



The Chemistry Building at Brookhaven Lab in 1966

BNL Chemistry Building Named Historic Chemical Landmark

Designation honors development of ^{18}F FDG, a radiopharmaceutical that revolutionized brain imaging and cancer diagnosis and management worldwide

On October 19, there was standing room only in the Chemistry Department lobby where the New York Section of the American Chemical Society (ACS) designated the Chemistry Building at BNL as an Historic Chemical Landmark. This designation honors the synthesis of ^{18}F FDG, a radiotracer that has had a revolutionary and global impact on cancer diagnosis and management and brain research. Originally synthesized at BNL in 1976 for positron emission tomography (PET) scanning, ^{18}F FDG is now the world's most widely used radiotracer for cancer diagnosis, with more than 1.5 million ^{18}F FDG PET scans performed annually.

"This recognition is a great honor for Brookhaven Lab as a

whole, and particularly for the chemists who performed this seminal work, including Joanna S. Fowler and her colleagues, who continue to explore innovative applications for radiotracer and imaging technologies," said Lab Director Samuel Aronson. "The development of ^{18}F FDG is also a testament to one of the key strengths of the national laboratories, which bring together scientists from a range of disciplines in an environment that fosters collaborative approaches to address some of our nation's toughest challenges."

As Fowler recalls, "We were fortunate to have so much expertise in organic synthesis and radiochemistry with short-lived isotopes like fluorine-18 'in house' in Brookhaven's Chem-



Above: Speakers and attendees at the Chemistry Department's 10/19 Landmark celebration and following symposium: (from left) Abass Alavi, Chief of Nuclear Medicine, University of Pennsylvania; BNL Director Sam Aronson; John Sharkey, Archivist & Historian, American Chemical Society New York Section (ACSNYS); Hiroko Karan, ACSNYS 2011 Chair; Robert Gordon, DOE Brookhaven Site Office Acting Deputy Manager; JaimeLee Rizzo, ACSNYS 2012 Chair; Alex Harris, BNL Chemistry Department Chair; Joanna Fowler, Head of BNL Radiotracer Development; Tatsuo Ido of Tohoku Fukui Universities in Japan; Ben Hsiao, Stony Brook University (SBU) Vice President for Research and former SBU Chemistry Chair; and Doon Gibbs, BNL Deputy Director for Science & Technology

Right: Video-conferencing speaker Louis Sokoloff, National Institute of Mental Health's Laboratory of Cerebral Metabolism



Bottom right: Speakers at the symposium held at the Historical Chemical Landmark celebration included: (from left) Abass Alavi, Chief of Nuclear Medicine, University of Pennsylvania; Mony DeLeon, Department of Psychiatry, New York University Medical Center; Joanna Fowler, Head of BNL Radiotracer Development; Nora Volkow, Director, National Institute on Drug Abuse; and Tatsuo Ido, Tohoku Fukui Universities, Japan. Missing from photo is Louis Sokoloff (see above, left).



istry Department — specifically Al Wolf, Tatsuo Ido, Vito Casella, and Chung Nan Wan, who worked directly on the use of ^{18}F FDG," she said. "But we also

benefited from the expertise of other scientists at the Lab, including other chemists, physicists, and engineers who worked on early detector technology

and advanced our understanding of radioactive elements."

External collaboration was also essential to the ^{18}F FDG... See *Chemistry Celebration* on p. 2

Computational Model IDs Potential Pathways To Improve Plant Oil Production

Simulated seeds help scientists explore how plants "balance the books" between oil and protein production

Using a computational model they designed to incorporate detailed information about plants' interconnected metabolic processes, scientists at BNL have identified key pathways that appear to "favor" the production of either oils or proteins. The research, now published online in *Plant Physiology*, may point the way to new strategies to tip the balance and increase plant oil production.

The study focused on the metabolism of rapeseed, a crop grown primarily in temperate climates for the oil that accumulates in its seeds. Such plant oils are used worldwide for food, feed, and increasingly as a feedstock for the chemical industry and to produce biodiesel fuel.

This research was funded by the DOE Office of Science.

"Increasing seed oil content is a major goal for the improvement of oil crops such as rapeseed," said Brookhaven biologist Jörg Schwender.

As a step toward that goal, Schwender and Brookhaven postdoctoral research associate Jordan Hay recently developed a detailed computational model incorporating 572 biochemical reactions that play a role in rapeseeds' central metabolism and/or seed oil production, as well as information on how those reactions are grouped together, are organized in sub-cellular compartments, and



Jordan Hay and Jörg Schwender are modeling plant metabolism to improve oil production.

interact. The scientists have now used the model to identify which metabolic pathways are likely to increase in activity — and which have to decrease — to convert a "low-oil" seed into a "high-oil" seed.

Such a switch would likely be a tradeoff between oil and protein production, Schwender explained, because with limited carbon and energy resources, "the plant would 'pay' for the increased cost of making more oil by reducing its investment into seed protein."

So far, efforts based on conventional plant breeding and genetics have had very limited success in changing the typical tradeoff of storage compounds in seeds.

"Behind the production of oil and protein in seeds is a

complex network of hundreds of biochemical reactions, and it is hard to determine how this network is controlled and how it could be manipulated to change the tradeoff," Schwender said.

Schwender and Hay's computational model of 572 metabolic reactions turns the problem on its head to narrow the search. Instead of manipulating each pathway one by one to see which might tip the balance from protein toward oil, the model postulates the existence of seeds with different oil and protein content to see which of the many reactions are "responsive" to changes in the oil/protein tradeoff.

"This approach allowed us to narrow down the large list of enzyme reactions to the relatively few ones that might be good candidates to be manipulated in future experimental studies," Schwender said. "Our major goal is to computationally predict the least possible number of enzymes that have most control over the tradeoff between oil and protein production."

Of the 572 reactions included in the model, the scientists identified 149 reactions as "protein-responsive" and 116 as "oil-responsive."

"In addition, the model helps us evaluate how sensitive the reactions are in a quantitative...

See *Plant Oil* on p. 3

Changes Coming For BNL Communications

Final edition of *The Bulletin* to be published on Friday, 11/30. New newsletters coming soon

Similar to what's happening outside Brookhaven Lab, information is being communicated more often via electronic and online products. For members of the BNL community, information is published online routinely in Monday Memo, daily news updates, and other user-friendly features, including the online event calendar.

Keeping pace with the speed and immediacy of electronic communications has become increasingly difficult for a newsletter that is printed and mailed. The final edition of the Lab's weekly newspaper, *The Bulletin*, will be published on Friday, November 30.

In place of *The Bulletin*, BNL will publish a weekly email newsletter called Brookhaven This Week to communicate information about the Lab's latest news, features, and events. Current Lab staff and anyone with a *bnl.gov* email address are automatically subscribed to receive the email. Retirees, community members, media, and elected officials are encouraged to sign up to receive an external version of Brookhaven This Week that will exclude the items only relevant to current Lab employees. After you sign up, you can read Brookhaven This Week from any place you can receive email: a computer at home or your public library, a smartphone, even a tablet computer, such as an iPad.

Retirees, Community Members, Media, & Elected Officials:
Sign up for Brookhaven This Week: <http://1.usa.gov/VDvOWk>.

Current Lab staff and anyone with a *bnl.gov* email address are subscribed automatically.

BNL will also publish the new Brookhaven Digest, a weekly printed publication that will be addressed and delivered to the approximately 400 Lab employees who do not have regular access to BNL computers. It will feature highlights of the same science, operations, and event news featured in Brookhaven This Week, as space permits, with pointers on how to access full information online.

Retirees can also stay in touch by joining the Brookhaven Retired Employees' Association (BREA): <http://1.usa.gov/VE7ELk>.

If you don't have a *bnl.gov* email address, stay connected by signing up for Brookhaven This Week. Subscriptions do not cost anything. Please register before December 1 to keep up with the exciting breakthroughs and events happening at BNL: <http://1.usa.gov/VDvOWk>.

Photos From the Chemistry Historic Site Celebration



From left: BNL Director Sam Aronson; Philip Mark, American Chemical Society New York Section (ACSNYS) Executive Committee member and Chair Elect; Frank Romano, ACSNYS 2010 Chair; Alex Harris, BNL Chemistry Department Chair; John Sharkey, ACSNYS Archivist; and JaimeLee Rizzo, ACSNYS 2012 Chair



Nora Volkow, Director, National Institute on Drug Abuse



James Wishart, BNL Chemistry Department, with Mike Bebon, BNL Deputy Director for Operations



Richard Ferrieri, Bioscience Department, with BNL retiree Carol Redvanly



BNL's Gene-Jack Wang, Bioscience Department, and retiree Karen Karlstrom



Peter Bond, BNL



Radoslav Adzic of BNL's Chemistry Department



Sungwon Kim, BNL Medical Department, and Peter Tonge, Stony Brook University Chemistry Department



From left: BNL Retiree Yu-Shin Ding; David Schlyer, Acting Chair of BNL's Bioscience Department; and Mony deLeon, NY University



Alex Harris, Chair of BNL's Chemistry Department



Joanna Fowler, Head of Radiotracer Development at Brookhaven Lab



BNL Director Sam Aronson; Joanna Fowler, Head of BNL Radiotracer Development; and Nicolas Samios, RIKEN BNL Research Center Director and former BNL Director



BNL Chemistry Department's Jack Preses, who coordinated with John Sharkey of the American Chemistry Society's New York Section to complete the nomination of BNL's Chemistry Department as a Historical Chemical Landmark and finalize the wording for the plaque

Chemistry Celebration from p. 1
...success story. The original idea of radioactively "tagging" 2-deoxyglucose (2-DG), a molecule related to glucose, to create a radiotracer that could be used to image metabolic activity in the brain came from Louis Sokoloff at the National Institutes of Health (NIH) and Martin Reivich at the University of Pennsylvania. Glucose is the body's main source of energy. 2-DG goes wherever glucose is needed in the body. But instead of being completely metabolized to produce energy, it gets trapped at the site of metabolism. So a radioactive tag would give scientists a way to track this glucose stand-in's location and concentration in the body. Sokoloff and Reivich turned to the chemistry experts at Brookhaven to figure out which isotope to use, where to place it on the 2-DG molecule, and how to develop the tricky synthesis technique.

The BNL chemistry group had recently pioneered the development of ^{18}F -labeled elemental fluorine gas. They suggested that this gas could be used to label 2-DG, with the ^{18}F atom substituting for a hydrogen atom at "position 2" on the molecule. They predicted that this configuration would allow the tracer to mimic the behavior of 2-DG.

"At first this seemed like an insurmountable challenge," recalled Fowler. "Not only did we need to develop a very rapid synthesis from the very reactive fluorine gas, but we had to make enough to make up for radioactive decay for the trip from Brookhaven to Philadelphia, where the imaging would be done. Fortunately, by working at low temperatures and with dilute samples, we were able to 'tame' the reactivity," she said.

After the Brookhaven team synthesized the first samples, NIH collaborators confirmed that the fluorine atom did not otherwise alter the parent molecule. Samples of ^{18}F FDG were quickly flown to Pennsylvania, where Reivich and his colleagues first used the tracer to map brain glucose metabolism in humans using the Mark IV scanner developed by David Kuhl. Later, Prantika Som of the Medical Department at Brookhaven published one of the very early papers outlining the use of ^{18}F FDG in cancer diagnosis, which has proven to be its most clinically useful application.

"We couldn't have done this work, or continue what we do today, without the combined expertise of chemists, biologists, physicists, and medical doctors and the long term investment in chemistry and physics by DOE and its predecessor agencies," Fowler said.

How It Works

^{18}F FDG is short for 2-deoxy-2- ^{18}F fluoro-D-glucose, where a radioactive form of fluorine (^{18}F) takes the place of a hydrogen atom. When injected into the bloodstream, ^{18}F FDG travels to wherever glucose (energy) is being used.

As the radioactive ^{18}F atoms decay, they emit particles called positrons, identical to electrons but opposite in charge. When positrons and ordinary electrons interact, they annihilate, producing back-to-back gamma rays. These signals, picked up by the circular array of detectors of a positron emission tomography (PET) scanner, can be used to identify the position of the original ^{18}F atom and create pictures of its location within the body. By tracking the tracer over time,

The official citation from the ACS New York Section states:
Chemists at BNL have been world leaders in the synthesis of short-lived radioisotopes for nuclear medicine, under sustained support from the Office of Science at DOE, and predecessor offices at the Energy Research and Development Administration and the Atomic Energy Commission. This Historic Chemical Landmark recognizes the synthesis of 2-deoxy-2- ^{18}F fluoro-D-glucose (^{18}F FDG) in 1976 by chemists in the BNL Chemistry Department, and its use to measure glucose metabolism in the living human brain in collaboration with the National Institutes of Health and the University of Pennsylvania. ^{18}F FDG is now the standard radiotracer used for positron emission tomography (PET) neuroimaging and cancer diagnosis, with more than 1.5 million ^{18}F FDG PET scans performed annually.

scientists can thus monitor site-specific metabolic activity under a variety of conditions.

This groundbreaking technique opened a window to the exploration of a wide range of diseases and conditions, including drug addiction, eating disorders, attention deficit hyperactivity disorder (ADHD), epilepsy, coronary artery disease, and neurodegenerative diseases such as Alzheimer's.

^{18}F FDG PET imaging has also emerged as a revolutionary tool for cancer diagnosis. Because tumor cells have high demand for glucose, ^{18}F FDG PET scans can pick out these "hot spots" from surrounding healthy tissue, even before anatomical changes are de-

tected. PET can also help monitor patients' response to treatment.

The amount of radioactive fluorine incorporated into ^{18}F FDG is very small and it decays very quickly. Half of the radioactive atoms have decayed to a non-radioactive element within 110 minutes.

That short "half-life" means patients undergoing ^{18}F FDG PET scans receive a very low radiation dose. But it also makes the synthesis of radiotracers very challenging. Compounds must be made and injected quickly to generate useful data.

"Al Wolf, Joanna Fowler, and their colleagues accomplished a tour de force in combining accel-

erator-based methods for radioactive fluorine production and rapid chemical synthesis to incorporate this isotope into deoxyglucose — and particularly, doing so with the speed required to allow transport to the University of Pennsylvania for experiments to proceed within the several-hour useful lifetime of the tracer," said Chemistry Chair Alex Harris. "We are honored to have our Chemistry Building designated as an Historical Chemical Landmark to honor this groundbreaking research."

Besides enabling the widespread use of ^{18}F FDG for medical imaging, the methods developed by the Brookhaven team also provided a foundation for the development of a series of other important radiotracers for biological applications, including both neuroimaging and new methods to trace nutrient uptake and metabolic processes in plants — which could point the way toward strategies for improving crop yields and biofuel production.

"This work, built on a strong foundation of basic research funded by federal agencies, continues to produce important results across scientific disciplines, showcasing the long-term value of our nation's investment in fundamental chemistry," Harris said.

The development of ^{18}F FDG was funded by the Atomic Energy Commission, the predecessor to today's DOE. BNL's current research on radioisotope development and energy applications is supported by the DOE Office of Science. Ongoing neuroimaging research is supported primarily by various agencies of the National Institutes of Health (NIH).

— Karen McNulty Walsh
For more information, go to www.bnl.gov/medical/RCIBI/.



Captains from across the site rallied last week to kick off Brookhaven Lab’s annual United Way campaign.

Captains Kick Off Brookhaven Lab’s Annual United Way Campaign

It’s on! Brookhaven Lab’s campaign for the United Way of Long Island began last week on October 25. On that day, captains from directorates, divisions, and departments across the site rallied in Berkner Room B to kick off the annual fundraising drive.

“The United Way campaign demonstrates one of the many ways that the people of Brookhaven Lab work to benefit the Long Island community,” said Lab Director Sam Aronson, as he welcomed the captains. “We’ve continued to make each campaign more successful than the previous year’s. I hope we can all come together in 2012 to create the success we’re used to in providing for our neighbors in need.”

The captains then heard from the chairs for the 2012 campaign: Quality Management Office Manager Roy Lebel and Chief Human Resources Officer Bob Lincoln. The two chairs thanked the captains

for committing to help the Lab reach its goal of raising at least \$150,000 — \$5,000 more than the goal for the United Way campaign last year.

Next, representatives from three institutions that benefit from donations made to the United Way of Long Island — Long Island Cares (the Harry Chapin Food Bank), the American Red Cross, and Long Island Head Start — spoke to the captains. They described the work that their organizations do for thousands of Long Islanders who need food, help during emergencies — including hurricanes — and assistance for families to become self-sufficient.

The most up-to-date list of fundraising events, compiled by campaign co-chair Joyce Fortunato, is online (<http://1.usa.gov/P097gJ>). BNLers are also encouraged to participate in this year’s campaign by submitting a pledge form. These forms were delivered via interoffice mail and are one of the most

convenient ways to contribute. Completed forms should be sent to Liz Mogavero in Bldg. 510A.

The United Way of Long Island supports 125 agencies and charitable foundations that work with Long Islanders who need support including young people, the elderly, victims of domestic violence, veterans, families of deployed military reservists, and children afflicted with conditions such as Down syndrome, autism, and multiple sclerosis.

Eighty-eight cents of every dollar donated to the United Way of Long Island goes directly to agencies and foundations on Long Island that help neighbors with their education, income and financial stability, and health. All donations stay on Long Island. The website Charity Navigator gives the United Way of Long Island a four-star rating, the highest rating possible: <http://bit.ly/Sf-wHnj>.

— Joe Gettler

Plant Oil from p. 1

...way, so we can see which of these are the ‘most sensitive’ reactions,” Schwender said. “This allows us to identify a relatively few possible targets for future genetic manipulation to tip the balance in favor of greater seed oil production.”

Some of the reactions identified by the model confirm pathways pointed out in previous research as important for oil synthesis. “But some of the reactions identified by our model have not really been implied so far to be important in the oil/protein tradeoff,” Schwender said, suggesting that this could be new ground for discovery.

“These simulation tools may therefore point the way to new strategies for redesigning bioenergy crops for improved production,” he concluded.

DOE’s Office of Science, which funded this research, is the single largest supporter of basic research in the physical sciences in the United States, and is working to address some of the most pressing challenges of our time. For more information, please visit science.energy.gov. — Karen McNulty Walsh

Open Enrollment For Benefits Begins Monday, 11/5

Open Enrollment for medical and dental benefits, reimbursement accounts (health care, dependent daycare, and transit commuter), and the vacation buy plan begins Monday, November 5, and continues through Friday, November 16. During this time, eligible employees may add or drop medical and/or dental coverage, change from one medical or dental plan to another, add/drop family members covered, and/or sign up for reimbursement accounts and the vacation buy plan. All changes made are effective January 1, 2013.

Each Brookhaven Science Associates, LLC (BSA) employee will receive a 2013 BSA Benefits Program booklet for Open Enrollment by interoffice mail. Information also will be mailed to retirees and participants on long-term disability. This contains essential items to consider when making elections, comparing available benefit programs, and understanding costs. The guides will also be available on the Benefits Office web page www.bnl.gov/hr/Benefits/ from November 5.

Brookhaven Lab Responds To Hurricane Sandy

Stay tuned to the intranet homepage (intranet.bnl.gov) for updates regarding BNL’s response to Hurricane Sandy.

CALENDAR

Saturday, 11/3

‘Gospel Fest’ Canceled
Canceled following Superstorm Sandy. Tickets will be refunded. See notice, p.4

Wednesday, 11/7

United Way Fundraiser
See notice below, left.

Thursday, 11/8

***BSA Distinguished Lecture**
4 p.m. Berkner Hall. John Milnor, Professor and Co-Director of the Institute for Mathematical Sciences at Stony Brook University, will talk on “Spheres: One Hundred Years of Topology.” All are invited to this free public lecture, sponsored by Brookhaven Science Associates. Visitors to the Lab of 16 or older must carry a photo ID. See www.bnl.gov/newsroom/news.php?a=11464.

— WEEK OF 11/12 —

Monday, 11/12

Lab Closed in Observance of Veterans’ Day
No Bulletin on Friday, 11/16.
Thurs. & Fri, 11/15 & 16
Bake Sale for United Way
11 a.m.-3 p.m. Bldg. 400 lobby.

— WEEK OF 11/19 —

Mon.-Wed., 11/19-21

BNL Art & Crafts Show
11:45 a.m.-1:15 p.m. daily. Berkner Hall, Room B.
Monday, 11/19
BNL Art & Crafts Show Reception
5 p.m. Berkner Hall, Room B. With refreshments. All are welcome to this exhibition of BNLers’ paintings, photos, sculpture, wood-art, jewelry, more. Visitors to the Lab of 16 and older must carry photo ID.

Thursday, 11/22

Thanksgiving Day. Lab Closed
Friday, 11/23
Lab Closed for Floating Holiday
BNL closed for Day After Thanksgiving floating holiday. No Bulletin this week.

— WEEK OF 11/26 —

Mon. & Tues., 11/26 & 27
BERA Book Fair by Books Are Fun
10 a.m.-2 p.m. Berkner Hall lobby. All welcome.
Tuesday, 11/27

IBEW Meeting
6 p.m. Centereach Knights of Columbus Hall, 41 Horseblock Rd., Centereach. A meeting for shift workers will be held at 3 p.m. in the union office. The agenda includes regular business, committee reports, and the president’s report.

Arrivals & Departures

— Arrivals —
Atikur Rahman CFN
— Departures —
None

Coming Up, 11/8

John Milnor, Stony Brook University, will give a BNL Distinguished Lecture on “Spheres: One Hundred Years of Topology,” in Berkner Hall at 4 p.m., Thursday, November 8.

Upcoming Events for the United Way

- November 7:** Applebee’s in Shirley is donating to the Lab’s United Way campaign 10 percent of your tab for orders placed between 11 a.m. and 9 p.m. Bring a copy of this flyer: <http://1.usa.gov/RsY12A>
- November 15–16:** Bake sale in the lobby of Bldg 400 between 11 a.m. and 3 p.m.
- December 7:** Asian food tasting in seminar room 157 of Bldg. 463 from noon until 1 p.m.
- December 12-13:** Holiday auction, yard sale, and holiday boutique in the lobby of Berkner Hall from 11 a.m. to 2 p.m.
- December 17:** “Pie In The Face Contest” in Berkner Hall between 11:30 a.m. and 12:30 p.m.
- January 18:** Concert with Tommy Sullivan in Berkner Hall from 5 to 7:30 p.m. Prizes will awarded for the best dancing and costumes from the 1950s and 60s.
- For the most up-to-date information, go to <http://1.usa.gov/P097gJ>.

New Energy Technology & Policy Program at SBU: Path to MS in Technological Systems Management

Stony Brook University is recruiting students for a new program in Energy Technology and Policy (ETP) that leads to a master’s degree in Technological Systems Management.

ETP is designed for students, including mid-career professionals, who are interested in energy issues from the perspectives of corporations, government, and non-governmental organizations. College graduates from any science and engineering disciplines are welcome to apply. Studies will include:

- Core courses on technology management, decision making, public policy, and business strategy
- Topical courses including alternative energies, electric power systems, smart grids, and environmental planning and management
- Method courses including engineering economics, statistics and data analysis, and policy analysis

ETP is offered as both a part-time and full-time program, and has a flexible curriculum to accommodate the needs and interests of individual students.

Degree requirements include at least 30 post-baccalaureate credits, four core courses, completion of a keystone project, and five elective courses, which include one from each of five specific groups. More information is available online: <http://1.usa.gov/XQrrKz>.

Defensive Driving Course: Two Parts, 12/3 & 10

The next six-hour Defensive Driving (Point & Insurance Reduction) course will be held in two parts on Mondays December 3 and 10 in the Brookhaven Center, 6–9 p.m. each night. The course is open to the Lab community — including family members and friends — at \$33 per person. Preregistration is required: call Ed Sierra, 821-1013, and leave a message. Or complete a New York DMV Approved Course Online for \$39.95 with discount (Use code: “SAVE10” for a \$10 discount): www.lidrivesafe.com.

Ballroom Dance Club Lessons: New Series

The BNL Ballroom Dance Club will start a new series of four lessons on Wednesday, Nov. 14, in the North Ballroom at the Brookhaven Center. Classes will be November 14 and 28, and December 5 and 12.

5.30 p.m. Beginner Foxtrot
6.30 p.m. Intermediate Tango
7.30 p.m. Intermediate Foxtrot

The cost is \$30 per person for each four-week series. The beginner class will be a continuation of the previous series. Both intermediate classes will be revision classes with perhaps some new material from instructor Giny Rae.

For registration information contact Vinita Ghosh, Ext. 6226, ghoshvj@bnl.gov; Arup Ghosh, Ext. 3974, aghosh@bnl.gov; Mike Hanson, Ext. 2947, hanson@bnl.gov; or John Millener, Ext. 3853, millener@bnl.gov; or go to <http://1.usa.gov/MNg6Zq>.

Classified Advertisements

Current job openings and a statement of job placement policy at BNL are available on the homepage at www.bnl.gov/HR/careers/. To apply for a position, go to www.bnl.gov and select "Search Job List." For more information, call Ext. 2882.

Motor Vehicles

05 FORD THUNDERBIRD – 49.5K mi. Black w/ black int., anniversary ed., convertible w/ detachable hard top. Excellent cond. \$24,000 neg. Kathleen, Ext. 7114.

08 5TH WHEEL CAMPER KZ ESCALADE – 0 mi. flawless cond, 3 slides, sleeps 4 Solar pwr, granite top, cherry wood gas f/p, s-by-s fridge w/generator. 2/flat scrn TVs king bed, more. pics avail. \$52,300 neg. 204-0984 or babr2010@aol.com.

07 YAMAHA R6 – 14K mi. 2007 Silver R6 with new Pilot Pure tires, all service up to date. Synthetic race oil changed y yearly. Custom painted wheels, LeoVince carbon fiber exhst, adj Shorty levers. \$6,250 neg. William, Ext. 2394 or wflieltz@bnl.gov.

07 SUBARU LEGACY OUTBACK 2.5 – 72K mi. awd, a/t, ABS, a/c, am/fm radio, CD player, remote start, cloth, heated seats, roof rack, 1/owner, all maintenance, excel cond. \$11,500. Mary, Ext. 6344 or phraner@bnl.gov.

05 SCION XA – 99.1K mi. Silver car. great cond. \$6,000 neg. Ricardo, 276-1308.

04 CHEVROLET AVEO LS SEDAN – 55K mi. engine 1.6L 4 cyl. Fuel Inject., white, 35mpg, a/c, p/s, p/b, a/t, fm/cd/mp3, never had an accident, excel cond. \$7,000. slaketrac@gmail.com.

98 DODGE CARAVAN SE – 162K mi. 6cyl, a/t, new t/belt/batt, v. dependable, clean, just inspected, can see at the Lab. \$2,000 neg. Razvan, Ext. 5806, popescu@bnl.gov.

95 CHEV PICKUP – 1500 – 150K mi. 4wd, frame is rusted, gd for parts, sm block V8, eng and dr train are gd, 13 yrs of maint records. \$500. Steve, Ext. 4211 or musolino@bnl.gov.

Furnishings & Appliances

END TABLES – Two square with glass tops. Medium color wood. Good condition. \$75/both. Donna, Ext. 2716, 897-2736 or storan@bnl.gov.

KITCHEN TABLE – Tile Top w/4 white chairs/\$150; 6-d/rm chairs/\$150, Hutch/\$50, pics avail. 821-1271 or difilip@bnl.gov.

KITCHEN TABLE & CHAIRS – Nice oak kitchen table and 4 black metal green cushioned chairs \$100. Also in good conditon a black gas stove asking 150.00. Terry, Ext. 2381.

KITCHEN TABLE AND CHAIRS – light beige kitch table and 5 metal cushioned chairs, \$100/neg, pics. Peter, Ext. 2460.

POTTERY BARN KIDS BED – Contemporary Steel frame, Paid \$400 asking \$150. dmcarthur@bnl.gov.

WALL UNIT – beautiful solid oak wall unit 48" x 6', v/heavy pc, excel cond, \$175; also, round oak kitch table w/4 chairs, gd cond, pic avail, \$100. Diana, Ext. 3681, 922-0104 or teich@bnl.gov.

Audio, Video & Computers

750W PSU – CoolMax Cul-750 Power Supply, open box, never used. \$35. Paul, Ext. 2372 or ppalecek@bnl.gov.

Sports, Hobbies & Pets

ADULT HALLOWEEN COSTUME \$25 – The Simpsons Muscle Duffman Inc/Muscle blue Duff jumpsuit, Red cape, Red Duff hat, 2 Beer belts holds 6 real beer cans. Size: XXL(50-52) I have on site with me. "Email for pics". German, Ext. 8070 or flete@bnl.gov.

ADULT HALLOWEENCOSTUME XL\$25 – Toy Story-BuzzLightyear/deluxe/\$25, incl's/white jumpsuit w/purple/grn/black elements and character graphics, purple hood, jetpack, glowsticks, padded boot covers, Email 4/pics. German, Ext. 8070 or flete@bnl.gov.

R/C TRUCK TRAXXAS STAMPEDE – Grave digger ed, RC monster truck, new in box, never used, comes w/everything you need, \$200 have extras for extra \$. 816-3554 or jad9817@yahoo.com.

Tools, House & Garden

3/4" DRIVE SOCKET SET – Std length, drive size 3/4" SAE, # of pieces 21, socket type 12 Pt Std, Accessories: quick-release ratchet, 18" sliding t-bar, blow molded case, Lifetime Warranty, \$100. Lynn, Ext. 5960 or cohen@bnl.gov.

3/4" METRIC SOCKET SET – New, standard length, drive size 3/4" metric, # of pieces 21, socket type 12 Pt Std, Accessories: quick-release ratchet, 18" sliding t-bar & more. Lifetime Warranty, \$100. Lynn, Ext. 5960 or cohen@bnl.gov.

CEILING FAN – 52" 5 White blade fan with brass trim, light kit, and reversible motor. Excellent condition \$25. Lloyd, Ext. 5225 or Inelson@bnl.gov.

GENERATOR – Generac 4000 watt, low hrs, \$175. 804-6648.

Darkness and Return To Standard Time Bring Hazards

By Steve Kane, Safety Engineering Group Manager

The return to standard time means more activity takes place on the Lab site when it's dark outside. If you're jogging, cycling, or simply walking between buildings or to your car, you must increase your caution and vigilance because it will be harder for motorists to see you along the Lab's nearly 29 miles of roads.

Every season brings its own set of hazards. During fall and heading into winter, we have to be watchful for hazards related to darkness, especially at dusk when pedestrians and cyclists are especially difficult to see. As a pedestrian or cyclist, look where you're going, even if you've traveled the same route many times. New road hazards develop over time. Many of our roadways are not lighted. People new to the Lab may not expect a turn in the road or the appearance of a jogger in front of them. The movement of site wildlife, including deer, can be unpredictable. The construction activity on site displaces some animals, which can lead to more human interaction with them.

Also, be properly equipped for conditions. If you walk, jog, or bike at night, wear reflective clothing, clothing with reflective accents, or at least a reflective vest. Light-colored clothing simply isn't enough. Visibility vests are inexpensive and are a Lab stock item. Ask your Environmental, Safety & Health (ES&H) coordinator or the person in your department who handles purchasing to

order one. The lightweight mesh vest with reflective safety stripes is about \$5 and has stock number K61245. The heavier, more durable version costs about \$10 and has stock number K61247. Or stop by Bldg. 120, where we have extra reflective vests. If you know you're going to be out at night a lot, I also strongly recommend carrying a flashlight.

If you notice outside lights not working, notify your ES&H coordinator (<http://1.usa.gov/Y0xg9m>) or your building's Facility Project Manager to have them fixed.

Bicyclists, please outfit your bikes and yourselves properly. Helmets are required when riding a bicycle on site, and front and rear lighting is strongly advised (if a Lab-issued bicycle does not have lighting, please see your ES&H coordinator). If your bike isn't issued by the Lab, go to the BERA Store to get yourself properly equipped. And remember: bicyclists must follow the rules of the road — stay to the right, ride in the direction of traffic, and obey traffic controls. Safety & Health Services has more information about bicycle safety. The stock number for a bike helmet is K70310. (See this video by the Lab's own Jim Higgins for tips on riding a bicycle safely around the site: <http://bit.ly/RmtR1n>)

Rules of the road require automobile drivers to be aware, adhere to speed limits, and observe all posted signs.

Finally, remember that if you're working late at night and are concerned about being in your building or walking to your car in the dark, you may call the Laboratory Protection Division (Ext. 2238) for assistance. They will respond to your building to ensure your safety.

SAW (CHAIN) – Brand new chain saw still in box..Husqvarna 353, 16" Bar & chain, E-Tech Professional Saw.\$150 racered55@GMAIL.COM. Edward, 578-4057.

LAWN MOWER – Snapper 5 hp recycling and grass catcher with thatcher attachment. Gd working cond. Recently tuned up \$50. Ext. 5225 or Inelson@bnl.gov.

Miscellaneous

BEERTENDER – Like new w/orig box, Krups Model B100, \$90. Paul, Ext. 2899.

BUSINESS PHONE – desk/wall, ivory, 18pcs, must sell as complete lot, gd working cond, \$150/obo. 395-9610.

FUR COATS – 1 full-length Mink Coat; 1/ Silver Fox Coat & 1/Silver Fox Vest. ed-dylisa@optonline.net.

GIRLS' NECKLACES & EARRINGS – Your choice of natural stones (ie birth stone or color), charms or first initial, pearls. Contact me with any questions. Thank you. Paula, 399-3638 or pcalleja@optonline.net.

MAN LEATHER JACKET – blk, hip length, excel cond size lrg, b/o. Yvette, Ext. 5591.

MAXWELL TICKETS – Two Maxwell tickets, 11/24/12 at the MGM Theater at Foxwoods, ORC-RGT Row R. Call for price. 803-0147.

MIRRORED MEDICINE CABINET – 36Wx32Hx5D, \$25. Vanity countertop w/ sink & plumbing, 48Wx22D, \$50. Karl, Ext. 3116.

PEDESTAL SINK – perfect cond, white, \$20, u-pic-up. Susan, 929-0596.

TODDLER BED – Toddler bed/converted fr. sleigh bed crib, natural light wood finish w/crib mattress/\$40, pics avail. Ext. 2460.

Community Involvement

ADOPTAPLATOON – Monetary donations gratefully accepted towards mailing shipments to our platoon stationed overseas and to send goodie packages to BNL family members. Thank you. Joanne, Ext. 8481.

BNL FAMILY MEMBERS IN MILITARY – If you have a family member who has been deployed overseas, please contact AdoptaPlatoon so we may send them a goodie package. Joanne, Ext. 8481.

Fall Back This Weekend

Daylight Savings Time ends at 2 a.m. on Sunday, November 4. Remember to set your clock back one hour — and don't forget to install some fresh batteries in your smoke and carbon monoxide detectors.



Alex Reben

Gerstman Converts Motion into Light

Sheryl Gerstman found herself in the dark unexpectedly one evening. What was her safety idea to fix this problem? Watch the video to find out: <http://1.usa.gov/VDstqf>.

Safety makes science possible at Brookhaven National Laboratory

'Gospel Fest' Canceled

Gospel Fest, which was organized by the BERA African American Affinity Group, has been cancelled because of Hurricane Sandy, which passed through earlier this week. For ticket refunds, go to the BERA Store in Berkner Hall, which is open Monday through Friday from 9 a.m. until 3 p.m.



HOUSE PLANTS – selling own house plants to raise money for African Missions. Pics avail, various prices according to size. Nina, 813-0497 or vbri1@aol.com.

POP TOPS FROM SODA/BEER CANS – collecting for Shriner's Children's Hospital. Please send or drop off @ Bldg 400A, Transportation Office. Paula, Ext. 2535.

Happenings

MUSICAL PLAY '9 TO 5' – presented by Riverhead Faculty & Community Theater at R'head High School, Harrison Ave, R'head. Nov. 9,10,16,17 at 8 pm., Nov. 11 at 2 pm. To benefit scholarships for students. 344-7477.

Free

WHEELCHAIR – Permobil Corpus C.300 elect pwr, new, never used, needs new batt, manuals incld, u-pic-up. rewatson31@gmail.com.

Wanted

FIREARMS – Firearms, Wanted new or old. I will pay fair \$5 depending on age and condition. Remember, no firearms on BNL property. Joe, 487-1479.

HOUSEHOLD ITEMS – my good friend's apt flooded and she lost everything (clothes (size 4), dressers, kitchen & bathrm items). If you have anything you could spare it would be great. Gabrielle, Ext. 7328 or gwilson@bnl.gov.

ORGANIC CHEM HELP – looking for someone here at the Lab who can assist me w/ organic chem, I'm at the point of organic synthesis and could really used some help. William, 484-9888 or wflieltz@bnl.gov.

Lost & Found

EYE GLASSES – Woman's prescription eye glasses found outside Bldg. 555. Blue frame, made in China. Jean, Ext. 4302.

For Rent

CALVERTON – Waterfront 3bdr. house, 1 bath, wood stove, large deck. House is on small lake with dock for kayak/canoe near; adjacent to parklands. New washer/dryer. Pets considered. \$1,700/mo. Jason, Ext. 3242 or graetz@bnl.gov.

MASTIC – Cozy 2-bdrm single family house, 1 bath, lr/dr combo, fenced yard. Small pet considered. 2-mo. sec. Utilities not included. Avail. Nov. 1. \$1,525/mo. 775-8703.

ROCKY POINT – 2 bdrm/2 bath cottage, fireplace, porch, kitchen, living rm, backyard, 2 blks to beach, 15 min to Lab. Utils not included. \$1,400/mo. bjorg.larson@gmail.com.

WADING RIVER – 1 bdrm apt.eik. large living rm, full bath,pri. ent.,10 min BNL,1 month sec., util. incl,single non smoker only. \$1,000/mo. 929-3419.

YAPHANK – furn, studio bsmt apt, pvt home/ent, single person, 4/mi from Lab, incl's cable tv, hi-spd int, no smkg/pets. \$1,000/mo. 516-205-6712.

For Sale

BAYPORT – Frank Lloyd Wright-style, 2,300 sq ft house, 1 wooded acre nr Grt S. Bay, 4 bdrm, 2 & half bath, open flr plan, lg windows, radiant heat, screened porch, excel schools. \$499,000. 617-332-6264.

CORAM – lg 1 bdrm co-op, updated kitch & b/r, laundry across from unit, in/outdr pool & gym. \$99,900. Warren, Ext. 8329 or whalbig@bnl.gov.

RIDGE – custom, mint, Colonial 1/priv acre, many amenities; For sale by owner.com, List ID 23916097. \$359,000. 344-3541.

ROCKY POINT – 4 bdrm, 4 ba chalet, 1.2 wooded acres, nr beach, Elk, granite counters, ss applis, huge lvrn, dr, fp, hardwd flrs, porch, A/C, 2-car gar, igs, quiet n/hood, legal m/d. \$435,000. 894-4320.

In Appreciation

Thank you to all BNLers who volunteered to bake or give of their time for our Book & Bake Sale, we raised \$900.

— AdoptaPlatoon Team

Dear friends & coworkers, My family & I extend our deepest gratitude for your compassion, prayers, support, flowers, cards & visits during the long illness & ultimately at the extremely sad passing of my mother, Anne P. Royce.

— Barbara Royce

Services

A list of services provided by BNL employees or their immediate families is available, call Ext. 2346 and leave an address for a paper copy or contact lseubert@bnl.gov.