

Breast Cancer Imaging Study

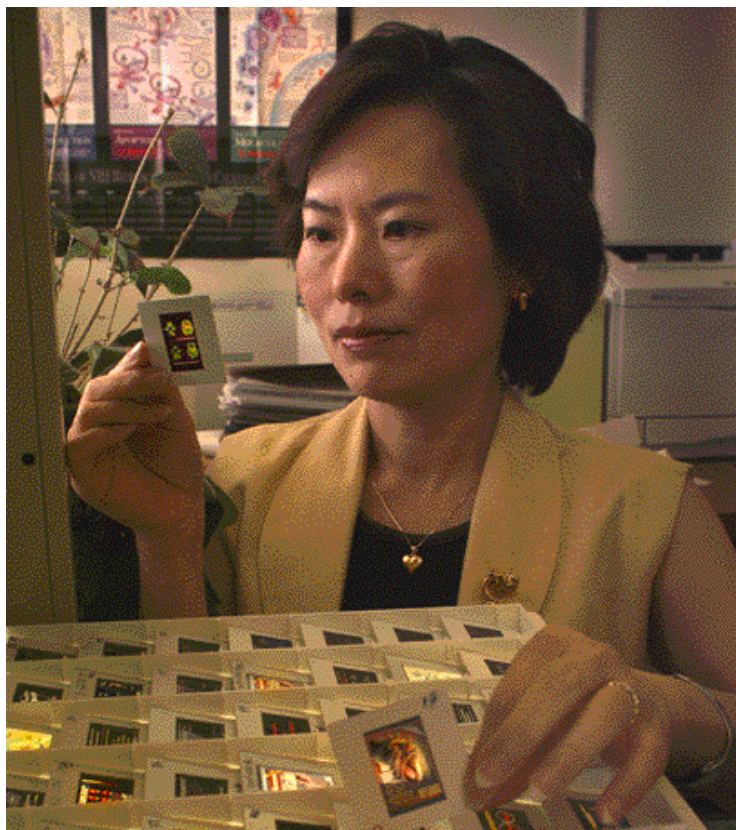
As many BNLeers prepare to “Walk for Beauty” and “Make Strides Against Breast Cancer” (see box, page 2, and calendar), BNL chemist Yu-Shin Ding, in collaboration with others here and at Stony Brook Hospital, is making strides of her own against breast cancer. Members of her team will soon begin clinical trials with a radiotracer compound they have developed to help them understand the biochemical basis of the disease and, ideally, improve diagnosis and treatment.

Many breast cancers are associated with estrogen. The presence of estrogen metabolites in breast tissue can cause changes in DNA, which may lead to uncontrolled cell growth. These metabolites can be broken down by catechol-O-methyltransferase (COMT), an enzyme that is known to be elevated in breast cancer tissue.

The hope is that the new BNL radiotracer compound, when injected into patients,

“If successful, this could provide a non-invasive way to detect breast cancer.”

will seek out and bind to this enzyme. Then, when the patients’ breasts are scanned with positron emission tomography (PET), the radiotracer will show



Yu-Shin Ding studies slides of PET scans.

up on the scans, “flagging” the presence of the tumor. “If successful, this could provide a non-invasive way to detect breast cancer,” says Ding.

Rising concern

Breast cancer has been getting increasing attention, particularly here on Long Island. Each year, nationwide, 46,000 women die of breast cancer. The disease accounts for 32 percent of all cancers in

women. “These statistics place a sense of urgency on understanding this disease at the molecular level and integrating this knowledge into early diagnosis and treatment,” Ding explains.

While mammography, the current diagnostic method, is non-invasive, it often gives what are called false-positive results, says Ding. A tumor may be detected, but it is not necessarily malignant, or can-

cerous. To find out, doctors have to perform surgical biopsies to examine the tissue.

But if COMT activity is shown to be elevated in malignant breast tissue as compared to surrounding nonmalignant breast tissue — and this difference can be seen on PET scans using the new radiotracer — then doctors would be able

“The proposed technique could also give researchers valuable information beyond diagnosis.”

to detect and distinguish between benign and malignant tumors, possibly reducing the need for biopsy. PET scans could also help detect the spread of the cancer to nearby lymph nodes. And if COMT activity increases with the severity of the disease, as the scientists suspect, the levels of radiotracer detected on PET scans could help assess the stage of the tumor.

The proposed technique could also give researchers valuable information beyond diagnosis, Ding says. For example, the radiotracer might answer questions about the role the elevated enzyme plays in the disease and suggest potential treatments. Mammography, in contrast, “does not

(continued on page 2)

BSA Distinguished Lecture:

Ribosome Structure



Peter Moore

Using the National Synchrotron Light Source, a Yale University team has determined the crystal structure of the large subunit of the ribosome, the huge particle that makes the thousands of proteins required for the structure and function of each living cell. The work is reported in the August 11 issue of *Science*.

Peter Moore, one of the scientists responsible for this tour de force in structural biology, will give a BSA Distinguished Lecture on the “Structure of the Ribosome,” discussing the highlights and conclusions drawn from this research. At the lecture to be held on Tuesday, September 19, at 4 p.m. in Berkner Hall, Moore will explain the medical significance of the finding, which may lead to synthesis of new drugs that can block disease-causing bacteria in human beings.

At Yale, Moore is Eugene Higgins Professor of Chemistry and a joint appointee in the Department of Molecular Biophysics and Biochemistry. After receiving his B.S. from Yale in 1961, he earned his Ph.D. in 1966 from Harvard University, where he was supervised by Nobel Prize-winner James D. Watson. He worked at the University of Geneva, Switzerland, and the Medical Research Council Laboratory of Molecular Biology, Cambridge, England, before joining Yale in 1969.

Moore has served on committees for the National Institutes of Health, the National Science Foundation, DOE, and BNL. A Guggenheim Fellow at Oxford University in 1979-80, he is a member of the National Academy of Sciences and currently editor of the *Biophysical Journal*.

— Diane Greenberg

Uranium Encapsulation Process Receives Patent

Paul Kalb and Jay Adams, both of BNL’s Environmental Research and Technology Division in the Environmental Sciences Department, with former BNLeer Paul Lageraen and Carl Cooley, DOE, were recently awarded U.S. patent number 6,030,549 for inventing a process for encapsulating depleted uranium oxides in thermoplastic polymers.

The process converts depleted uranium to a form that is both stable and safe for long-term disposal. The encapsulated uranium could also have several useful applications, including the production of radiation shielding and counterweights for airplanes, helicopters and ships.

Depleted uranium (DU) is a by-product of enriching uranium ore to make fuel for nuclear reactors. Currently, DOE is storing large stockpiles of a reactive form of DU, which requires labor-intensive and costly maintenance. The BNL process uses uranium oxide powder, a more stable, but dispersible compound, which is converted from the reactive form through chemical processing and combined with a thermoplastic binder. The final product can be formed into



Paul Kalb (right) and Jay Adams display items made from their processed uranium.

shapes and is cooled to form a dense solid.

“By creating safe, secondary end-use products from these materials, we are addressing health and safety, environmental protection, and waste reduction issues,” says Kalb.

BNL’s patented process for encapsulation requires simultaneous heating and mixing of depleted uranium powders and non-biodegradable ther-

moplastic polymers such as polyethylene or polypropylene. Virgin or recycled polymers can be used. The result is a homogeneous mixture of depleted uranium and molten thermoplastic polymer, which can be molded into any shape.

Tests performed by the BNL team reveal that the new material, composed of anywhere from 10 to 90 percent depleted uranium by weight, is strong

and durable. And because it is largely impermeable to water, it does not leach radioactive material.

The heavy material can be molded to form counterweights/ballast for use in airplanes, helicopters, ships, missiles, flywheels, armor, and projectiles.

Because of the density of uranium, the product is also an excellent shield against gamma radiation. The presence of hydrogen in the plastic makes it an effective shield against neutron radiation as well. And since the product has a much lower percentage of fissionable uranium (U-235) compared with natural uranium ore, the levels of residual radioactivity are very low.

The material could therefore be useful in the construction of storage vaults and casks for radioactive materials. It could also provide protection for workers and the public at particle accelerator beamstops and targets.

“We are currently working with the BNL Office of Technology Transfer to identify potential industrial partners and opportunities for commercial development,” says Kalb.

— Karen McNulty

Calendar

of Recreational Events

- *The BERA Sales Office is open on weekdays, 9 a.m.-3 p.m., Berkner Hall. For BERA events, call Andrea Dehler, Ext. 3347, M. Kay Dellimore, Ext. 2873.*
- *Hospitality Committee events are also posted at the Lollipop House and the Laundry Room, located, like the Recreation Bldg., in the apartment area.*
- *Asterisked (*) events are more fully covered elsewhere in the Bulletin.*

Every Tuesday

Welcome Coffee

10 -11:30 a.m.
Recreation Bldg.
Hospitality Committee and apartment dwellers welcome newcomers to BNL.

Every Mon., Tues., Thurs.

*Cardio Kickboxing

— WEEK OF 9/11 —

Saturday, 9/16

Bronx Zoo Trip

Bus will leave from the Lollipop House at 9 a.m. Full.

— WEEK OF 9/18 —

Monday-Thursday

*BNL Food Drive

Pickup 9/21. Put donations in the food bin in your building.

Tuesday, 9/19

*CTP Wireless Demo

10 a.m.-2 p.m.
Berkner Hall

*BSA Distinguished Lecture

4 p.m. Berkner Hall
Peter Moore, Yale University
"The Structure of the Ribosome."

*Bellport Outlet Discount Day

10 a.m.-9 p.m.
BNL employees, visitors, guests receive a 20 percent discount on regular merchandise in participating stores.

Wednesday, 9/20

Safety Glasses Office

Closed 9/20
Will re-open 9/27

*PTL Vacuum Inc. Demo

10 a.m.-2 p.m.
Berkner Hall

*Rent-a-PC Demo

11 a.m.-2 p.m.
Berkner Hall

*Camera Club

noon
second floor Seminar Room
Bldg. 515

*Celtic Music Recital

noon, Berkner Hall
Kevin O'Reilly, winner of 1997 All-Ireland Fiddle Festival.

*Volleyball Captains' Meeting

noon, Berkner Hall, Room B
Bring completed team roster.
All skill levels welcome.

Thursday, 9/21

*Poetry Workshop

12:15 -1:15 p.m.
Berkner Hall Lobby.
Poet Miriam Kroon

Thursday-Saturday, 9/21-23

*Art Exhibit

Thurs., Fri.: 5 -7:30 p.m.
Sat.: noon - 4 p.m.
Brookhaven Center North Room. Refreshments, music.
Poetry readings Friday p.m.

Friday, 9/22

*Watercolor Demonstration

noon-1 p.m.
Berkner Hall Lobby
Artist Helen Giaquinto

Breast Cancer (cont'd.)

provide any information about the biochemistry," says Ding.

The research might even help determine if genetic differences in enzyme activity have an influence on susceptibility to breast cancer.

"If we are able to correlate the genetics with breast cancer susceptibility, that would be powerful and useful information," she explains.

Previous work

In animal studies, Ding and her team have already shown that their radiotracer — a compound labeled with a radioactive form of fluorine — binds with COMT in a way that is detectable and quantifiable on PET scans. The radioactive fluorine emits positrons, positively charged electrons, which are detected by the PET camera.

The material has a half life of 110 minutes, meaning that half of the radioactive atoms have decayed to nonradioactive form by that time. Essentially all of the radiation is gone after a few hours. So the fluorine-labeled tracer, like countless other radioisotopes used in medical imaging procedures, leaves no permanent trace.

Also, in earlier comparisons of breast cancer tissue with normal breast tissue in the same patients, Ding and her team have demonstrated that COMT activity was indeed elevated in malignant breast tumor tissue. The difference in enzyme activity between normal and malignant tissue was, in some cases, as high as 26-fold.

Importantly, these results were consistent with pathology data obtained for each patient, with the most advanced tumors having the highest COMT activity.

Together, these findings indicate that such differences should be detectable in the upcoming PET imaging studies.

With these promising results, the BNL team — which includes Nora Volkow of the Medical Department, Joanna Fowler of Chemistry, and the entire PET group — have obtained approval from the Food and Drug Administration to test their new radiolabeled compound in actual cancer patients.

The patients will be recruited by Mary Margaret Kemeny, the team's collaborator at Stony Brook Hospital. They only await approval from the Department of the Army's Office of the Surgeon General, which is funding the research.

"Everything is set to go," says Ding, who expects the study to begin in October or November. — Karen McNulty

On-Site Cats, Kittens Need Your Help

The increasing number of cats on the BNL site has sparked concern among some Lab employees. According to Ed Murphy of BNL's Plant Engineering Division, cats living in the wild on site cause problems typically associated with any unwanted animals around your neighborhood.

"They get under the buildings and create problems with vermin, hygiene, odors, and allergens," says Murphy. "We are concerned that when their population becomes too large — where the cats start to compete for food — then the situation also becomes inhumane for the cats."

Pat Maxheimer, a clinical assistant in the Medical Department, has gone to great lengths to help curtail the growth of BNL's cat population. Her goal is to "remedy the problems associated with the existing cat population in the most humane way possible; by spaying and neutering every cat on site." This, along with adoption and natural attrition, will help reduce the total number of cats at BNL.

Over the past five months, Maxheimer has taken more than two dozen cats to be spayed or neutered, in addition to setting up feeding stations at known "cat hang-outs" around the site. She says that "educating the community, along with comprehensive spaying and neutering, is the most effective and humane way of controlling the cat population." And the BNL community can help in several ways.

For example, BNL residents should have their cats spayed and neutered, and should not abandon their pets when moving off the site. Adoption arrangements should be made to ensure that pets remain in a suitable environment, and not stray into the wild.

Murphy asks BNLees not to open up doors or skirting around building foundations. Access doors and panels should remain

closed to prevent cats and other animals from entering the building's crawl spaces. Open crawl spaces can lead to other problems, including winter plumbing freeze-ups. Maxheimer recalls several cases of cats' giving birth to kittens while trapped in a basement or crawl space. They remained, starved of food and sunlight, until she rescued them.

Maxheimer and other volunteers such as Pauline Carter, Sepideh Shokouhi, Colleen Shea, and Joanna Fowler are always looking for people to adopt BNL cats into their own homes. To date, they have arranged the adoptions of 10 adult cats and 19 kittens.

It is often difficult to find homes for the adult cats. Having spent time in the wild these cats are not accustomed to the life of a house cat. However, Maxheimer says, "once they are fixed, they will not contribute to further population growth, and we have often found that, with a little time and a little patience, they tame down quite easily."

Maxheimer hopes eventually to have all the Lab cats neutered and spayed and, when possible, adopted into foster homes. In the meantime, "If I get a call from anybody, I don't care where the cat is, I'll come, pick up the cat, and have it fixed," she says.

Each female cat costs \$45 to have spayed, pregnant females cost \$80, and males cost \$30 to have neutered. Maxheimer welcomes donations and is also very grateful for the donations and the support she has received in the past. She and others are also looking into model programs which other institutions have used to deal humanely with a growing cat population.

Contact Maxheimer, Ext. 7705, if you are interested in adopting cats or kittens, making a donation, or helping in any other way. In addition, if you are feeding BNL cats, let Maxheimer know so that she can arrange to have them fixed. — John Galvin



Pictured with the two kittens recently adopted by Yu-Shin Ding are: (front, from left) Ding, Sepideh Shokouhi, and Joanna Fowler; (back, from left) Pauline Carter and Pat Maxheimer.

Michael Herbert CNA-2-00

Walk to Fight Breast Cancer, 9/24

On Sunday, September 24, participate in the 7th Annual Walk for Beauty, proceeds to benefit breast cancer research. The meeting place for the BNL community team is on Stony Brook Village Green around the big tree — look for the BNL banner. All team members who walk will receive a free hat. Wear a BNL tee-shirt if you can. Be sure to contact the BNL's Women's Program Advisory Committee, which is coordinating this year's Lab effort. Call Ext. 2720 or e-mail grabowsk@bnl.gov to let us know you are coming.

Pine Barrens Forum Registration

The Lab community is invited to register for the 5th Annual Pine Barrens Research Forum, to be held at BNL on Thursday and Friday, October 12 and 13, sponsored by the Central Pine Barrens Commission, the Long Island Groundwater Research Institute (LIGWRI), and BNL. Featuring a day of technical discussions and a half-day in the field, the forum is free and open to all. To register, call the LIGWRI at 632-6912; fax 632-8820, or e-mail edoyle@notes.cc.sunysb.edu.

Diddle . . .

Noon Recital, Wednesday, 9/20
Irish Fiddle Champion Visits BNL



Mike Creutz, Physics Department, with visiting theorist student and fiddle champion Kevin O'Reilly

There's a hooley in the hall and everyone's invited!" So says Kevin O'Reilly, who opens the BSA Cultural Program's Wednesday Noon Recital series in Berkner Hall on September 20 with a feast of fiddling from Ireland.

The 1997 All-Ireland Fiddle Champion, O'Reilly has a rich knowledge of traditional jigs, reels, slides, and slow airs which are both meditative and infectiously exciting. He learned his music, he says, from Michael Tubridy of The Chieftains, who started him working part-time in the Irish traditional music archives in Dublin. There, O'Reilly delved deep into the past and now has an extensive repertoire of the oldest and rarest tunes, many of which have not been heard in decades and even centuries.

The Wednesday recital will therefore provide an opportunity to hear some of the oldest music from all Europe — "which is also some of the most beautiful," says O'Reilly. "All you need to do is close your eyes and listen."

O'Reilly may also be heard on WUSB 90.1 FM radio, 11 a.m.-noon, tomorrow, Saturday, 9/16. Hosted by Gerry Riemer, the show, "CLANN NA NGAEL, music and folklore of the Celtic people," will feature music from Ireland, Scotland, Wales, and Brittany.

An undergraduate studying theoretical physics in Trinity College, Dublin, O'Reilly is visiting BNL this month to work with Mike Creutz of the Physics Department.

Among other things, Creutz and O'Reilly discuss the theoretical "strings" that confine quarks in the nucleus of an atom. Quarks are the smallest known building blocks of matter, and their interactions are studied at BNL's Relativistic Heavy Ion Collider (RHIC). Theorists believe that when quarks are pulled apart, the "gluonic flux" between them forms itself into a "string." As the interquark distance increases, this string grows in length, generating a persistent constant force of 14 tons. This is the "confinement" phenomenon expected to be evaded in the high temperature plasma produced in RHIC collisions.

Noon recitals are free, and all are welcome. Bring lunch if you like, and come and go as you please. For information on future programs, see <http://music.bnl.gov/>.

Volunteers Needed
Computer Instructors

BNL is the home of a community-based computer training course called Learning & Information Networking for Community via Technology (LINCT). To run LINCT, starting on September 25, BNL volunteers are needed donate two hours per week for 12 weeks to train community members who cannot afford other training. Classes are held 9-11 a.m. and 11 a.m.-1 p.m., using training materials provided by LINCT. To volunteer contact Sol Rosario, Diversity Office, Ext 6253, or srosario@bnl.gov.

Healthfest 2000

Volunteers are needed for all events at Healthfest 2000, BNL's eighth week-long annual celebration of personal health, fitness, and safety, will be held Monday through Friday, October 23-27.

Mon.	Fitness Stretch	11:45 a.m.
Mon.	Fitness Walk	12:05 p.m.
Tues.	Fitness Stretch	11:45 a.m.
Tues.	Fitness Run	12:05 p.m.
W/Th.	Health Fair	11 a.m.-2 p.m.
Fri.	Mountain Bike Ride	noon
Fri.	Tennis Workshop	11:30 a.m.- 1:30 p.m.
Fri.	Golf Workshop	11:30 a.m.-1:30 p.m.

For more information, call Mary Wood, Ext. 5923, or e-mail wood2@bnl.gov.

Cardio-Kickboxing

Noon classes in cardio-kickboxing will continue to be offered on Mondays and Thursdays, noon-1 p.m. in the Brookhaven Center North Room. Classes will run for four months from 9/11.

Evening classes will be offered on Tuesdays (in the gym) and Thursdays (in Brookhaven Center North Room), 5:15-6:15 p.m. from 9/12.

Each class is \$5 per participant, payable at the class. Participants may sign up for one or both days of the days offered, but registration is required. Contact Mary Wood, Ext. 5923, or e-mail wood2@bnl.gov.

Equipment Demos

CTP Wireless World will offer a special AT&T Wireless Services corporate digital PCS promotion for the Lab community on Tuesday, 9/19, 10 a.m.-2 p.m. in Berkner Hall. Several rate plans are available. Free digital phones with car adapter, carry case, hands-free microphone and more will be offered. Call Dennis Lamm, 585-2900.

PTL Vacuum, Inc. will hold a catalog party to distribute materials for MDC Vacuum Products and Insulator Seal, Inc. and represent eight other manufacturers of vacuum-related equipment, on Wednesday, 9/20, in Berkner Hall, 10 a.m.-2 p.m.

Rent-A-PC will be at Berkner Hall on Wednesday, 9/20, to offer short-term computer rentals, desktops, notebooks, LCD projectors, servers and more for a day, a week, or longer, with immediate availability, local delivery, set up, and on-site support.

Calendar
(continued)

Saturday, 9/23

Defensive Driving Course

The training group of the Safety & Health Services Division will offer a six-hour course, 9 a.m.-3:30 p.m., in Berkner Hall, Room B. This course is open to all BNL, BSA, and DOE employees, BNL facility users, and their families at \$23 per person. Register by 9/18 — send a check with your phone number on it, made out to Empire Safety Council, to Scott Zambelli, P.O. Box 670, Mount Sinai, NY 11766.

Wine Tour & Tasting Bus Trip

\$23 per person
Visit the Paumanok, Jamesport, Pugliese, and Pindar Vineyards. Half-hour tour at Paumanok and tastings at each. Free time in Greenport for shopping or dinner 4:30 -7 p.m. Departure from Brookhaven Center at 11 a.m. Returns from Greenport at 7 p.m. — BERA event.

Sunday, 9/24

*7th Annual Walk for Beauty

Join the BNL team participating in the 7th Annual Walk for Beauty, starting from the Stony Brook Post Office. Proceeds will benefit breast cancer research.

— WEEK OF 9/25 —

Friday, 9/29

*Softball League Party

5:30 p.m. Brookhaven Center
\$10 per person by 10/15
Andrea Eppler, Bldg. 51M

— WEEK OF 10/9 —

Saturday, 10/14

N.Y.C. / Hayden Planetarium

\$19 per person
Do your own thing, or visit the Hayden Planetarium or the American Museum of Natural History. Bus will stop twice: (1) North side of Museum at West 81st Street (2) Rockefeller Center area. Bus departs from Brookhaven Center at 11 a.m. and returns at 7 p.m. — BERA event..

Sunday, 10/15

Walk to Fight Breast Cancer

Walk on the Jones Beach Boardwalk for the American Cancer Society in "Making Strides Against Breast Cancer." Obtain volunteer registration packets from BERA Sales Office.

— WEEK OF 10/23 —

Monday-Friday

*Healthfest 2000 Events

— WEEK OF 12/4 —

Saturday, 12/9

Radio City Christmas Show

\$89 per person
2 p.m. matinee at Radio City Music Hall. Departs from the Brookhaven Center at 9 a.m. Returns at 7 p.m. — BERA event.

Note: This calendar is updated continuously and will appear when space permits. Submissions must be received by the preceding Friday at noon to appear in the following week's Bulletin. Enter information as follows: date, event name, description, cost. Send to bulletin@bnl.gov with "Bulletin Calendar" as subject line.

ARRIVALS & DEPARTURES

Arrivals

Linda Chang	Medical
Tatsuya Chujo	Physics
Richard J. Doulos	Business Systems
Thomas M. Ernst	Medical
Hideaki Hotchi	Physics
Young-June Kim	Physics
Xinhua Lin	Medical
Idayat A. Osho	Energy Sciences & Tech.
Wilton L. Virgo	Chemistry
Kin Yip	Physics

Departures

Suzanne M. Agnetti	Collider-Accelerator
Richard Becker	Chemistry
David G. Bingham	Reactor
William L. Cahill Jr.	NSLS
Aidnag Z. Diaz	Medical
Tomas Jirsak	Chemistry
Marilyn Johnson	Plant Engineering
Eileen M. Kelly	Reactor
Yuri V. Kovchegov	Physics
Barbara A. Kponou	Energy Sciences & Tech.
Donald M. Litcher	ITD
Franklin Snell	Plant Engineering
Pierre Stillman	Collider-Accelerator
Thomas A. White	NSLS
Matthew B. Wingate	Physics

Camera Club, 9/20

Almost everyone has a priceless, old photo in need of restoration. On Wednesday, September 20, at noon in the Bldg. 515 seminar room, second floor, main entrance, Ripp Bowman will demonstrate how to use Adobe Photoshop to make restored copies of damaged photographs and negatives. For more information, call Bowman, Ext. 4672.



Bellport Outlets Discount 9/19

On Tuesday, 9/19, from 10 a.m. to 9 p.m., Prime Outlets of Bellport (north and south of Sunrise Highway at Station Road, Bellport) offer all BNL employees, visitors, guests, and facility users a 20 percent discount on regularly priced merchandise in participating stores such as Black & Decker, Harry & David, Jockey, Pendleton's, Reebok, The Gap, Vanity Fair, and many more. Free coupon books are available at the customer service office. Show your BNL or Guest ID badge to get the discount.

Softball Party

Today is the last day to buy tickets for the BERA Softball League party. All players, their families and friends of 21 and over are invited to the Brookhaven Center, on Friday, 9/29, 5:30 p.m. Tickets at \$10 per person cover DJ, buffet dinner, and two drink coupons for beer, wine, or soda. No tickets will be sold at the door. Bring cash to Andrea Epple, Bldg. 51M today. For more information, e-mail softball@bnl.gov.

Classified
Advertisements

OPEN RECRUITMENT – Opportunities for Laboratory employees and outside candidates. MK8897. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in experimental or condensed matter physics or related field. Expertise in synchrotron radiation, electron spectroscopy, surface science, and correlated electron systems. Will participate in a research program using high-resolution photoemission to study the electronic structure and properties of correlated electron systems. Under the direction of P. Johnson, Physics Department.

MK9041. POSTDOCTORAL RESEARCH ASSOCIATES (three vacancies) – Requires a Ph.D. in biology or radiochemistry with experience in cell biology, radiochemistry, tissue culture, drug pharmacokinetics/biodistribution or an M.D. with experience in current biology and cell biology techniques of gene expression in mammalian cultures, and with radiobiology and/or radiation oncology research. Will study new antisense oligonucleotide analogues and agents for imaging gene expression in vivo and the biochemistry, in vitro and in vivo behavior, biodistribution and radiolabeling chemistry (with PET/SPECT isotopes) of antisense oligomers. Project is an interdisciplinary collaboration between the Medical, Chemistry and Biology Departments. Under the direction of A. Gifford, Medical Department.

MK9044. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. or M.D. with experience in cell/molecular biology in the field of neurotoxicology and/or neurobiology. Previous experience in molecular and cellular techniques, including cell culture methods, gene expression, immunocytochemistry and flow-cytometry is desirable. Research will involve gene expression, profiling of methamphetamine-induced toxicity in dopaminergic neurons in culture using DNA microarrays. Under the direction of M. Vazquez, Medical Department.

The Laboratory has initiated a major new effort in nanoscience with focus areas in nanoscale charge transfer, catalysis and synthesis. In support of this effort, several experimental and theoretical postdoctoral positions are available in the Chemistry, Biology and Energy Sciences & Technology Departments. Candidates must have a Ph.D. Exceptional candidates may also be considered for a tenure track position. General subject areas include:

Radiation and photochemistry of nm metal clusters in solution. Experience in preparation and characterization of colloidal metal particles essential. Contact C. Creutz, Chemistry Department, Bldg. 555. ccreutz@bnl.gov.

Charge transport through dye-sensitized nanocrystalline semiconductor films. Measurement and modeling. Contact B. Brunschwig, Chemistry Department, Bldg. 555. bsb@bnl.gov.

Theory of charge transfer on the nano scale. Experience in use of electronic structure theory and computation techniques, with focus on energetics and electronic properties of extended molecular systems, is essential; familiarity with models for long-range



Poet Miriam Kroon (left) and artist Helen Giaquinto will give noontime workshops in Berkner Hall lobby as part of the Fall Colorscape events to be held next week.

Celebrate fall with fine arts, poetry, and music during “Fall Colorscape,” to be held at BNL from Thursday through Saturday, September 21-23. All the Lab community and the public are welcome and the events are free. Sponsored by the BNL Art Society, the Hospitality Committee, and BSA, Fall Colorscape includes:

Art Exhibit

Thursday & Friday, 9/21 & 22, 5-7:30 p.m.

Saturday, 9/23, noon-4 p.m.

Brookhaven Center North Room

On display will be selected art works of the Suffolk County branch of the National League of American Penwomen, which is headquartered in Washington, D.C. Refreshments and music will be provided. At the reception on Friday, poetry readings by Penwomen poets will also be featured.

Poetry Workshop

Thursday, 9/21, 12:15-1:15 p.m., Berkner Hall lobby

Penwoman Poet Miriam Kroon will give an informal poetry workshop, “Shaping Words,” which will include editing and rewriting. She will use some of the paintings to be exhibited later in the Center, as well as international poetry to demonstrate her points.

Watercolor Demonstration

Friday, 9/22, noon-1 p.m., Berkner Hall lobby

Illustrator and watercolorist Helen Giaquinto will demonstrate watercolor painting, offering tips for those interested in trying the medium. Her paintings will be among those displayed in the show in the Brookhaven Center.

charge transfer/transport and other aspects of donor/acceptor interactions is highly desirable. Contact M.D. Newton, Chemistry Department, Bldg. 555. newton@bnl.gov.

Measure charge motion in molecular wires and related devices with kinetic spectroscopy at BNL's LEAF accelerator to lay foundations for energy storage using nanostructures. Contact J.R. Miller, Chemistry Department, Bldg. 555. jrmiller@bnl.gov.

Development of ultrafast single-shot detection methods for the study of electron transfer in molecular systems with application to molecular wires and related devices at Brookhaven's LEAF facility. Contact A. Cook, Chemistry Department, Bldg. 555. acook@bnl.gov.

Nanowires using bimolecule templates and gold cluster technology. Contact J. Hainfeld, Biology Department, Bldg. 463. hainfeld@bnl.gov.

Nanoscale catalysts: preparation, structure and reactivity. Background in surface science, experience in STM/AFM required. Contact J. Hrbek, Chemistry Department, Bldg. 555. hrbek@bnl.gov.

Development of a near-field microscope for in-situ studies of chemical intermediates on metal nanoparticles. Experience with Raman instrumentation and surface chemistry highly desirable. Contact, M.G. White, Chemistry Department, Bldg. 555. mgwhite@bnl.gov.

Gas-phase spectroscopic studies on metal-containing clusters (experimental and theoretical). Experience in high-resolution laser spectroscopy or in *ab initio* calculations of excited states. Contact T.J. Sears or J.T. Muckerman, Chemistry Department, Bldg. 555. sears@bnl.gov, muckerm1@bnl.gov.

Femtosecond dynamics of size-selected quantum dots in rare gas crystals. Investigate femtosecond dynamics of nanoparticles in rare gas crystals using lasers and the BNL National Synchrotron Light Source. Contact D. Imre, Energy Sciences & Technology Department, Bldg. 815. imre@mail.bnl.gov.

Production and characterization of novel pure and doped metal oxide materials. Background in solid state/inorganic chemistry, powder x-ray/neutron diffraction and/or electron microscopy preferred. Contact J.Z. Larese, Chemistry Department, Bldg. 555.

jzl@bnl.gov.

NS8851. RADIOLOGICAL ENGINEERING POSITION – Requires a bachelor's degree in science or engineering and a minimum of three years' operational radiological experience. An advanced degree or CHP is desirable. Responsibilities include providing radiological engineering support to Laboratory departments/divisions and the RCD Facility Support organization. Will be responsible for the Radiological Awareness Report Program and the Radiological Zlessions Learned Programs. Will participate in the review of facility and shielding designs, health and safety plans, SAD/SAR review and QALARA reviews. Radiological Control Division.

NS8631. ADMINISTRATIVE POSITION – (reposting) Requires a degree in computer technology or business or equivalent experience, strong database, analytical, communication, interpersonal and customer-service skills. Proficiency in MS Access and Word is also required; MS Outlook and web design skills desirable. Responsibilities include extensive interaction with NSLS user community and staff, utilizing various databases, coordination of the NSLS General User Program, processing general and proprietary user proposals as well as issuing NSLS user appointment, training exams and TLD's. Additional responsibilities include database maintenance, input and reporting under the direction of the NSLS User Administrator. National Synchrotron Light Source Department.

NS8630. DATA SERVICES POSITION – (reposting) Requires an AAS in computer technology or business or equivalent experience as well as database maintenance skills, strong analytical, communication and interpersonal skills. Proficiency in MS Access and Word required; MS Outlook and Word-Perfect desirable. Responsibilities will include issuing NSLS user appointments, training exams and TLD's and other database maintenance, input and reporting under the direction of the NSLS User Administrator. National Synchrotron Light Source Department.