined Brookhaven 45 years ago. In addition, seven of the invitees had served BNL for 40 years, 20 had observed 35-year anniversaries, 11 had completed 30 years as employees, and 58 had celebrated 25 years of service at the Lab.

BNL Spent Over \$31 Million On Long Island in 2000

BNL purchased more than \$31 million worth of supplies and services from Long Island businesses in fiscal year 2000, a period from October 1, 1999 to September 30, 2000.

In addition to Brookhaven's buying goods and services from Long Island vendors, most of the Laboratory's 3,000 employees live in Suffolk County and do most of their shopping locally on Long Island. All told, employee salaries, wages and fringe benefits accounted for 61 percent, or \$258 million of BNL's total budget of \$424 million.

In fiscal year 2000, BNL made 3,428 individual purchases on Long Island. Out of those, 2,731 totaling about \$29.2 million were made in Suffolk County, and 697 amounting to almost \$2 million were made in Nassau County.

Mary-Faith Healey, manager of the Procurement & Property Management Division, said, "Brookhaven is committed to doing business locally whenever possible. By supporting the local business community, we better serve ourselves, because the vast majority of the

Lab's employees live on Long Island."

New construction, environmental cleanup and repair of an aging infrastructure accounted for a large part of Brookhaven's purchases during fiscal year 2000. For example, Frenolph Construction of West Babylon was paid approximately \$4.6 million for construction related to a project funded by the National Aeronautics and Space Administration to determine how cosmic radiation in space affects astronauts.

URS Corporation of Ronkonkoma received about \$1.6 million for removing contaminated above-ground ducts from the Brookhaven Graphite Research Reactor. The reactor had been in operation from 1953-68 and is in the process of being decommissioned.

Bove Industries was paid over \$1.5 million to upgrade Brookhaven's sanitary system, which consists of over 20 miles of piping that transports wastes from the Laboratory's buildings to its recently upgraded sewage treatment plant.

— Diane Greenberg



Softball Captains' Meeting, 1/31

A Softball Captains' Meeting will be held on Wednesday, January 31, in Berkner Hall, Room C, at noon.

At least one representative from each team planning on playing this season should attend the meeting and bring preliminary rosters so that a league structure can be determined. New teams wanting to join will be placed in the league determined by the Board. Anyone who wants to run for the Board or to nominate someone must attend the meeting. Contact softball@bnl.gov for more information.

Benefit Notes

For more information, contact Nancy Concadoro between 8:30 a.m. and 1 p.m. Monday through Friday in the Benefits Office, Human Resources Division, Bldg. 185, Ext. 2877, or by calling (800) 353-5321.

Qualifying Events

Changes to medical and/or dental coverage may be made only during the annual open enrollment or within 31 days of when what is called a qualifying event occurs. Qualifying events include: birth or adoption of a child, marriage, divorce or legal separation, loss of dependent status (e.g., due to graduation), or a spouse's gain or loss of employment.

Women's Breast Cancer

Federal law requires group health plans to provide coverage for the following services to an individual receiving plan benefits in connection with a mastectomy:

- reconstruction of the breast on which the mastectomy has been performed,
- surgery and reconstruction of the other breast to produce a symmetrical appearance, and
- prostheses and physical complications for all stages of a mastectomy, including lymphedema, which is swelling associated with the removal of lymph nodes.

The group health plan must determine the manner of coverage in consultation with the attending physician and patient. Coverage for breast reconstruction and related services are subject to deductibles and coinsurance amounts that are consistent with those that apply to other benefits under the plan.

Reimbursement Account Deadline

According to the Internal Revenue Service, contributions to health care or dependent day care accounts not used by the end of the year will be forfeited. So, do not forget to use up balances within all 2000 reimbursement accounts by claiming expenses incurred in 2000. To do so, submit claim forms by March 31, 2001.

Contributions to 401(k) Retirement Plan

Effective January 1, 2001, compensation for the purpose of contributions to the 401(k) retirement plan will be based on gross pay, excluding reimbursements or other expense allowances, fringe benefits (cas and non-cash), moving expenses, deferred compensation, and welfare benefits. In previous years, compensation for the purpose of contributions was based on salary.

The Internal Revenue Service did not change the maximum contribution level for the year 2001. The maximum contribution remains at the lesser of \$10,500 or 15 percent of gross earnings.

Coming Up in Berkner Hall

Free Noon Recital, 1/17



At noon on Wednesday, January 17, the BSA Cultural Program will present Cincinnati World Piano Competition winner Konstantin Soukhovetski. Trained in Moscow and, at age 16, the 1997 winner of the Grand and First Prizes in Cincinnati, Soukhovetski will present a recital of classical works from the solo piano repertoire.

Brookhaven Lecture, 1/31

At 4 p. m. on Wednesday, January 31, Chi-Chang Kao, National Synchrotron Light Source, will give the next Brookhaven Lecture, "A Softer X-Ray View into the Diamond Anvil Cell: Electronic Structure of Materials Under High Pressure."

BNL's United Way Fund Reaches Stars

A thank you from Beth Blevins, the campaign chair

A team of 56 Captains and many Laboratory employees have truly made "Hand in Hand — Reaching for the Stars," the slogan for this year's BNL Long Island United Way Campaign, come true for many Long Islanders.

As of Wednesday, January 10, \$121,437 has been raised through donations and the holiday auction/yard sale, and employees have spent at least 750 hours volunteering.

I am thrilled with the results of the contributions, but even more thrilled about the the volunteer effort. And the icing on the cake is BSA's commitment to contribute \$20 per employee volunteer hour to the LI United Way, up to \$10,000.

Employees eager to help cooked turkeys and worked in soup kitchens, hospitals, and the American Red Cross Meals on Wheels kitchen on site. They packaged food, handed out clothing and gifts at holiday parties, sold ornaments for the Mather Hospital Tree of Hope, and collected food, clothing, and personal care items for shelters. They also solicited donations from merchants for the Holiday Raffle, worked with children at risk through the Longwood Mentoring Program, and even taught computer skills to those who have lost their jobs and need to be trained to re-enter the work force.

There was such an outpouring of generosity during the campaign. And it doesn't have to end here. Agencies need volunteer help all year long, not just during the holidays. Quite a few people have already asked about volunteer opportunities during the coming year. With so much employee interest in the volunteer program, it would be nice to see it continue.

The bottom line seemed to be that people liked getting involved with their neighbors.

Chairing this year's campaign has been a wonderful opportunity for me to do something very different from anything I have ever done. I too liked getting involved, and have enjoyed interacting with so many wonderful people.

Thank you for all your efforts!

— Beth Blevins, Director's Office

Investment Counseling

A Fidelity Investments representative will be at the Lab on Wednesday, January 31, to hold individual sessions with employees interested in learning more about their retirement-savings and investment options. To schedule one of the 45-minute appointments, call (800) 642-7131.

Defensive Driving

A six-hour defensive driving course at \$23 per person will be held on Saturday, January 20, 9 a.m.-3:30 p.m., in Berkner Hall, Room B. The course is open to BNL, BSA, and DOE employees, BNL facility-users, and their families, at \$23 per person. To register, send a check to Empire Safety Council, care of Scott Zambelli, P.O. Box 670, Mount Sinai, NY 11766. Include your phone number on the check. MetLife offers all BERA members a 5 percent discount on auto & home coverage. Call Scott, 582-6544, Ext. 5877.

On-Site Courses

Three Suffolk County Community College (SCCC) courses will be offered on site for the Spring 2001 semester and will satisfy requirements for most SCCC degrees.

BA52 - Office Management
SL10 - American Sign Language I
SL14 - American Sign Language II

Employees taking college courses may apply for tuition assistance at 75% for undergraduate courses. For more information, contact Marilyn Pandorf, Ext. 5251, pandorf@bnl.gov or Starr Munson, Ext. 7631, munson@bnl.gov.

Retirement Counseling

A TIAA-CREF representative will visit the Lab on Tuesday & Wednesday, February 6 & 7, to answer BNL employees' questions regarding the TIAA-CREF retirement plan, in one-on-one counseling sessions. You might ask about:

- the differences between TIAA and CREF
- allocating funds between TIAA and CREF
- options, flexibilities available for existing dollars with TIAA/CREF
- retirement options

To arrange a 45-minute appointment call Duane Walden, (800) 842-2733, Ext. 7289 (not the on-site Ext. 7289).

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, January 22, at 6 p.m. in the Knights of Columbus Hall, Patchogue. A meeting for shift workers will be at 3 p.m. at the union office. The agenda includes regular business, committee reports and the president's reports.

LabVIEW 6i Demo

For engineers, scientists, and managers who use or are interested in using LabVIEW, the latest features in LabVIEW 6i will be on view on Tuesday, January 16, 10 a.m.- 1 p.m., in the Information Technology Division's 2nd floor seminar room, Bldg. 515.

Pizza, bagels, and drinks will be provided. Reply to Allen Howard at 205-0920 or e-mail allen.howard@ni.com.

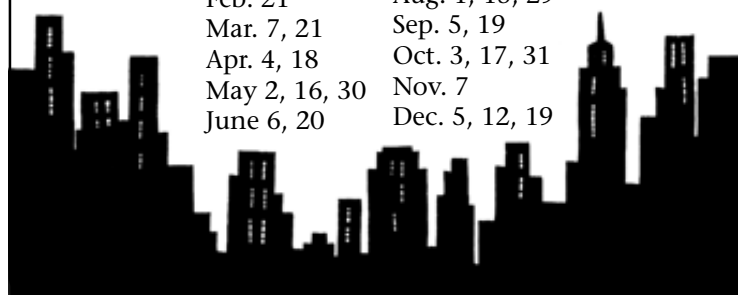
2001 New York City Train Trips

Discounted group trips to New York City via the Long Island Railroad (LIRR) are arranged by the Brookhaven Tour Group and Patchogue-Medford Library.

Wednesday trips — Usually: first, third, and fifth Wednesdays of each month, leaving from Patchogue at 7:56 a.m. Group members travel to the city together and returns separately at any time that day. The roundtrip cost is \$8 per person; \$9 or \$10 for fewer than 30 people. Children under five ride free. Times and fares may change.

To reserve for Wednesdays, mail a check payable to cash to be received by the Monday before the trip to Diane Weid, 645 Old Medford Ave., Patchogue, NY 11772. Include your name, phone number and date of the trip. Or, call 475-2394 and leave your name, phone number, number of tickets needed, date of trip, and where you will board the train if not at Patchogue. Phone reservations must be paid in cash on the morning of the trip. Cancellations must be made before 9 p.m. the evening before. Emergency cancellations can be made by calling before 7:30 a.m. on the morning of the trip, but they are accepted only if the group will still have a minimum of 30 people. If you reserve by phone, do not cancel, and do not show up, payment is due. Wednesday trip dates are:

Jan. 31	July 18
Feb. 21	Aug. 1, 15, 29
Mar. 7, 21	Sep. 5, 19
Apr. 4, 18	Oct. 3, 17, 31
May 2, 16, 30	Nov. 7
June 6, 20	Dec. 5, 12, 19



Classified Advertisements

Placement Notices

The Lab's placement policy is to select the best-qualified candidate for an available position. Candidates are considered in the following order: (1) present employees within the department/division and/or appropriate bargaining unit, with preference for those within the immediate work group; (2) present employees within the Laboratory; and (3) outside applicants. In keeping with the Affirmative Action Plan, selections are made without regard to age, race, color, religion, national origin, sex, disability or veteran status. Each week, the Human Resources Division lists new placement notices, first, so employees may request consideration for themselves, and, second, for open recruitment. Because of the priority policy stated above, each listing does not necessarily represent an opportunity for all people. Except when operational needs require otherwise, positions will be open for one week after publication. For more information, contact the Employment Manager, Ext. 2882; call the JOBLINE, Ext. 7744 (344-7744), for a list of all job openings; use a TDD system to access job information by calling (631) 344-6018; or access current job openings on the World Wide Web at www.bnl.gov/JOBS/jobs.html.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees.

DD8949. SECRETARIAL POSITION – Requires an AAS degree or equivalent experience to provide varied support to the Subcommittee on Consequence Assessment and Protective Actions (SCAPA) Program Office. Requires proficiency in word processing, file type conversions, Adobe skills, and familiarity with BNL travel systems. Excellent communication skills and the ability to interact with a diverse customer population, primarily off-site, is required, as is the ability to maintain a technical content web page. Knowledge of spreadsheets and PowerPoint is also required. Responsibilities will include file control for comprehensive toxicological database, including conversion of paper files to electronic format, arranging meetings, conferences, seminars, and manuscript preparation under several different formats, and file organization and maintenance. Emergency Services Division.

DD7450. CENTRAL SHOPS OFFICE SPECIALIST – Under general supervision and administrative direction, performs complex and diversified clerical functions in assigned areas of Central Shops Division. Requires a broad knowledge of specialized work applications and the use of computers. Works from written or oral directions. Qualifications typically consist of a minimum of two years of post high school training or equivalent, plus relevant work experience at advanced clerical level. Central Shops Division.

OPEN RECRUITMENT – Opportunities for Laboratory employees and outside candidates.

MK8908. SCIENTIST – We are seeking Condensed Matter Theorists to join the Condensed Matter Theory Group. Requirements include at least two years of postdoctoral experience and the interest of the candidate to interact with the experimental groups in condensed matter physics at the Laboratory. Current areas of interest in condensed matter physics include x-ray and neutron scattering studies of magnetism and correlated electron systems, surfaces and interfaces, UV, IR, and x-ray spectroscopy. The group is currently interested in programs in strongly correlated electron systems and in soft condensed matter, but will consider other areas as well. Under the direction of M. Weinert. Physics Department.

MK9009. SCIENTIST (Project Appointment) – Requires a Ph.D. in cellular biology and experience in setting up and using a cryo-electron microscope, specimen preparation, and data handling. Will operate a cryo-electron microscope for the collection of data from membrane protein crystals using electron diffraction and low-dose imaging modes from frozen hydrated specimens. Under the direction of J. Hainfeld. Biology Department.

MK9105/9106. SCIENTIST (Assistant or Associate) – Requires a Ph.D. in microbiology or a related field and postdoctoral experience and, in addition, experience in the molecular biology and biochemistry of microbial enzymes systems relevant to the bioremediation of heavy metals and/or radionuclides. Will be expected to lead basic science research programs that will contribute to DOE missions in these areas. The Biology Department has strong programs in microbial genomics, structural genomics, regulation of gene expression, and DNA repair and is establishing a center for the structure of complex protein systems including membrane proteins. Under the direction of C. Anderson. Biology Department.

MK8952. POSTDOCTORAL RESEARCH ASSOCIATE (Computational Science and Applied Mathematics) – Requires a Ph.D. in an appropriate field. Position is with the Center for Data Intensive Computing with research topics including computational fluid dynamics, large data sets from nuclear and high energy physics experiments, climate modeling, computational materials science, medical imaging, optoelectronics, and accelerator simulations. The Center is closely allied with Stony Brook University with many opportunities for collaboration with the Departments of Applied Mathematics and Statistics and Computer Science. For more information visit our web site: www.bnl.gov/cdic. Under the direction of J. Glimm. Center for Data Intensive Computing.

MK8951. POSTDOCTORAL RESEARCH ASSOCIATE (Computational Physics) – Requires a Ph.D. in an appropriate field.

Position is with the Center for Data Intensive Computing with research topics including computational fluid dynamics, large data sets from nuclear and high-energy physics experiments, climate modeling, quantum many body problems, computational materials science, optoelectronics, and accelerator simulations. The Center is closely allied with Stony Brook University with many opportunities for collaboration with the Departments of Applied Mathematics and Statistics and Computer Science. For more information visit our web site: www.bnl.gov/cdic. Under the direction of J. Glimm. Center for Data Intensive Computing.

MK9084. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. and familiarity with accelerators and accelerator instrumentation, real time controls, and the EPICS control systems. This diagnostic group is responsible for many kinds of diagnostic devices for the Spallation Neutron Source Project. These include beam loss monitors, slow and fast beam current monitors, wire scanners, profile monitors, and other devices. Under the direction of J. Smith. Collider-Accelerator Department.

MK2031. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in physics, optics/optical engineering, or related field with experience with FTIR spectroscopy and microscopy a plus. The NLSL VUV electron storage ring serves as a high-brightness source of broadband infrared radiation, enabling vibrational and electronic microspectroscopy at unprecedented spatial resolution. Will work with infrared beamline scientists to explore advanced microspectroscopy techniques instrumentation with the goal of increased spatial resolution. Under the direction of L. Carr. National Synchrotron Light Source Department.

MK2033. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in physics, chemistry, or materials science with a background in condensed matter. Experience with soft x-rays spectroscopy techniques and with the preparation of ultrathin films is desirable. Research includes commissioning of new end-station for soft X-ray MCD studies in the presence of high magnetic fields (~5-8 T) and low temperatures (<10K). Under the direction of E. Vescovo. National Synchrotron Light Source Department.

MK2034. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in physics, chemistry, or materials science with a background in soft condensed matter and experience with x-ray diffraction techniques desirable. Research will involve the commissioning of a soft x-ray diffractometer, resonant and non-resonant diffraction using soft x-rays, and the study of soft condensed matter-like liquid crystal film and polymers. Under the direction of W. Caliebe. National Synchrotron Light Source Department.

MK8909. POSTDOCTORAL RESEARCH ASSOCIATE (Two positions) – Requires a Ph.D. in theoretical condensed matter physics. Experience with field-theoretical approaches to the solution of many-body problems is desirable. Work will involve theoretical research in the area of strongly correlated and low-dimensional systems in the Condensed Matter Group. Under the direction of A. Tselik. Physics Department.

MK9107. POSTDOCTORAL RESEARCH ASSOCIATE - The Biology and National Synchrotron Light Source Departments seek a research associate to study the direct solving of macromolecular crystal structures through measurement of phases by multiple-beam diffraction methods (http://x12wulfgar01.nsls.bnl.gov/3BD/3beam_diffraction.html). Will join an international collaboration on method development and application of multiple-beam phasing, and will be part of a large community of macromolecular crystallographers and diffraction physicists at BNL. A new six-circle diffractometer, equipped with a Quantum-4 area detector is available for the work; ample beam time will be available. Requires a Ph.D. in an appropriate field and established credentials in crystallographic studies. Additional experience in diffraction physics and macromolecular crystallography will be an advantage. More information about the position can be obtained from Robert Sweet (sweet@bnl.gov) or Dieter Schneider (schneider@bnl.gov). Biology Department.

MK9108. POSTDOCTORAL RESEARCH ASSOCIATE – The Biology and National Synchrotron Light Source Departments seek a research associate to participate in technological developments at the National Synchrotron Light Source for rapid throughput macromolecular structure determination. The work will involve development of robotics for the handling of crystals under cryogenic conditions, work on a massively parallel computing cluster, and commissioning of new x-ray optical systems. Will be part of a large community of macromolecular crystallographers and diffraction physicists at BNL. This community includes a NIH-funded Protein-Structure Initiative consortium (<http://www.nysgrc.org/>) and an active and well-funded program in facilities operation and development http://www.x12c.nsls.bnl.gov/x12c/nsls_px.html). Requires a Ph.D. in an appropriate field, established credentials in electromechanical design and implementation, and Unix system programming. Additional experience in diffraction physics and macromolecular crystallography will be an advantage. More information about the position can be obtained from Dieter Schneider (schneider@bnl.gov) or Robert Sweet (sweet@bnl.gov). Biology Department.

NS9082. PROGRAMMER POSITION – Requires a BS in computer science, physics, or related field, and good problem-solving and communication skills; C++, X-Windows, and UNIX experience is desirable; Java and/or Linux experience is a plus. This entry-level position will involve working with a large team of programmers developing

user interface applications for the accelerator controls environment. Collider-Accelerator Department.

NS9083. COMPUTER ANALYST POSITION – Requires a BS (MS preferred) in computer science, physics, or related field, at least three years' experience managing software development projects; creativity, problem-solving and project management skills; C++, X-Windows, and UNIX experience is desirable; Java and/or Linux experience is a plus. Responsibilities include being part of a large team of programmers who design and develop application-level software within the accelerator controls environment. Collider-Accelerator Department.

NS8986. PROGRAMMER/ANALYST POSITION – Requires a Ph.D. and significant experience in high energy or nuclear physics is highly preferred. Substantial experience with advanced computation and software developments for large HENP experiments is required; ability to program in C++ is necessary; familiarity with the science of RHIC is highly preferred. Will develop and maintain STAR's production software infrastructure and provide advanced computing support for scientific research in the STAR experiment. Physics Department.

NS2036. ENGINEERING POSITION (Half-time) – Requires an MS in engineering and hands-on experience in electron accelerators, high-power laser physics, and computer control systems. Responsibilities will include general support of the user program of the Accelerator Test Facility in accelerator and laser systems and computer control systems. National Synchrotron Light Source Department.

DD9054. ADMINISTRATIVE POSITION – Requires a degree in business administration or comparable experience, strong organizational skills, and working knowledge of MS Office (Word, PowerPoint, and Excel). Prior experience with NIH grant management, including NIH budget development and monitoring, as well as, knowledge of the NIH grant submission process, and familiarity with administrative issues pertaining to clinical research highly desirable. Will provide research support to the MR Clinical Research Group. Medical Department.