

BNL Chemists' 'Shutter-Speed' Concept May Improve MRI Detection of Stroke

Scientists from BNL's Chemistry Department have used a concept inspired by the functioning of a camera to interpret data obtained by magnetic resonance imaging (MRI), a medical imaging process used to detect and diagnose stroke, cancer, multiple sclerosis, and other conditions.

As the scientists explain in an article appearing in *Magnetic Resonance in Medicine*, applying the concept of "shutter-speed" — which is used to adjust the quality of photos taken by a camera — to MRI data may improve the understanding of the images and provide a more accurate diagnosis of diseases at the cellular level.

"We are suggesting a brand-new way of interpreting MRI data," says Charles Springer of Chemistry, leader of the team that conducted the study. "We believe that this innovation might provide a more accurate disease prognosis by distinguishing better between tissues that can potentially recover from the disease and those that have been irreversibly damaged."

Springer and Jing-Huei Lee, who was recently appointed associate professor of biomedical engineering at the University of Cincinnati and is the study's lead author, chose "diffusion-weighted MRI," one of the most important MRI techniques clinically available, for their study. In diffusion-weighted MRI, the image of an affected tissue is determined by how water diffuses inside and outside of tissue cells.

"For example, in the case of a stroke, water diffuses more slowly in the region where cells are most affected, and the intensity of the MRI image increases for this area," Lee says. "Changes in the speed of water ex-

change in and out of cells provide information on cells' health and can thus reveal the most damaged cells."

To determine images of water diffusion in tissue, physicians adjust various settings of the MRI device, and, depending on the setting values, the images show water transferring in and out of cells at apparently different speeds. Thus, for Springer and Lee, taking an image with MRI is like taking a photo with a camera.

"Say you want to take a photo of a running person," Springer says. "Depending how you adjust the camera's shutter-speed, you can get either a photo that looks blurry, giving the impression that the person is running fast, or, to the contrary, you can get a sharp picture, and the person will seem

to be moving slowly."

This analogy with a camera was an "eye-opener" for Springer, but more was to come.

By combining various parameters of the MRI study, Springer and Lee first defined a quantity they called the "shutter-speed," and then they compared theoretical predictions with MRI data previously collected from a normal brain with varying shutter-speed values.

What they saw in the

data was a complete surprise. "Our analysis suggests that, unlike what was expected for the healthy brain, water is diffusing faster inside the cells, instead of outside them," Springer says. "This is contrary to a long-held idea about how to understand the changes a stroke causes in MRI data."

"Scientists have long thought that, as cells tend to swell in brain regions affected by a stroke, a telltale sign of this

(continued on page 2)



Roger Stoutenburgh D0290203

"We believe that this innovation might provide a more accurate disease prognosis by distinguishing better between tissues that can potentially recover from the disease and those that have been irreversibly damaged"

— Charles Springer

BSA Colloquium, 3/10

Advances in Cancer Therapy



Carl Barrett

On Monday, March 10, Carl Barrett, Director of the National Cancer Institute's Center for Cancer Research (CCR), will visit BNL to meet with the scientific staff and learn about their research. He will tour several BNL facilities, including the National Synchrotron Light Source, the Information Technology Division's Data-Visualization Lab, the Biology Department's Scanning Transmission Electron Microscope, and the Chemistry Department's Positron Emission Tomography Center.

Then, at 4 p.m., Barrett will give a BSA Colloquium on "Molecular Oncology — Translating

New Advances to Cancer Therapies," in Berkner Hall. All are welcome to attend.

Before his appointment as CCR Director, Barrett was the scientific director of the National Institute of Environmental Health Sciences. The CCR, created in March 2001 to promote closer links between basic science researchers and clinical investigators, has as its mission to reduce the burden of cancer through exploration, discovery and translation. Barrett received his Ph.D. and post-doctoral training in biophysical chemistry at The Johns Hopkins University. He has published more than 400 research papers, edited five books, is Editor-in-Chief of *Molecular Carcinogenesis*, Associate Editor of *Cancer Research*, and serves on other editorial boards.

Six BNLers Honored With Brookhaven Awards

Each year, BNL recognizes key contributors in support functions, whose performance and achievements represent outstanding service to the Laboratory, especially in areas such as environment, safety, affirmative action, training, community involvement, and quality.

Interim Laboratory Director Peter Paul presented this year's Brookhaven Awards, in the form of a commemorative plaque and a pre-tax award of \$2,000 to each recipient, at the Employee Recognition Award Ceremony on January 30. The honorees are: Susan C. Foster, Human Resources Division; Christopher Johnson, Plant Engineering Division; Salvatore Marino, Physics Department; Noelwah Netusil and Naomi Pappas, Medical Department; and Mona Rowe, Community, Education, Government & Public Affairs Directorate. Their accomplishments are described below. — Patrice Pages



With Interim BNL Director Peter Paul (back, right) are the recipients of BNL's 2002 Brookhaven Award: (back, from left) Naomi Pappas, Medical Department; Salvatore Marino, Physics Department; (front, from left) Noelwah Netusil, Medical; Susan C. Foster, Human Resources & Occupational Medicine Division; Christopher Johnson, Plant Engineering Division; and Mona S. Rowe, Community, Education, Government & Public Affairs Directorate. (Photo by Roger Stoutenburgh D0290203)

Susan C. Foster

Susan Foster of the Human Resources & Occupational Medicine Division, who joined BNL in September 1977, was recognized for the excellent service she has provided to BNL employees, management, and the outside community, which has made her a major contributor to the quality of life at the Lab.

In 1985, Foster was appointed Employee Relations Coordinator and has been honored for doing a remarkable job of balancing the concerns and issues of Lab's employees with its business needs. (continued on page 2)

Christopher Johnson

Christopher Johnson received a Brookhaven Award for outstanding contributions during his 20 years of service to BNL since May 1983.

Johnson is Deputy Manager of PE's Operations & Maintenance Division, an organization of more than 300 people. His responsibilities include management and financial decision-making affecting the day-to-day operation of PE's craft labor workforce members, who support, operate and maintain the Lab's scientific facilities. (continued on page 2)

Noelwah Netusil and Naomi Pappas

Medical Associates Noelwah Netusil and Naomi Pappas, who joined the Lab in October 1970 and January 1968, respectively, received the Brookhaven Award for their dedication and excellence in subject recruitment, medical care, and implementation of clinical research documentation for the positron emission tomography (PET) imaging program. PET machines make it possible to measure the concentration and provide an image of positron-emitting radionuclides that are present in a specific area of the body. At BNL, (continued on page 2)

Salvatore Marino

Recognized for his dedication and "can-do" attitude, Salvatore Marino received a Brookhaven Award for his outstanding work as the lead mechanical technician of the PHENIX detector, one of the experiments at BNL's Relativistic Heavy Ion Collider (RHIC).

Marino supervised the team responsible for the mechanical assembly and installation of PHENIX in the experimental hall at RHIC. He and his team were critical to the successful completion of this complex detector, which (continued on page 2)

Mona S. Rowe

Mona S. Rowe, Media & Communications Manager in the Community, Education, Government Public Affairs Directorate, won the Brookhaven Award for her remarkable job in managing media and communications for the Lab. She was recognized for her ability to strategize and manage communications on sensitive issues, while simultaneously taking advantage of opportunities to showcase the Lab's scientific achievements, often within a very few hours to accommodate a reporter's deadline. Rowe, who joined BNL in 1977, (continued on page 2)

Calendar
of Laboratory Events

- The BERA Sales Office is located in Berkner Hall and is open weekdays from 9 a.m. to 3 p.m. For more information on BERA events, contact Andrea Dehler, Ext. 3347; or Chris Carter, Ext. 2873.
- Additional information for Hospitality Committee events can be found at the Lollipop House and the laundry in the apartment area.
- The Recreation Building (Rec. Bldg.) is located in the apartment area.
- Contact names are provided for most events for more information.
- Calendar events flagged with an asterisk (*) have an accompanying story in this week's Bulletin.

— EACH WEEK —

Weekdays: Free English for Speakers of Other Languages Classes

Beginner, Intermediate, and Advanced classes. Various times. All are welcome. Learn English, make friends. See www.bnl.gov/esol/schedule.html for schedule. Jen Lynch, Ext. 4894.

Mondays: BNL Gospel Choir

5:15-7 p.m. Berkner Hall. All faiths are welcome. www.bnl.gov/bera/activities/choir/.

Mon., Tues., & Thurs.: Kickboxing

\$5 per class. Mon. & Thurs. noon-1 p.m. in the gym; Tues., 5:15-6:15 p.m. in the gym; Thurs., 5:15-6:15 p.m. in Brookhaven Ctr. Registration is required. Mary Wood, Ext. 5923, or wood2@bnl.gov.

Mon., Thurs., & Fri.: Tai Chi

Noon- 12:45 p.m., Brookhaven Center North Room. Adam Rusek, Ext. 5830 or rusek@bnl.gov.

Mondays: BNL Dance Club Ballroom, Latin & Swing Practice

5:30-7 p.m. North Ballroom, Brookhaven Center, except Lab holidays. Jean Logan, jlogan@bnl.gov or Ext. 4391.

Tuesdays: Welcome Coffee

10-11:30 a.m. Rec. Bldg. Hospitality event. Come and meet friends. The first Tuesday of every month is special for Lab newcomers and leaving guests. Hospitality Chair Monique de la Beij, 399-7656.

Tuesdays: BNL Music Club

Noon, North Room, Brookhaven Center. Come hear live music. Joe Vignola, Ext. 3846.

Tuesdays: Singles Club

12:30-1:30 p.m., Berkner Hall. Contact: Jean, Ext. 4391, Patrick, Ext. 3270.

Tuesdays: BNL Dance Club Individual & Couples instruction

5-11 p.m. North Ballroom, Brookhaven Center. Ron Ondrovic, ondrovic@bnl.gov or Ext. 4553.

Tuesdays: Toastmasters

1st and 3rd Tuesday of each month , 5:30 p.m., Bldg. 463, room 160. Guests, visitors always welcome. www.bnl.gov/bera/activities/toastmasters/default.htm.

Tuesdays & Thursdays: Aerobics

5:15-6:30 p.m., \$4 per class. Rec. Bldg. Pat Flood, Ext. 7886.

Tuesdays & Thursdays: Aqua Aerobics

5:15-6:15 p.m. Mary Wood, Ext. 5923.

Wednesdays: On-Site Play Group

10 a.m.-noon. Rec. Bldg. An infant/toddler drop-in event. Parents meet while children play. Svetlana Agafonova, 205-5065.

Wednesdays: Weight Watchers

Noon-1 p.m., Brookhaven Center South Room. Mary Wood, Ext. 5923, wood2@bnl.gov.

Wednesdays: Yoga Practice

Noon-1 p.m., Brookhaven Ctr. Free. Ila Campbell, Ext. 2206.

Wednesdays: Open Chess Night

5-8 p.m., Rec. Hall. Christine Carter, Ext. 5090.

Wednesdays: Exercise 101

5:15-6 p.m., Rec. Bldg. \$4 per class or \$35 for 10 classes. Stretching, low-impact aerobics, and other exercises. Pat Flood, Ext. 7886.

Wednesdays: Dance Club Group Lessons

5-9 p.m. North Ballroom, Brookhaven Center. Marsha Belford, belford@bnl.gov or Ext. 5053.

Fridays: Family Swim Night

5-8 p.m. at the BNL Pool. \$5 per family.

Fridays: BNL Social & Cultural Club

8-11:30 p.m., Brookhaven Ctr., social. Rudy Alforque, Ext. 4733, rudy@bnl.gov.

Saturdays: BNL Dance Club Monthly Ballroom Dance Social

8-11:30 p.m. Ballroom, Latin & swing dancing, North Ballroom, Brookhaven Center. 3/15, 4/12, 5/17. Marsha Belford, belford@bnl.gov or Ext. 5053.

March Is Women's History Month

Don't miss the "Famous Women of Our Time" exhibit, which is on display this month in Berkner Hall. The Women's Program Advisory Committee will raffle off two copies of the book "The Quotable Woman" each week during the month. Free tickets are available at the display in Berkner Hall.

THIS WEEKEND

Saturday, 3/8

Model Bridge Contest

8:30 a.m.-2 p.m. Berkner Hall. Model bridges by Suffolk high school students will be tested by BNL engineers.

— NEXT WEEK —

Monday, 3/10

*Brookhaven Women in Science Talk

Noon, Berkner Hall. Joanna Burger, Rutgers University, on "Understanding How Animals Prosper in Habitats Affected or Dominated By People." Page 3.

BNL's United Way Fund Drive Team Celebrates!



The final tally of BNL contributions to the United Way following this year's fund drive was \$119,754 — well over the \$115,000 goal — so BNL's successful United Way fund-drive volunteers celebrated their achievement at a wrap-up breakfast on February 12. The team of captains, led by this year's campaign chair Linda Sinatra and co-chair Susan Monteleone, had used a variety of fund-raising methods to help reach the goal. Their activities included: a holiday auction which raised \$9,046, a yard sale run by the Plant Engineering (PE) Division which netted \$1,839, and a 50/50 raffle which enlarged the total by \$1,669. The Magnet Division, Staff Services, PE, and the Police Group also conducted raffles, penny wars, gift wrapping, and coffee and pastry sales. In addition, BSA donated \$20 per hour — with a \$10,000 ceiling — for every hour of volunteer service completed by BNL employees for a wide variety of local charitable activities. Said Sinatra, "The United Way Program at BNL and the employees who volunteered this year were a great team. There is nothing stronger than the heart of a BNL volunteer."

Foster



(cont'd.)

Among her most notable accomplishments have been her outstanding work on the establishment, development, and oversight of the on-site Child Development Center, and, for example, her ongoing organization of the on-site blood drives and the "Take Our Daughters/Sons to Work Days." In addition, Foster's deep commitment to various organizations in the community outside the Lab has contributed to BNL's reputation as a good neighbor. For instance, she is a long-serving member and current Chairperson of "RESPONSE of Suffolk County," a community-based not-for-profit corporation that provides programs and services to assist people suffering with mental illness, and helps prevent self-destructive and suicidal behavior. Foster has served as a New York State certified ombudsman for the elderly and others residing in nursing homes, and has performed volunteer services as a patient-advocate for the Brookhaven Memorial Hospital Emergency Room.

Johnson



(cont'd.)

Johnson's underlying philosophy in carrying out his duties is that maintenance resources must align with scientific initiatives at BNL. He oversees PE's "Recurring Maintenance" program, which allocates scarce resources to crucial maintenance projects. He also chairs PE's environment, safety & health subcommittee for injury reduction, and played an important role in the successful PE effort to obtain International Organization for Standardiza-

tion 14001 environmental management system certification.

In Lab-wide programs outside PE, Johnson has served on the BNL Environment, Safety & Health Management Advisory Group, chaired the Reactor Ad-Hoc Committee, and is active in the Community, Education, Government & Public Affairs Directorate's Envoy program. In 2000, he was awarded the Lab's first-ever "Earth Day Award" for his support of BNL's environmental programs. Johnson also created and ran the PE yard sale that raised more than \$3,000 for BNL's United Way campaign.

Netusil, Pappas (cont'd.)



scientists have used PET as a window into the function of the brain to gain insights into, for example, the causes of addiction, attention deficit hyperactivity disorder, and eating disorders.

Pappas is in charge of recruiting and screening volunteer subjects, as well as ensuring the quality of subject records and research documents. She is also responsible for coordinating imaging studies and procedures.

A registered nurse, Netusil first worked at BNL's research hospital until it closed, then joined the PET group in 1977. She oversees nursing care for the subjects of imaging studies and ensures the completeness and confidentiality of medical records, and adherence to study protocols. She also trains new nursing staff.

For the past 16 years, Netusil and Pappas's dedication and professionalism have been key to BNL's success in PET research with human subjects, making BNL one of the

leading institutions in the use of PET for the study of drug addiction worldwide. Recent reviews of BNL's work with human subjects, conducted by the Office of Human Subjects Protection and the Joint Commission on Accredited Hospital Organizations, earned BNL outstanding scores, for which Netusil and Pappas are given much credit.

Marino



(cont'd.)

weighs 4,000 tons and has a dozen detector subsystems, produced by academic institutions and industries, both national and international. Since 1990, Marino has actively participated in PHENIX's assembly and installation, interacting with students, scientists, technical staff, and industrial partners from BNL and the world over.

Marino's first link to BNL was formed in 1973, when, as a University of Illinois employee, he worked on two neutrino experiments, E596 and E605, at the Lab. Transferring to BNL in 1979, he helped build 120 drift-tube chambers and 120 liquid scintillator walls for E734, another neutrino experiment.

Previously, 1985-90, Marino had helped build the 300-ton central calorimeter that was BNL's contribution to the D-Zero experiment at Fermi National Accelerator Laboratory. The top quark, a fundamental building block of matter, was discovered in 1995 by Fermilab's D-Zero and CDF experiments.

Rowe



(cont'd.)

managed the Lab's media relations efforts during one of the most turbulent times in its history and continues to

MRI Detection (cont'd.)

swelling would be a decrease in overall water diffusion, consistent with the MRI result," Springer explains. "But this would be true only if water tended to diffuse more slowly inside than outside, which is not what we see."

If these new observations are confirmed by future experiments, "It would mean that the cell swelling known to occur following a stroke is not related to the decrease of water diffusion in the stroke area," Springer says. "Some other mechanism must be active."

Springer and Lee believe that a possible explanation for their observations is that affected cells lose considerable energy, which reflects in a decrease in the speed of water diffusion inside the cells, independently of swelling.

"An effect resulting from a decrease in cellular energy after a stroke would be actually more interesting than one coming from a straightforward water shift into cells," Springer says. "The MRI data might be telling us something more directly about the energetic health, or metabolism, of brain cells in the affected region."

The scientists have also collected further evidence for their observations from their past studies and those of other scientists, such as recent work by Christopher Sotak, a professor of biomedical engineering at Worcester Polytechnic Institute in Massachusetts, and his collaborators, who have made similar observations on rat brain cells.

This new analysis of MRI data has implications in many other areas, Lee says, including assessment of tumor heterogeneity, discrimination of brain tissue affected by multiple sclerosis, and a new method for detecting brain activity.

For example, physicians can map brain function by using an MRI technique called functional MRI (fMRI), but "It is usually extremely difficult to separate changes in blood flow from changes in brain metabolism," says Lee. "So a diffusion-weighted fMRI method interpreted in light of the shutter-speed concept would provide information on only the metabolic changes of brain activity and, thus, would be an extremely valuable alternative to current fMRI techniques." — Patrice Pages

handle highly visible, controversial issues effectively.

Rowe's dedication and ingenuity are also apparent in her handling of publicity for the Lab's scientific achievements. The continuing coverage of the Relativistic Heavy Ion Collider and BNL's addiction research in major science publications illustrate her fine work. Recently, she successfully organized a widespread communications campaign on Ray Davis's Nobel prize-winning work, using scientific and biographical information that she had amassed from Davis's collaborators and family to ensure that he and the Lab received appropriate recognition.

Under Rowe's watch, BNL received a Big Apple award from the Public Relations Society of America for extensive media coverage of its addiction research, and the CEGPA directorate received an outstanding rating from its peer group for building national recognition for the Lab, largely as a result of her efforts.

New BNL-BSA Doctoral And Postdoctoral Awards

Brookhaven Science Associates (BSA) will present two new types of awards to be first given in fiscal year 2003: three Postdoctoral Research Awards of \$5,000 each, to honor excellent research carried out by postdoctoral researchers working at BNL; and two Doctoral Student Awards of \$3,000 each, to honor excellent research performed by doctoral students working with a BNL-affiliated scientist.

Eligible candidates for the postdoctoral award must hold a postdoctoral position and work on research with a BNL-affiliated scientist, must have an appointment at BNL, and should be at least one year and no more than three from the initiation of their postdoctoral appointment.

Eligible candidates for the doctoral student awards must be a doctoral student working on research with a BNL-affiliated scientist, and should not be more than one year from the projected completion or more than one year after the completion of their degree program.

The procedure to nominate candidates for these awards and the nomination forms are available online at www.bnl.gov/scied/awards/index.html. Nominations will be accepted continually; as no deadline has been set yet. For each award, a panel of three BNL research scientists will consider all nominations and make the final selections.

Service Anniversaries

The following employees celebrated BNL service anniversaries during January 2003:

35 Years	
Naomi Pappas	Medical
25 Years	
John Lemmon	Info. Tech.
Hue-Anh Pham	C-A
John Gallagher	NSLS
Samuel Aronson	Physics
James Gordon	Ctrl. Shops
Roy D'Alsace	NSLS
Ernst Sohn	Ctrl. Shops
Helen Todosow	ES&T
Jeanne Madaia	EENS
20 Years	
Donald Shea	Ctrl. Shops
L. Doon Gibbs	DO
10 Years	
Pauline Pearson	NSLS
Linda Jones	Fiscal
Anthony Boggi	PE
Dorothea Nash	Staff Svcs.
Joseph Triolo Jr.	PE
Charles Barrett	Staff Svcs.
Timothy Caufield	PE

Arrivals & Departures

Arrivals	
Michal Herman	ES&T
Robert Hwang	CFN
Ralph Schoenfeld Jr.	C-A
Frances Smith	Staff Svcs.
Departures	
Gordana Adzic	Mat. Sci.
Selestine Brown	Staff Svcs.
Ratnakar Chitte	Biology
Kelvin Li	Physics
Anthony Salvo	PPM

EAP Outreach, 3/11 'Caring for Parents'

As part of the Employee Assistance Program outreach, Nursing Supervisor Mary Anne Selvey will present a workshop on "Caring for Our Elderly Parents: Making the Right Decisions," on Tuesday, March 11, from noon to 1 p.m., in Berkner Hall. Selvey will address the signs of deteriorating health and causes of confusion in the elderly. With Selvey will be Billie Anshen, senior care placement consultant, who will address practical issues of obtaining care for an elderly relation.

BERA Trip to NYC

Some seats remain on the BERA bus trip to the American Museum of Natural History on Sunday, March 30, to see the Space Show and the Einstein Exhibit. The price, including museum admission, is \$38 for adults, \$30 for children. Tickets and more information are available at the BERA Sales Office, Ext. 3347.

In Memoriam

Robert E. Mills, who died on August 8, 2001, at age 65, had been a guest technician in the Medical Department from October 14, 1968, to July 13, 1979. He then joined BNL's staff as a physics associate III in the Health Physics Division on July 16, 1979, and retired as a physics associate I from the Department of Applied Science on January 6, 1994.

Mary C. Hall, who had joined the Physics Department as a technician A on June 21, 1948, died on April 13, 2002, at the age of 93. She had retired from Physics on March 30, 1973, as Staff Area Supervisor.

Francis Pechar, whose first day at BNL was on January 23, 1961, when he had joined the Mechanical Engineering Division as an operations engineer III, died on May 2, 2002. He was 74. He had retired from the Physics Department as a technical associate I on June 30, 1983.

COMPUTER TRAINING

The following PC training classes have been scheduled for March and April:

date	class	level
3/10	FrontPage	1
3/11	Outlook	1
3/12	PowerPoint 2000	1
3/13&14*	Access	2
3/17	Windows 2000	2
3/18	Word 2000	1
3/19	Excel 2000	2
3/21	Project 2000	2
3/31	Excel 2000	1
4/1	Windows 2000	1
4/2	Outlook 2000	2
4/3&4*	Access	1
4/7	Word 2000	2
4/8	PowerPoint 2000	2
4/9	Excel 2000	3
4/10&11*	Project 2000	1
4/14	HTML Web Authoring	3
4/15&16*	Access	3
4/29	Word 2000	1

*Two-day class

The training fee for the on-site classes listed above is \$151 per day of training. BNL employees with supervisor approval can also register for classes at the New Horizons Computer Learning Centers located in Commack and Westbury. To register, to view class outlines, expanded schedules, and for more information go to <http://www.bnl.gov/itd/training> or contact Chris Herbst, Ext. 5304 or herbst@bnl.gov.

Wildlife on the BNL site is not at all limited to the Upton Ecological Research Reserve. A young raccoon, who was crossing the field behind the Biology Department in the late afternoon two weeks ago, took refuge in the nearest tree at the approach of Lab Photographer Roger Stoutenburgh.



Roger Stoutenburgh

U.S. Fish & Wildlife Lunchtime Seminar, 3/11

Did you know that local high-school students are conducting a survey on gypsy-moth egg mass that will help predict BNL's gypsy-moth population? Learn about this and much more at a brown-bag lunch seminar at noon on Tuesday, March 11, in Berkner Hall, Room B, where the on-site U.S. Fish & Wildlife Service staff will talk about their duties, accomplishments, and upcoming projects for the on-site Upton Ecological Research Reserve. All are invited.

Exploring Research Library Resources IEEE Xplore, 3/10

On Monday, March 10, the Research Library will hold a brown-bag seminar in Berkner Hall, Room C, from noon to 1 p.m., when an information specialist will discuss IEEE Xplore, a database available to the Lab community through the Library. Attendees will learn how to: gain full-text access to IEEE resources; search IEEE conference proceedings, transactions, and journals; and access current IEEE Standards. They will also learn how to set up alerts to stay informed about the latest developments in their field. Refreshments and door prizes will be offered. For more information, go to www.bnl.gov/isd/reslib/LunchSem.htm.

Perfect Attendance Photo Op., 3/20

Perfect Attendance awardees, who have been invited to an achievement celebration at 3 p.m. on Thursday, March 20, in Berkner Hall, are asked to arrive at 2:45 p.m. that day so they can be included in a group photo to be taken at that time.

Brookhaven Women in Science-Sponsored Talk 'Understanding How Animals Can Prosper In Habitats Affected or Dominated by Humans'



Join Joanna Burger, author and Professor of Biology at Rutgers University, at noon in Berkner Hall next Monday, March 10, when she presents "Understanding How Animals Can Prosper in Habitats Affected or Dominated by Humans," a talk sponsored by Brookhaven Women in Science.

Burger's research interests include urban ecology, behavioral ecology, behavioral development, ecotoxicology, and ecological risk. She serves on several national and interna-

tional committees to solve problems of the environment, including the U.S. National Academy of Science's Committee on Endocrine Disruptors and the Commission on Life Sciences. Burger's talk at BNL will focus on her book, *The Parrot Who Owns Me*.

BERA Volleyball Standings, 2/28

Open League A	W - L	Mixed League 2	W - L
UCB Roof Co.	45 - 12	Upsetters	42 - 6
Shank, Carry, Throw	38 - 19	Nuts and Bolts	38 - 10
Death Volley	33 - 24	New Blood	31 - 17
Far Side	22 - 35	Group Sets	27 - 21
Scared Hitless	3 - 51	Spiked Jello	26 - 22
Open League B	W - L	Underdogs	15 - 33
STAR Destroyers	42 - 6	Court Jesters	8 - 40
Easy Spikers	36 - 15	Balls and Babes	5 - 43
What Ball, Where?	29 - 22	Mixed League 3	W - L
Late Entry	30 - 24	Upton Ups	54 - 9
PHENIX Fire	26 - 28	Castaways	33 - 27
Setting Ducks	25 - 29	NWO	33 - 33
Bumpin Ugliers	11 - 43	Newbies	19 - 44
Cogito Ergo Boom	11 - 43	Net Workers	20 - 46

Calendar

Monday, 3/10 (cont'd.)

***Explore Research Library Resources**
Noon, Berkner Hall, Room C. Talk on IEEE Xplore. See notice on page 3.

***BSA Colloquium**
4 p.m., Berkner Hall. Carl Barrett will present "Molecular Oncology: Translating New Advances to Cancer Therapies." See story on page 1.

Tuesday, March 11

Talk on Care for Elderly Parents
Noon-1 p.m., Berkner Hall. As part of the EAP Outreach series, Mary Anne Selvey will present "Caring for Our Elderly Parents: Making the Right Decisions." All are welcome. See notice on page 3.

On-Site U.S. Fish & Wildlife Seminar
Noon-1 p.m., Berkner Hall, Room B. Lunch seminar about the on-site Upton Ecological Research Reserve. All are welcome. See notice at left.

Wednesday, 3/12

One-Day Vacuum Seminar
8:30 a.m.-12:30 p.m., Berkner Hall, Room B. Sponsored by Varian Vacuum Technologies, presented by Johan de Rijke, an expert in vacuum technology. Limited seating is available. Register in advance by e-mail, jim.primm@vari-aninc.com, or by phone at (516) 795-3320.

Rifle & Pistol Club Meeting
Noon, Conference Room, Bldg. 535. All are welcome to learn about the club's activities. Jim Durnan, Ext. 5993 or www.bnl.gov/bera/activities/rpc/

Thursday, 3/13

One-Day Vacuum Seminar
8:30 a.m.-12:30 p.m., Berkner Hall, Room B. See notice above for details and registration information.

Friday, 3/14

GLOBE Meeting
The Gay, Lesbian, and Bisexual Employee Club at BNL will hold its monthly meeting at 7 p.m. For the meeting's location, contact Debbie Bauer, Ext. 5664, or Mike Loftus, Ext. 2960. For more information about the GLOBE club, see www.bnl.gov/bera/activities/globe.

Saturday, 3/15

Hospitality Bus Trip to Manhattan
9 a.m. to about 6 p.m. Tickets cost \$10 per adult and \$5 per child age 2-12. Natalia Zelenski, 345-0913 or zelenksi@optonline.net. See notice on page 4.

— WEEK OF 3/17 —

Tuesday, 3/18

Free Movie Night
7:30 p.m. Berkner Hall. Irish film: *The Secret of Roan Innish*. All are welcome.

Wednesday, 3/19

WelcoCGI and Concoa Demo
11 a.m.-2p.m., Berkner Hall. All BNLers are welcome to attend a seminar/demonstration of compressed gas equipment. Gerry Eisenberger, (973)589-7895, Ext. 326.

BSA Music Recital
Noon, Berkner Hall. Pianoforte solo by Naomi Niskala. See next week's Bulletin for more information.

Science Education Forum
Noon-1 p.m., Bldg. 438. All are welcome to join a discussion on interesting and timely issues in science education. Refreshments will be provided. Bring your own lunch. Brian Murfin, Ext. 7171.

381st Brookhaven Lecture
4 p.m., Berkner Hall. Niels van der Lelie of the Biology Department will give the 381st Brookhaven Lecture, title to be announced.

Friday, 3/21

Women's History Month Talk
Noon, Berkner Hall. Marlene Chism, a participant of the 2002 National Training Program for Federally Employed Women, will present "Dance With Authority." All are welcome. For more information, contact Lesliam Quiros, Ext. 4772, or lquiros@bnl.gov.

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

Think Daffodils

BERA continues to sell daffodils to benefit the American Cancer Society. A bunch of ten fresh-cut flowers is \$7.

These beautiful spring bouquets may be picked up on Tuesday, March 25. Paid reservations are being taken at the BERA Sales Office in Berkner Hall, weekdays, 9 a.m.-3 p.m.

Softball Meeting Defensive Driving

On Wednesday, March 12, a softball meeting will be held at noon in Berkner Hall, Room D. The price for umpires has increased, so each team must contribute \$325. A \$50 deposit for each team will be required at the meeting so that a league structure and schedule can be made up. Other softball business will also be addressed.

A six-hour defensive driving course will be held on Saturday, March 22, 9 a.m.-3:30 p.m., in Berkner Hall, Room B. Send a check for \$26 per person, made out to Empire Safety Council, in care of Scott Zambelli, P.O. Box 670, Mount Sinai, NY 11766. Include your telephone number. No checks will be refunded after March 14.

Hospitality Bus Trip to NYC

The BNL Hospitality Committee invites participants to join a bus trip to New York City on Saturday, March 15, for \$10 per adult and \$5 per child age 2-12. The bus will depart from the Recreation Hall at 9 a.m., returning to the Lab at about 6 p.m. Buy tickets at the Recreation Hall on Tuesday, March 11, 10 a.m.-noon, or contact Natalia Zelenski, 345-0913 or zelenski@optonline.net.

Last Day to Make BERA Board Nominations

Today is the last day for BNL employees, facility-users, visitors, and guests to propose nominees for the upcoming 2003 BERA Board election. To nominate a candidate, contact a nomination committee member by 5 p.m. today, Friday, March 7. Make sure that the person being proposed will agree to accept the nomination if selected by the committee. Committee members are: James Alduino, Ext. 4696, Bldg. 911; Michael Buckley, Ext. 8097, Bldg. 725; Frank Dusek, Ext. 7947, Bldg. 912; Samantha Lin, Ext. 7387, Bldg. 527; Patrick Moylan, Ext. 5262, Bldg. 726; Alejandro Sonzogni, Ext. 5334, Bldg. 197D; Kenneth Sutter, Ext. 4514, Bldg. 480; and Susan Wells, Ext. 7427, Bldg. 459.

Classified Advertisements

Placement Notices

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

OPEN RECRUITMENT – Opportunities for Laboratory employees and outside candidates.

MK2606. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in physics, chemistry, or materials science and experience using synchrotron x-ray techniques to study soft condensed matter. Research will involve the characterization of novel liquid crystal phases as well as the study of the effects of nanoscale templated surfaces on the behavior of known liquid crystal phases. A variety of x-ray techniques, including resonant diffraction, microbeam, and glancing incidence diffraction will be used in conjunction with in-situ optical probes. Will work with an interdisciplinary team of researchers who are studying template-directed self-assembly using a variety of surface probes patterning capabilities available at the Brookhaven Center for Functional Nanomaterials. Under the direction of R. Pindak, National Synchrotron Light Source Department

MK2827. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in chemistry and experience in organic synthetic and radiochemistry, NMR spectroscopy and chromatography. Work will involve synthesis, purification, and formulation for intravenous and/or inhaled route of administration of radiolabeled solvents and vapors to be used in the PET investigation of abused inhalants. Under the direction of M. Gerasimov, Chemistry Department.

Produce, Groceries Delivered on Site?

FreshDirect is a premium on-line grocery shopping service that could deliver fresh produce, meats, and grocery items to the BNL site at the end of the work day. If enough interest is shown by the Lab community, the BNL Quality of Life Committee will consider using FreshDirect.

To show your interest, print out and complete the survey on the link from the BNL homepage, which also has a link to the FreshDirect web site at www.freshdirect.com. Surveys are also available at the BERA Sales Office in Berkner Hall. Return surveys to Christine Carter, Quality of Life and Recreation Supervisor, Bldg. 179B, by Friday, March 21.

Singers, Musicians

A one-performance choir is being set up to sing for 15 minutes on Friday, March 28, at 3 p.m. in Berkner Hall, for the upcoming 60th Joint Annual Meeting of Beta Kappa Chi Scientific Honor Society, National Institute of Science, and Brookhaven Semester Program. The first of three 1-hour rehearsals will be on Monday, March 10, around 5:30 p.m., the time to be confirmed on Monday. Singers and musicians are urgently asked to participate; contact Frances Ligon, Ext. 3709 or ligon@bnl.gov.

Remember the BNL Food Drive



Roger Stoutenburgh 00610203

Recently, this little winter wren was spotted foraging for food along the Peconic by Lab Photographer Roger Stoutenburgh. Through the generosity of many BNL employees, the Lab contributes vital food donations for hungry people in Brookhaven Town. Please continue to share with others who have less. Donation bins are available in each building for your contributions of canned or boxed goods. Or, send a check made out to BNL Food Drive to Rita Kito, Bldg. 460, or Donna Wadman, Bldg. 129.

In Stormy Weather

The Bulletin cherishes high hopes that the following information will not be needed until at least 2005, but, just in case, to find out whether the Lab is closed due to bad weather and when it will reopen, listen to:

station	area	AM	FM
WCTO/WGSM	Smithtown	74	94.3
WBLI	Patchogue		106.1
WHLI/WKJY	Hempstead	1100	98.3
WBAB/WHFM	Babylon/Southampton	1440	102.3/95.3
WLNG	Sag Harbor	1600	92.0
WALK	Patchogue	1370	97.5
WRIV	Riverhead	1390	
WLIM	Patchogue	1580	
WBZO/B103	Suffolk/Nassau		103.1

Or, call: 344-INFO (344-4636)

Furnishings & Appliances

BEDROOM SETS - oak, queen bed w/head & ft boards, dresser w/mirror, armoire, 2 nightstds., \$750; antique maple dbl. bed, dresser, nightstd., \$450; daybed, \$100; Mary, Ext. 6344.

COUCH - 3-pc. l/r sectional, white & seafoam, \$275; lighthouse scene, blues, pinks, peach frame, \$50. Vicky, 724-8200.

DINETTE - contemp. oval table, 60"x42" mica finish, 4 chairs, good cond., \$300. Mark, 476-5991.

ENTERTAINMENT CENTER - solid oak, like new, 65x52x22, \$425. 874-3398.

FURNITURE - queen mattress, box spring, frame, spotless, chrome & glass coffee & sofa tables, wood dresser & desk, \$50/ea., photo by e-mail. Janet, 744-8087.

GLASS TABLE - table w/2 glass shelves, 30" x 60" x 14", brass trim on legs, \$100. Cheryl, Ext. 2272 or 732-7634.

KITCHEN TABLE - light-colored solid pine pedestal table w/2 leaves, unopened 36" x 62", 6 chairs, \$300. Kelly, Ext. 7746 or 580-2940.

LIVING ROOM FURNITURE - Jennifer Convertible, queen sofa bed & matching lounge chair, \$600/both. Donna, Ext. 2826.

LIVING ROOM SET - rattan couch, loveseat, coffee table, \$100 obo; rattan étagère, \$20; vert. blinds, \$15 & (5) 36" off white; (1) 72" blue, hardware, \$25. Ext. 4303.

OIL PAINTING - 4' x 5' city mirrored scene, blues & pinks w/gold frame, \$250. Camelia, 924-3049.

SOFA - Flexsteel 87" sofa, comfortable, excel. cond., \$100, picture upon request. Nancy, Ext. 5744 or 929-4440.

SOFA - leather, green, queen sleeper, excel. cond., \$650 obo. Ext. 2457.

Audio Video & Computers

COMPUTERS - IBM Pentium 400 MHZ w/15" mon., \$300; Gateway Pentium, 350MHZ w/15" mon., \$250. Pierrot, 758-4328.

KENWOOD CD/RECEIVER - Kenwood model #KDC-215S, detachable face plate, \$125. Justin, Ext. 878-4360.

PC - P5-200, 10 Gig HD, CD, 3.5" floppy, Ethernet card, cabling, full software, etc. \$200; inkjet col. printer, \$50; x-lg. scanner, \$25; 17" col. EGA mon., \$150. 255-0005.

WIRELESS NETWORK - D-Link 22 Mbps wireless components, 2 pci adapters, 1 USB, access point and PCI LAN card, all boxes & docs, \$250 all. Rich, Ext. 5741.

Sports, Hobbies & Pets

CAMERA - Nikon N90s w/vertical grip battery pack, mint cond., rarely used, orig. boxes, \$575. Joe, Ext. 2384.

PUPPIES - Boston Terrier puppies, cute, papers, \$400. Tony, Ext. 7861 or 281-4799.

Free

COUCH & CHAIR - upholstered couch, 7 ft., matching chair, both in good serviceable condition. Lew Jacobson, 928-4863.

Lost & Found

LEATHER GLOVES - black, found outside Bldg. 462. Chris, Ext. 5032.

Miscellaneous

COFFEE MAKER - Cuisinart Deluxe, w/timer, grinds beans, new in unopened box, \$15; espresso/cappuccino maker, \$10. Peter, Ext. 2913.

Wanted

HOME FOR LOVABLE CLOWN CAT - neutered, all shots, litterbox trained. Laptop purrmachine. Loves people, hates cats. Pat, Ext. 3902.

OLD DECOYS - guns & other hunting related items. Paul, Ext. 5829 or 289-9152.

RESEARCH VOLUNTEERS - healthy non-smoking men and women, ages 18 and over, are needed for MRI study. Strictly confidential, fee provided. 344-2773.

SKIERS - to ski Windham 3/12, \$43 for bus & lift. Send payment to Augie Hoffmann, Bldg. 510A. For additional information please contact Augie, Ext. 3884.

TRAINS - Lionel, American Flyer & others, cast metal toys, high cash paid, also have some sets for sale. Bruce, 924-4097.

WHEELS & TIRES - to fit boat trailer, 5 lug, 14 or 15 in. wheels. Don, Ext. 5329 or 878-2215.

WITNESSES - to a minor accident at the Brookhaven Center on 2/21 around 7:00 p.m. Driver of red truck left the scene. Ext. 7406.

Happening

First Annual Gospel Music Scholarship dinner in honor of Ojetia Bright, 3/21. For additional information please contact F. Ligon, Ext. 3709 or S. Lamb, Ext. 3489.

In Appreciation

My thanks to Staff Services & the Post Office for helping out with my retirement. I also thank everyone who stopped in to say good-bye. BNL, thank you for 24 wonderful years, I'll miss you all.

— Selestine Brown

Services

DOG GROOMING, BOARDING - reliable animal lover will groom or board your pet, my home or yours. Refs. Lynn, 981-7719.

BNLers offer many other services, ranging from bricklayers to dentists to housecleaners to long-term care insurance planners and more. A full list is on the Web (address below), or call Tiffany Minter, Ext. 2345.

MK2846. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in the theory of condensed matter systems and experience in Bethe Ansatz, non-perturbative techniques and experience in working with the form factor approach. Will promote research in strongly correlated and nanoscale systems by developing mathematical tools and solving the models and on problems related to low-dimensional and nanoscale systems. Under the direction of A. Tsvelik and F. Essler, Physics Department.

NS2476. PHYSICS ASSOCIATE IV (P-1, term appointment) – Requires a minimum of a bachelor's degree in physics along with familiarity with laboratory practices and procedures. Experience with vacuum systems and vacuum ultraviolet spectrometers would be extremely valuable. Will work on several R&D projects related to the PHENIX detector upgrade program, including a fast, compact time projection chamber and a hadron blind detector. Projects involve construction and testing of new detectors using gas electron multipliers (GEMs), cesium iodide photocathodes and gases with fast drift times and good optical transparency in the deep UV region. Will take and analyze data from various laboratory test setups. Physics Department

TB2638SR. OFFICE SERVICES ASSISTANT (CW-3) - Requires an AAS degree in secretarial science or three years' relevant experience, good interpersonal, oral and written communication skills, strong network-based communication skills, and strong customer-service skills. Computer proficiency in MSOffice 2000 (Outlook, Excel, Power Point), PeopleSoft HR, and good working knowledge of Laboratory policies and procedures are desirable. Must have the ability to work under pressure, balance priorities and perform multiple tasks. Involves extensive interaction with RHIC, AGS, and Tandem user community and BNL staff. Must be responsive and resourceful in responding to the needs and problems of scientists visiting the Collider-Accelerator facility. Responsibilities will include processing guest appointments, tracking foreign national requests, issuance of BNL ID cards, coordinating safety training, monitoring training exams, issuing personal dosimeters, as well as database maintenance, meeting coordination file maintenance and mailings. Will provide administrative support to the RHIC & AGS Users' Center. Director's Office.

NS2474. ADVANCED TECHNOLOGY ENGINEER (I-7, term appointment) - Requires a bachelor's degree or equivalent experience, preferably in computer science or a related discipline, and at least five years' of relevant experience. A strong background in database (MySQL) and computer systems administration (Linux) as well as backup, data safety, scripting languages such as PERL is necessary;

programming experience in C++ or web languages (XML, PHP, JavaScript) is a plus. Will manage the on-line computing infrastructure at the STAR counting house; maintain the production environment of STAR's 15-node on-line Linux cluster, several MySQL database servers, database data logging processes, and processes which migrate database data to STAR's off-line databases. Will help manage the general-use computing environment in the counting house such as the network infrastructure, cyber-security requirements, and stand-alone computers. Will also administer the off-line database servers used in off-line event reconstruction and simulating processes. Physics Department.

Motor Vehicles & Supplies

01 HYUNDAI TIBRON - black, loaded, spoiler, 19K mi., trans. warr., \$13,000 firm. Barbara, 732-7186.

98 HONDA CIVIC HX - 5-spd., all power, 69K mi., alloy wheels, 37 m.p.g. George, Ext. 4453 or 327-9315.

96 DODGE NEON - all power, 59K mi., excel. cond., \$2,500. Ron, 804-8018.

96 SUBARU LEGACY - wagon, 79K mi., excel. cond., all records. Steve, 758-7002.

95 FORD ESCORT - a/t, a/c, p/s, 92K mi., excel. cond., new tires & timing belt, \$2,800. Rachel, Ext. 8331 or 399-2417.

95 MERCURY MYSTIQUE - green, all power, 89K mi., \$2,500. Edson, Ext. 4189.

92 NISSAN SENTRA - 5-spd., a/c, new brake system, new ignition system, v.g. cond., 136K mi., \$1,200. Yong, Ext. 2362.

92 SAAB TURBO 9000 - 5-spd., all power, 103K mi., must sell, \$2,000. Dan, Ext. 4493 or 838-8310.

91 ACURA INTEGRA GS - 5-spd., 2-dr. hb, sunroof, 163K mi., CD player, runs well, very reliable, \$2,900. John, Ext. 3736.

89 VOLKSWAGON FOX - red, 4-dr., a/c, 110K mi., good cond., \$900. Maggie, 924-2162.

88 MAZDA 626 - 150K mi., sunroof, a/c, v.g. cond., best offer. Kevin, Ext. 4409.

87 CHEVY SILVERADO BLAZER - black, new tranny, rear end & throttle body, \$4,500. John, 929-6403.

86 CHEVROLET ASTRO VAN - a/t, p/s, p/b, 130K mi., \$500. Pierrot, 758-4328.

TRAILER HITCH - class I fits '96 or newer Chrysler, Dodge & Plymouth minivans, like new w/instructions & plug in wire harness, \$50. Richard, Ext. 2216 or 734-7342.

HOOD - for 1969 VW Bug, best offer. Liz, Ext. 2346.

Boats & Marine Supplies

22' CABIN CRUISER - 1988, 4.3 Merc. engine, 6-cyl, new canvas, sleeps 4, excel. cond., \$7,000. Gail, Ext. 5850.