

Meet Douglas Olesen, Battelle President and CEO, BSA Board Chair

Douglas Olesen, President and Chief Executive Officer of Battelle, is now Chair of Brookhaven Science Associates' (BSA) 16-member Board of Directors.

In March, Olesen succeeded Shirley Strum Kenny, President of the State University of New York (SUNY) at Stony Brook



(USB), who replaces him as Vice-Chair for the next two years. This plan was in place when BSA, a company composed of Battelle and the Research Foundation of SUNY acting for USB, was named by DOE on November 25, 1997, as BNL's next contractor.

That day, Olesen, Strum Kenny, and John Marburger, then BSA's President and the soon-to-be BNL Director, addressed a large number of BNL staff at a Lab-wide meeting in Berkner Hall.

"We're really proud of the performance of the entire Laboratory."

On that occasion, Olesen said that Battelle was "extremely pleased" to be part of the team selected to run BNL, "an exciting cutting-edge scientific institution" (see Brookhaven Bulletin, December 5, 1997).

Recently, during a telephone interview with the Bulletin, Olesen shared his present thoughts on BNL. He emphasized that during the past two years much attention has been focussed on environmental, operational, and community relationship issues, and a great deal of progress has been made.

"We're really proud of the performance of the entire Laboratory," Olesen said.

"More attention can now be paid to building the future science and technology missions . . ."

"The successful verification of the Integrated Safety Management program by DOE is a great step forward and, in the long term, will facilitate our operations at BNL."

"While we must remain in a continuous improvement mode," Olesen continued, "More attention can now be paid to building

(continued on page 3)

New Test for Radiation Damage to DNA

BNL biologist Betsy Sutherland and her team have devised a way to detect and quantify varieties of radiation damage to DNA that previously could not be measured. The technique, for which BSA has applied for a patent, could help assess the radiation risks faced by astronauts, improve the cancer-killing potential of radiation therapy, and distinguish between DNA damage caused by normal living and that caused by low-level radiation.

Scientists have long known that ionizing radiation, such as gamma rays and x-rays, can damage deoxyribo-

The technique . . . could help assess the risks faced by astronauts, improve radiation therapy, and distinguish between damage caused by normal living and that caused by low-level radiation.

nucleic acid (DNA), the genetic-code-carrying molecule that tells cells which proteins to make. The oxygen we breathe can cause damage, too.

Most of the time, our bodies repair the damage we receive from everyday radiation sources such as sunlight and from oxygen. But unrepaired or incorrectly repaired damage can be



Paula Bennett and Betsy Sutherland (both of Biology), holding electrophoretic gels used in the analysis of DNA fragments resulting from radiation damage.

lethal to cells or cause cancer.

"For years, people have been worried about the consequences of double strand breaks," says Sutherland. These closely spaced breaks through both strands of the DNA double helix are known to be difficult for cells to repair.

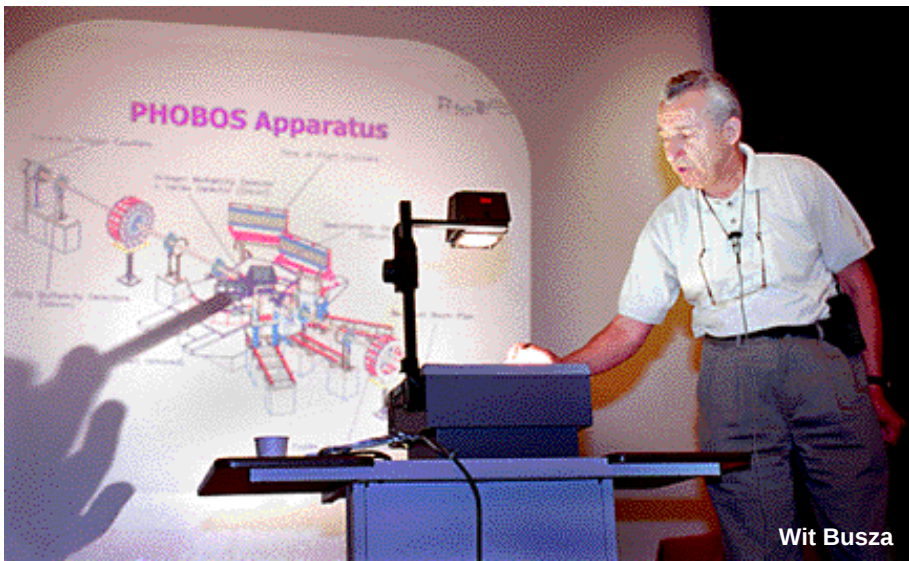
Scientists have also hypothesized that radiation might produce other forms of clustered damage on both DNA strands, like oxidation of the bases A,

G, C, and T that make up the genetic code. Could these clustered damage sites be equally, or more, harmful?

The problem with finding out, Sutherland says, is that no one has had a way to determine if radiation actually induces these kinds of damage, or to measure their frequencies and assess their reparability — until now.

"We figured out how to do it," says Sutherland. (continued on page 2)

PHOBOS Collaboration Presents First Physics Results From RHIC



The first physics results from the initial collisions at BNL's Relativistic Heavy Ion Collider (RHIC) were presented by the PHOBOS collaboration to a full house at Berkner Hall on July 19.

With only portions of the full detector installed, the collaboration had obtained sufficient data during the first month of collisions to present their findings on charged particle density, one of the indicators of the conditions achieved during the collisions. The aim of RHIC is to collide two beams of gold ions head-on in order to recreate the hot, dense conditions that existed just after the birth of the universe.

Wit Busza of the Massachusetts Institute of Technology, speaking for the PHOBOS group, reported: "Charged particle density at the collision point increased 31 percent between lower energy and higher energy

collisions. At the higher energy, the collisions achieved an energy density 50 percent higher than that observed for lead-lead collisions at CERN, the European particle physics laboratory."

As Busza explained, data for the initial running period of the accelerator were collected with only part of the PHOBOS detector in place. The setup included the first six layers of the silicon spectrometer (SPEC), part of the two-layer silicon vertex detector, and one ladder of the large acceptance octagon multiplicity detector. In total, the installed sensors had 20,000 readout channels available to collect data. As of July 12 the PHOBOS detector collects data with 100,000 readout channels. By January, PHOBOS scientists expect to have 160,000 channels collecting data.

To collect data, PHOBOS scientists use information recorded by the

(continued on page 2)

RHIC & AGS Users' Meeting, August 7-8

Registration is required for the Relativistic Heavy Ion Collider (RHIC) and Alternating Gradient Synchrotron (AGS) Annual Users' Meeting, Monday and Tuesday, August 7-8. The meeting will be held in the Large Seminar Room in the Physics Department, Bldg. 510.

Topics to be covered will include the RHIC program and results, theory, a mini town meeting on the long range plan, and AGS program results.

The meeting will begin on Monday at 9 a.m. with a welcoming address from BNL Director John Marburger. Monday's topics will include: a report by DOE; the first year at RHIC; beyond the first year at RHIC; RHIC computing; and selected AGS experiments.

A banquet will be held on Monday evening. The fee is \$25 per person, and spouses and friends are welcome. Make checks payable to Brookhaven Science Associates and mail them to the RHIC & AGS Users' Center, Bldg. 355.

On Tuesday, August 8, presentations will be made on: the long range plans of the RHIC facility; RHIC upgrades; RHIC spin physics; eRHIC and theory; the search for quark-gluon plasma; and an open floor discussion. Refreshments will be served at the close of the day.

For registration and additional information, contact the RHIC & AGS Users' Center at userscenter@bnl.gov, at Ext. 5975, or on the web at www.phy.bnl.gov/users/.

DNA Damage (cont'd)

The idea is fairly simple: Sutherland and Paula Bennett, also in Biology, use special enzymes to cut DNA strands at sites of specific kinds of damage. The team irradiates the DNA — or cells in culture — then treats the DNA with the enzymes, which were supplied by Jacques Laval and Olga Sidorkina, collaborators at the Institut Gustave Roussy, France. Finally, the team separates and counts the fragments on electrophoretic gels to measure the levels of clusters containing each kind of damage. To quantify the data, they use ImageSystem, the IR 100-winning electronic imaging system designed by John Sutherland and his team, Denise Monteleone and John Trunk, all of Biology, who provided programming and hardware support, respectively.

The data from DNA in solution and from human cell cultures indicate that radiation does induce clusters of damage such as oxidized DNA bases and so-called abasic sites, where the base is simply knocked off the DNA sugar backbone. Surprisingly, says Betsy Sutherland, these other forms of clusters comprise some 80 percent of the complex damage sites observed, with double strand breaks comprising only 20 percent.

“This means that the effects of most types of complex DNA damage in the cells and how they are repaired are completely unknown,” she says. “The only way to find out about them is to make careful measurements — and we have a way to do that now,” she adds.

The team is currently irradiating cells, measuring various kinds of clustered damage, and assessing how rapidly the cells remove and repair the different forms of damage. Scientists could also use the technique to see if all cells in the body respond the same way, and if there are differences in susceptibility to certain kinds of damage among species, or among different people.

The findings could indicate whether certain people might run a greater risk of radiation damage during long-term missions to Mars or on the Space Station. The National Aeronautics and Space Administration (NASA) estimates that DNA in one-third of astronauts’ cells will be hit directly by a heavy charged particle during each year in space.

The studies could also help assess the potential of antioxidants to counteract DNA damage, or reveal ways to use radiation more effectively in fighting cancer. “We hope that if we learn how to alter damage to tumor cells, we can improve therapeutic regimens,” Sutherland says.

The current research appeared in the July 11, 2000, issue of the journal *Biochemistry*. The team’s related work appeared in the January 4, 2000, issue of the *Proceedings of the National Academy of Sciences*. The work is funded by DOE, NASA, and the Centre National de la Recherche Scientifique and Electricité de France.

— Karen McNulty

IBEW Meeting

Local 2230, IBEW, will hold a special meeting on Monday, July 31, at 6 p.m. in the Knights of Columbus Hall, Railroad Avenue, Patchogue. The purpose of this meeting is to discuss contract negotiations and vote to ratify or reject a contract.

Arrivals & Departures

Arrivals

John P. Burke NSLS
Sylvester A. Dellimore Plant Eng.
James T. Fung Information Tech.
Yagmur Torun Physics

Departures

Stuart H. Kern ITD
Michelle Ramotowski NSLS
Vincent Wong C-A

Many Thanks for BNL Volunteers’ Commitment



Roger Stouenburgh CN0290500

Many thanks go to this year’s Ambassadors and Tour Program volunteers who work with the community or for the college and VIP site tours of BNL, which are arranged by the Community Involvement Office (see Environment Stewardship Policy Awareness box below). Attending a luncheon to honor their enthusiasm and commitment, this year’s volunteers include: (front row, from left) Eileen Morello, National Synchrotron Light Source (NSLS); Hue-Anh Pam, Collider - Accelerator Department (C-A); Linda Di Pierro, Occupational Medical Clinic (OMC); Sabina Sheikh, Biology Department; Sue Monteleone, Energy Science & Technology (ES&T); Elaine Lowenstein, Community Involvement (CI); Gary Barnett, Plant Engineering (PE) Division; (second row, from left) Bill McGahern, C-A; Yousef Makdisi, C-A; Kim Pellechi, Biology; Trevor Sears, Chemistry Department; Ruth Fernow, CI; Mark Walker, Central Shops; (third row, from left) Joe Indusi, Nonproliferation & National Security Department; Derek Lowenstein, C-A; Tom

Ludlam, C-A; Fulvia Pilat, C-A; Tim Green, Environmental Science Department; Paul Zahra, Radiological Control Division; Bill Leonhardt, Physics Department; Pat Flood, Information Services Division (ISD); Graham Smith, Instrumentation Division; (fourth row, from left) Marty Kramer, Physics; Linda Cavaliere, OMC; Keith Power, C-A; Swapna Mukherji, PE; Sue Cataldo, Medical Department; Joe Skelly C-A; Peter Kohut, ES&T; Ted Ginsberg, ES&T; (fifth row, from left) Karl Swyler, Office of Educational Programs (OEP); Frances Scheifele, C-A; Frank Dusek, C-A; Martha Simon, Biology; Ed McFadden, Information Technology Division; Tom Vanderputten, PE; Brenda Riddle, Business Systems Division; Victor Gutierrez, Quality Programs Office; Steve Halderman, Central Shops; Bob Howe, Environmental Restoration Division; (back row, from left) Al Prodell, Superconducting Magnet Division, retired; Bill Lehman, OMC, retired; Tom Dickinson, NSLS; Gerry Vanderlaske, NSLS; Peter Bond, Director’s Office.

Environmental Stewardship Policy Awareness



BNL’s Environmental Management System (EMS) is being audited during July-October. As a Lab employee, you should be prepared to answer questions that auditors might ask. This is the third in a five-part series to help you understand how BNL’s EMS policy commitments apply to you and to give sample questions and answers. Your answers should be specific to your own work.

Policy: We will maintain a positive, proactive, and constructive relationship and openly communicate with our neighbors, regulators, DOE, and other stakeholders.

Sample question and answer:

Q: How does your organization communicate with community members or regulators on environmental issues?

A: The Community Involvement, Government and Public Affairs directorate has formal and informal programs for communicating on environmental issues, and each BNL organization helps support these efforts. Mechanisms used for communicating with the public include public meetings, round-table discussions, working groups, press releases, and direct interaction with stakeholder groups. The Laboratory Director and other BNL managers meet with representatives from many local organizations to share views on important issues.

BNL has established a Community Advisory Council with representatives from 32 varied stakeholder groups who meet each month and advise the Laboratory Director on issues important to them. The Council is a formal mechanism that BNL uses to communicate with key stakeholders. Each month managers and technical staff make presentations and give updates to the Council on environmental issues.

The BNL web page provides information about the work done at the Lab and the environmental issues here. The public is invited to visit BNL through tours and Summer Sunday programs (see photo caption, page 3). In addition, many BNL employees reach out to local schools and organizations through BNL’s Speakers Bureau.

Most Lab staff live in the surrounding communities and talk with their neighbors about concerns they might have. Some employees participate in the Lab’s Envoy or Ambassador programs (see photo caption above). With these interchanges employees reach out, share accomplishments, answer the community’s questions, and build trust with interested parties.

PHOBOS Results (cont'd)

SPEC detectors to identify the origins of 90 to 100 percent of all the collisions. The team reported on only 6 percent of the collisions, focusing their attention on the central, or head-on collisions. There were approximately 100 such events at low collision energy, 28 billion electron volts (GeV) per nucleon, and 150 events at the higher energy, 65 GeV. (1 billion = 10⁹.) These represent the highest energy collisions ever witnessed.

PHOBOS’s silicon detectors recorded the number of charged particles resulting from each collision. With this information the team was able to calculate the charged particle density.

“We feel very confident that our results are correct,” said Busza. He attributes the success and credibility of the PHOBOS collaboration’s findings to the low background interference, or “noise,” in the RHIC facility, and the outstanding quality of the silicon that was used in the PHOBOS detector, which observed subatomic particles with 98 percent efficiency.

The PHOBOS project is comprised of the following collaborating institutions: Argonne National Laboratory; BNL; the Institute of Nuclear Physics, Krakow, Poland; Jagiellonian University, Krakow; Massachusetts Institute of Technology; National Central University, Taiwan; University of Illinois at Chicago; University of Maryland; and the University of Rochester.

The collaboration’s results have been submitted for publication to *Physical Review Letters*, and can be viewed online at <http://phobos-srv.chm.bnl.gov/Publications/index.htm>.

— John Galvin and Karen McNulty

Meet Douglas Olesen

the future science and technology missions of the Laboratory.”

Battelle, solo or with partners, now manages four national laboratories: Pacific Northwest National Laboratory (PNNL) since 1965; BNL, operated with USB since March 1998; the National Renewable Energy Laboratory (NREL), operated in combination with the Midwest Research Institute (MRI) and Bechtel since 1998; and Oak Ridge National Laboratory, managed with the University of Tennessee (UT) since early this year.

Has Olesen any plans for BNL, NREL, ORNL, and PNNL based on the advantages of multiple laboratory management?

“We think that the opportunities for the laboratories to work together for the benefit of all are really significant,” was Olesen’s view. “By working together, the labs can serve the national interest well, be much more influential in the marketplace, make larger contributions, and add to the viability and health of each of the institutions.”

Already, the chief research officers of the four labs plus Battelle’s chief technology officer have begun meeting quarterly. Also, during this fiscal year, teams from all four labs have started work on programs to cut costs, raise efficiency, present a more integrated science and technology proposal package to DOE, and promote greater leadership in science and technology in selected areas. “Carbon management and advanced computing are two of these areas,” Olesen said.

Ties With Universities

To support DOE’s mission, Olesen values not only the potential strength of combined national labs, but also their ties, and Battelle’s ties, with universities. For example, of BSA’s 16 directors, five are from Battelle, five from USB, and one each is from Columbia, Cornell, Harvard, Princeton, Yale, and the Massachusetts Institute of Technology — the institutions annually sending the largest number of facility users to BNL. The BSA model is also used at ORNL, run jointly by UT/Battelle.

In addition, “even though Battelle is a single organization managing PNNL, it works through dozens of university partnerships both directly and in a contractual mode,” Olesen said.

During Olesen’s early career, he spent 17 years at PNNL, including five years as Director. “After that experience, I think I do have an appreciation of what it’s like to work in a national lab, and what it takes to be successful in a national lab,” he said. “I have also been close to



DOE for my whole career, which gives me an understanding of their missions and objectives. I think this helps in planning for the future of the labs.”

Future Funding

According to a January 2000 Battelle forecast, future federal funding for research and development (R&D) may remain flat, but industrial investment in R&D is expected to rise. Does that mean that BNL should pay more attention to potential research dollars from industry?

“DOE is the principal client for BNL and we certainly expect that to continue,” Olesen said. “Serving DOE to meet its mission requirements is job No. 1. And, while Brookhaven’s world-class science already has an impact in many areas helpful to DOE, I think that there are still opportunities to utilize the skills and resources at the Lab for an even broader impact on all DOE’s missions — science, energy, national security, and the environment.”

However, serving other clients is “also important” for the Lab, Olesen said. “BNL’s recent advances in serving NASA is an example of that.” Work done for other government agencies will also help DOE by providing resources that bring in new people and research, which complement DOE interests, he commented.

Olesen also supports ties between BNL’s applied science staff and the industrial world. “We have a very strong interest in getting contractor-funded technology transfer approved for BNL,” he said. “Building industrial relationships to commercialize the intellectual property of Brookhaven can further the nation’s economic development and bring value to the Laboratory.”

Experience

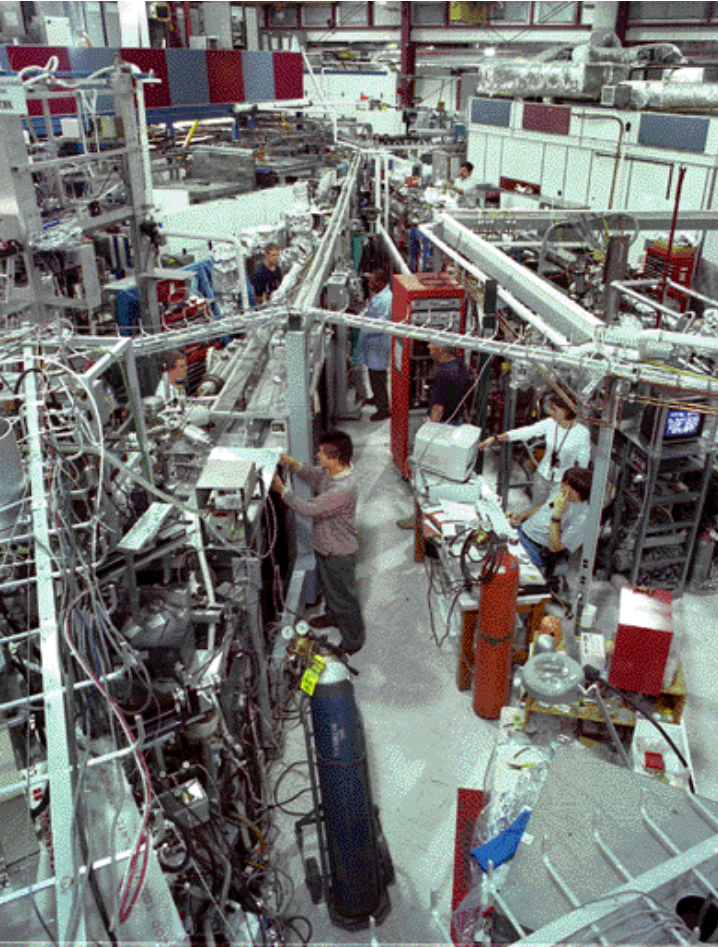
Douglas Olesen earned his B.S., M.S., and Ph.D. degrees in civil engineering at the University of Washington. He joined Battelle in 1967 and has been its President and CEO since 1987, after three years as Executive Vice President and Chief Operating Officer. The annual business volume of Battelle’s worldwide services for industry and government is nearly \$1 billion, not including BNL, ORNL, and NREL.

Olesen had served for five years as the Director of Battelle’s Pacific Northwest Division and Director of PNNL. Earlier, he had been Director of Research, managing nine departments, after having started his career there as a research engineer in the Water & Land Resources Department. Before joining Battelle, he was a research engineer at Boeing Aircraft Company. — Liz Seubert

(cont’d)

Free Summer Sunday Tours of BNL Continue Through August 27th

The NSLS Will Be Featured This Sunday



Peter Horton CN6-222-00

This photograph shows part of the experimental floor at the National Synchrotron Light Source.

On Sunday, July 30, Summer Sunday visitors to BNL can take a tour of the National Synchrotron Light Source, where more than 2,200 visiting scientists from 350 institutions worldwide come annually to perform experiments. Visitors will see how infrared, ultraviolet, and x-ray synchrotron light produced in the NSLS is used for scientific research by visitors and BNL staff in biology, chemistry, medicine, physics, and many other fields, including criminal investigations.

Among the experiments being done at the NSLS, for example, are studies of drug distribution in human hair; the chemical analysis of particle capture cells flown on the MIR Space Station; experiments with implications for deep focus earthquakes; and preliminary experiments on mammography imaging.

In addition, visitors may take guided bus tours of the Lab site that will run continuously throughout the day; participate in the Whiz Bang Science Show, presented four times between 10 a.m. and 3 p.m. in Berkner Hall; and view the Camp Upton Historical Collection, which displays the history of the BNL site during its pre-Lab days as a U.S. Army camp in World Wars I and II.

Organized by BNL’s Museum Programs of the Community Relations Office, BNL’s Summer Sunday tours run 10 a.m. -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.

Atlantic City Bus Trip Saturday, 9/9

At the BERA store in Berkner Hall, buy a ticket for the BERA bus trip to Atlantic City Resorts/Casino on the Boardwalk on Saturday, September 9 (not Sunday, as was incorrectly noted in the Bulletin of 7/21/00), for \$24, with coin return. Other BERA trips are also available.

On-Site Courses

Employees interested in taking courses at Suffolk Community College (SCC) are invited to an information/preregistration meeting on Tuesday, August 8, 5-6 p.m., in Berkner Hall, Room D. Two courses to be offered on site in the fall will satisfy requirements for most SCC degrees.

BA21 Business Mathematics
No prerequisite, 3 credit hours
Tuesdays, 5:30 to 8:30 p.m.
Covers the use of mathematics in various business applications, including percentages, interest, marketing computations, insurance, taxes, and investment problems.

CS30 Portfolio Preparation
No prerequisite, 1 credit hour
Thursdays, 5:20 to 7:30 p.m.
Helps adult students prepare a portfolio to demonstrate college-level learning achieved outside the classroom. The portfolio may be presented to the faculty for evaluation to earn equivalent credit, which can be applied towards a SCC degree.

BNL offers tuition advances or reimbursements at 75 percent for undergraduate courses. For more information on tuition assistance, contact Marilyn Pandorf, Ext 5251, pandorf@bnl.gov, or Starr Munson, Ext. 7631, munson@bnl.gov.

Banjo Cruise, 8/2

The Hospitality Committee invites the Brookhaven Laboratory Community to a sunset banjo boat cruise on the Long Island Sound. For information, call Mary Jane Sheridan, 331-3286, or Mimi Luccio, 821-1435.

All are invited: students, facility users, guests, families, employees.

Where: Port Jefferson Ferry. Take 25A West to Rte. 112. Take 112 North to the ferry dock.

When: Wednesday, August 2, 6-9 p.m. Allow 45-60 minutes to drive and park.

Cost: Adults, \$8; children 6-12, \$5; under 6, free. Buy food and beverages on the ferry, or bring your own.

Computing Corner

The following PC training classes have been scheduled for August:

date	class	level
7/31-8/4*	Linux Internals*	
8/7	PowerPoint	beginner
8/9	Outlook	
8/10	Word	beginner
8/11 & 12**	Word	advanced
8/15	Excel	beginner
8/21-25*	Java Programming*	

*5-day classes, **2-day classes
+See www.itd.bnl.gov/bnl.training.

To register for the above classes or to request future classes, send a training request form and an ILR for the appropriate amount to Pam Mansfield, Bldg. 515. Classes are scheduled based on the number of requests received. See the ITD training page at www.itd.bnl.gov/bnl/training for registration information and course schedules.

For more information, contact Mansfield, Ext. 7286, or pam@bnl.gov.

Tread Safely

The Safety Shoe Office, in Bldg. T-88, will be closed on August 3 and reopen on Monday, August 14.



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On the World Wide Web, the Brookhaven Bulletin is located at www.pubaf.bnl.gov/bulletin.html. A Weekly Calendar listing scientific and technical seminars and lectures is found at www.pubaf.bnl.gov/calendar.html.

Tennis Tournament

Employees, retirees, facility users, and summer visitors: sign up now for this year’s annual Tennis Tournament. Scheduled to run from August 7 to 25, the tournament may include men’s singles and doubles, women’s singles and doubles, and mixed doubles, depending upon the number of people signing up to play.

Register by Tuesday, August 2, in the BERA Sales Office, where the tournament rules are available, between 9 a.m. and 1:30 p.m.

The draw will be posted at the Sales Office and by the tennis courts. Play matches any time after the draw is posted, but play must be completed by the scheduled dates. For more information contact Joe Carbonaro, Ext. 5139, joe1@bnl.gov, or Ken Perkins, Ext. 2147.

Out and about on the Lab site, Roger Stoutenburgh, BNL photographer, captured these lesser known BNL residents on film. To convey the wide array of wildlife that can be glimpsed in a few hours by watching and waiting in quiet places, Stoutenburgh combined his photos into a single composite — expressing “all the live murmur of a summer’s day,” to borrow the words of Matthew Arnold in his poem *The Scholar Gypsy*.



Roger Stoutenburgh DD030700

**Classified
Advertisements**

OPEN RECRUITMENT – Opportunities for Laboratory Employees and Outside Candidates.

NS8395. STAFF SERVICES GENERAL SUPERVISOR – Requires a bachelor’s degree in business administration, or the equivalent, significant hands-on experience in Excel and Word, experience in the use of computers as a management tool, and excellent written and oral communication skills. Will be responsible for the management and administration of several major functional units including the Lab’s motor vehicle fleet operation, transportation services, and communications services, as well as various internal Division functions. Additional responsibilities will include safety, building management, budget management, record keeping and contract administration in areas of responsibility, as well as extensive liaison within and outside the Lab, including acting as the DOE Division Property Management Rep and Security Rep. Staff Services Division.

DD8628. TECHNICAL/COMPUTER SUPPORT POSITION - (Term Appointment) Requires an AAS degree in a related field, significant experience in maintaining and supporting computers running Windows operating systems, including 95/98/NT, and familiarity with standard Microsoft Office applications. MCSE certification is preferred; network configuration and maintenance experience is desirable. Primary responsibilities will be: establishing Microsoft Access accounts, configuring Microsoft Outlook. May also help with maintenance of the NSLS NT server, networking support, and support of desktop computers. National Synchrotron Light Source Department.