the Bulletin

BROOKHAVEN NATIONAL LABORATORY

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Electron Avalanche, Yet No Electronics

Roger Stoutenburgh D1220608

Southern University's Elhag Shaban (left) at BNL with his students Marcus Walker and Vontrelle Collins

In this hunt at the National Synchrotron Light Source (NSLS), the needle is a small amount of iron and the haystack is a tree leaf composed of a messy mass of numerous metallic elements. The complexity of a needle-haystack search is experienced by researchers using x-ray fluorescence experiments. Dilute elements — those with low concentrations in a material — are extremely hard to pinpoint because of their weak signals and interfering noise.

Recently, though, physicists Peter Siddons and Tony Kuczewski of the NSLS Department and Southern University (SU) Professor Elhag Shaban have tested a way to amplify these small signals, creating a signal stronger than those produced by traditionally used detectors. Their results were published in the November 11, 2007 issue of *Nuclear Instruments and Methods in Physics Research*, with Shaban as lead author. The study was funded by the Office of Basic Energy Sciences within DOE's Office of Science and Southern University.

X-ray fluorescence is a powerful technique used often in the

see ***Detecting*** *on page 2*

Ralph Weston Jr.: Senior Chemist Emeritus

Roger Stoutenburgh D0580608

After nearly 57 years of service at BNL, Ralph Weston Jr. has been named Senior Chemist Emeritus. Weston, widely known in the field of chemical kinetics, photochemistry, and laser spectroscopy, officially retired in 1994 but has remained active at the Lab and in the chemical physics community ever since. With his new Emeritus title, Weston has retained his BNL badge and life number along with many of the rights, privileges, and obligations of active employees.

"Weston is known by his colleagues at Brookhaven, across the country, and internationally as a broadly informed, insightful member of the chemical physics community," Chemistry Department Chair Alex Harris noted. "He has made distinguished contributions to chemical kinetics and laser spectroscopy and continues to participate actively in scholarship and service since his retirement in 1994."

Weston's interest was piqued by a 1950 paper from the BNL Chemistry Department describing isotope effects in the decomposition of ammonium nitrate. Isotope effects are subtle changes in the chemical properties of elements that differ only in their nuclear mass. These effects lead to differences in chemical equilibria and in the rates of chemical reactions — kinetic isotope effects. When Weston joined Chemistry in 1951, and for the following two decades, the department was at the forefront of both experimental and theoretical research on isotope effects. Weston collaborated extensively with colleagues Jacob Bigeleisen and Max Wolfsberg. The results of these studies have led to what is now a routine use of isotope effects in deciphering the detailed mechanism of a chemical reaction.

Upon Weston's return to BNL in 1970 following a one-year sabbatical at University of California at Berkeley, his interest in chemical kinetics led him into the field of laser photochemistry. Unlike earlier methods of photochemistry in which a continuous light source provided the energy needed to break chemical bonds, lasers provide this energy in a very short pulse. This makes it possible to study reactions in real time, observing the energy distributed in products and subsequently redistributed due to molecular collisions.

In 1972, Weston co-wrote a new textbook entitled *Chemical Kinetics* with fellow BNL scientist Harold Schwarz. Chemical kinetics, the study of rates and detailed mechanisms of chemical reactions, was in a period of rapid change at that time and the book by Weston and Schwarz was one of the first to take this into account. As a result, it was widely used at colleges and universities and was even translated into Spanish.

"When you choose a career, be sure you're doing something you love to do."

— Ralph Weston Jr.

"I run into lots of people who say they used the book," Weston said. "But soon after our book was published, a bunch of books with the same approach came out. So much for the royalties," he added with a smile.

Since his retirement in 1994, Weston has worked on various projects including the study of tetrafluoromethane or carbon tetrafluoride, a greenhouse gas that can be produced in the process of making aluminum from aluminum ore. He also continues computational work on isotope effects and energy transfer.

A California native, Weston received a B.S. in chemistry from the University of California at Berkeley in 1946 and a Ph.D. in chemistry from Stanford University in 1949. While at BNL, Weston served the Chemistry Department in a

see ***Weston*** *on page 2*

Sambamurti Lecture, 7/22
Aidala talks on the Proton's Spin

On Tuesday, July 22, the 2008 Sambamurti Lecture will be given by Christine Aidala, University of Massachusetts Amherst, at 3:30 p.m. in the Physics Large Seminar Room, Bldg. 510. Aidala will talk on "The Whole Story Behind a Half: The Quest to Understand the Proton's Spin."

The proton is a positively charged subatomic particle which constitutes the nucleus of the ordinary hydrogen atom. Every atomic nucleus contains one or more protons. It has been known for nearly 80 years that the proton's spin is the same as the spin of the electron — a negatively charged subatomic particle that can be found either free, unattached to any atom, or bound to the nucleus of an atom. However, unlike the electron, still believed to be a point particle, the proton is known to be composite, made up of quarks and gluons, all of which have their own spin values.

Since a surprising measurement in the late 1980s revealed that the proton's subcomponents did not build up its spin as expected, scientists have maintained an ongoing quest to unravel this puzzle. As part of these worldwide efforts, the spin program at the Relativistic Heavy Ion Collider (RHIC) has been colliding high-energy beams of polarized protons since late 2001. Aidala, a member of RHIC's PHENIX experiment since the first polarized proton run, has made measurements probing both the transverse as well as the longitudinal spin structure of the proton, helping to elucidate the structure of one of the fundamental building blocks of ordinary matter.

Aidala received her B.S. degree in physics from Yale University in 1999 and her Ph.D. in high-energy nuclear physics from Columbia University in 2005. She is currently a postdoctoral research associate working for the University of Massachusetts, Amherst.

The Sambamurti Memorial Lecture was established in 1992 to commemorate the work of Aditya Sambamurti, a young BNL physicist who died of cancer in 1992, at age 31. Each year, an outstanding young physicist whose professional interests overlap those of Sambamurti is selected to deliver the lecture.

Roger Stoutenburgh D0230708

Christine Aidala

Roger Stoutenburgh D1500608

National Nuclear Data Center Hears From Users

BNL staffers were among those attending a workshop seeking input from users of the National Nuclear Data Center (NNDC) on a variety of issues relating to neutron cross-section covariances.

Managed by BNL, the NNDC is a worldwide resource for nuclear data. Scientists working for the NNDC, collect, evaluate and disseminate nuclear physics data for basic nuclear research and for applied nuclear technologies. The recent workshop, held in Port Jefferson on Long Island, focused on covariance evaluation methodology, recent covariance evaluations and user perspectives on covariance data needs for applications including advanced or "fourth-generation" nuclear reactors, as well as nuclear criticality safety, shielding and dosimetry applications.

Neutron cross-section uncertainties and correlations, commonly known as covariances, are emerging as a very hot topic in nuclear data due to considerable demand for advanced simulations of nuclear systems. Such simulations allow detailed prediction of design and operational margins, with significant impact on reduction of cost in developing new systems and in optimized operations of existing systems. — Kay Cordtz

Calendar
of Laboratory Events

- *The BERA Store in Berkner Hall is open weekdays from 9 a.m. to 3 p.m. For more information on BERA events, contact Andrea Dehler, Ext. 3347, or Christine Carter, Ext. 2873.*
- *Additional information for Hospitality Committee events may be found at the Lollipop House and the laundry in the apartment area.*
- *The Recreation Building #317 (Rec. Hall) is located in the apartment area.*
- *Contact names are provided for most events for more information.*
- *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, 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 Social & Cultural Club
Noon-1 p.m., Brookhaven Center, South Room, free beginners dance lessons. Rudy Alforque, Ext. 4733, alforque@bnl.gov

Mondays & Wednesdays: Pilates
To be resumed in September

Mondays & Thursdays: Kickboxing
$5 per class. Noon-1 p.m. in the gym. Registration is required. Ext. 8481

Mon., Thurs., & Fri.: Tai Chi
Noon-1 p.m., B'haven Cntr N. Rm. Adam Rusek, Ext. 5830, rusek@bnl.gov

Tuesdays: Hospitality Coffee
To be resumed in September

Tuesdays: BNL Music Club
Noon, B'haven Center, N. Room. Come hear live music. Joe Vignola, Ext. 3846

Tuesdays: Knitting Class
2-4 p.m. Berkner Hall lobby. All levels of skill. Ext. 5090 for information.

Tuesdays: Jiu Jitsu
6:30-7:30 p.m. Gym. All ages, 6 yrs. to adult. First-time students get first class free. $10/class, pay as you go. Tom Baldwin, Bldg. 452, Ext. 4556

Tuesdays: Toastmasters
1st & 3rd Tuesday of month, 5:30 p.m., Bldg. 463, Rm 160. Guests, visitors welcome. www.bnl.gov/bera/activities/toastmstrs/

Tue., Wed. & Thu: Rec Hall Activities
5:30-9:30 p.m. General activities, TV, ping pong, chess, games, socializing. Christine Carter, Ext. 5090

Tue., Thurs. & Fri.: Ving Tsun Kung Fu
Noon-1 p.m., B'haven Center, North Room. Taught by Master William Moy. Scott Bradley, Ext. 5745, bradley@bnl.gov

Tuesday & Thursday: Aerobic Fitness
To be resumed in September

Tuesday & Thursday: Aqua Aerobics
To be resumed in September

Wednesdays: On-Site Play Group
10 a.m.-noon. Rec. Hall. Infant/toddler drop-in event. Parents meet while children play. Petra Adams, 821-9238

Wednesdays: Ballroom Dance Class
B'haven Center, N. Ballroom. Instructor: Giny Rae. Starts September 12 and 19. Ext. 3845

Wednesdays: Weight Watchers
Noon-1 p.m. Michael Thorn, Ext. 8612

Wednesdays: Yoga
Noon-1 p.m., B'haven Center. Free. Ila Campbell, Ext. 2206, ila@bnl.gov

Wednesdays: LabVIEW
1:30-3 p.m., Bldg. 515, 2nd fl. Seminar Rm. Free technical assistance from LabVIEW consultants. Ext. 5304

Thursdays: BNL Cycletrons Club
Noon-1 p.m., First Thurs. of month. Berkner, Rm. D. Toni Hoffman, Ext. 5257

Thursdays: Reiki Healing Class
Noon-1 p.m., Call for location. Nicole Bernholc, Ext. 2027

Fridays: Family Swim Night
5-8 p.m. BNL Pool. $5 per family

Fridays: Family Gym Night
5-8 p.m. Family gym activities. Free

Fridays: BNL Social & Cultural Club
Noon-1 p.m., B'haven Center, S. Room, free beginners dance lessons. 7-11:30 p.m. N. Ballroom, Dance Social, workshops. Rudy Alforque, Ext. 4733, alforque@bnl.gov

CIGNA Representative

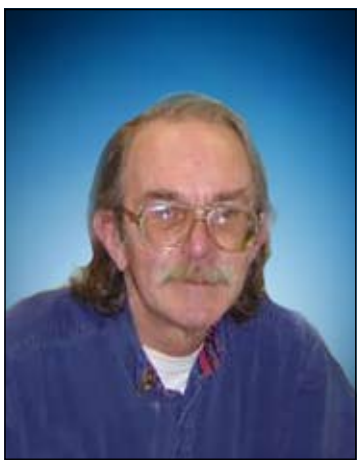
A CIGNA Healthcare representative is available as needed in Human Resources, Bldg. 400, or by phone to assist with claims issues you have been unable to resolve yourself through CIGNA's Customer Service number (1-800-CIGNA24). Mary Beth Kivlen will be available by appointment only. You will need to provide all pertinent documentation. To schedule, call the Benefits Office, Ext. 5126.

In Memoriam, Thomas Burrows

Thomas Burrows, a physicist in the Energy Sciences & Technology Department's National Nuclear Data Center (NNDC), died on July 1, 2008. He was 65.

Burrows received his B.S. in 1965 and Ph.D. in 1972 from the University of Wisconsin, Madison. After working as a nuclear information research associate at the University of Kentucky, 1972-74, under a program sponsored by the National Academy of Sciences and the National Science Foundation, he joined BNL on September 9, 1974, as an assistant physicist. He was named physicist on October 1979.

Pavel Oblozinsky, NNDC Division Head, and the members of his group have created a web memorial for their colleague and friend to show his fine qualities and valuable contributions over the years. These include his leadership in the early Evaluated Nuclear Structure Data File (ENSDF) responsibilities, when he published 27 mass-chain evaluations and contributed heavily to the creation of the NNDC databases and their online access. Burrows always kept abreast of the latest technology — at the onset of Internet he created the first NNDC Web pages. He was in charge of



Thomas Burrows, 1943 – 2008

the complex analysis codes for structure evaluations, and evaluators throughout the world who formed part of international Nuclear Structure & Decay Data (NSDD) network were grateful to him for his meticulous care in maintenance of those codes. For the NNDC he maintained the extremely complex software used in production of the Nuclear Data Sheets journal. He also mentored a new generation of ENSDF evaluators who in turn appreciated his patience and thorough approach.

The NNDC group concludes, "Tom was a very conscientious, dedicated, and hard-working person with a keen sense of detail. He had an almost encyclopedic knowledge in many fields of interest and was always ready to help anyone, anywhere. Above all, Tom was a very decent human being! He will be dearly missed by his family, his colleagues at the NNDC and all the evaluators of the international Nuclear Structure and Decay Data Network."

In addition to the tributes of his BNL colleagues, many messages from all over the world attest, to quote one description as an example, to Burrows as "a rare combination of superlative professionalism and modesty, a very peaceful and civilized person."

A resident of Shoreham, Burrows is survived by his wife Lucy, son Sean, daughter Laura, and two grandchildren.

More details on Thomas Burrows' contributions, including a list of his publications and many personal messages from colleagues in the U.S. and abroad, are posted on the Bulletin's new Obituary Page (see notice above, right), by permission of the NNDC group, which had already posted this memorial on its own BNL webpage. For more information about the NNDC's recent workshop on neutron cross-section covariances, see story, page 1.

BNL's New Online Obituary Page

Share your memories.

http://www.bnl.gov/bnlweb/pubaf/bulletin/obit.asp

If you are unfamiliar with e-mail and the web, contact Liz Seubert, Ext. 2346.

Rock Band, 8/1
Great Pop of 1960s-80s

Argent Fantasy, a Long Island-based rock band, will perform in concert on Friday, August 1, at 7 p.m. in the Brookhaven Center. Sponsored by the BNL Music Club, the concert is open to the public. All visitors to the Lab age 16 and over must bring a photo ID.

The six band members: Marty Houlroyd on bass; Bill Blais on keyboard and male lead vocals; Angie Billings, female lead vocals; Larry Weiss on percussion and vocals; and John Yaeger and Dominic Cuoccio on rhythm guitar — open up the Long Island music scene with popular sounds from the 1960s to 1980s. They include hits by Jefferson Airplane and the Zombies, the Beatles, the Rolling Stones, the Doors, and more. On the pop side, the list includes hits by bands such as the Turtles and Badfinger, as well as the grassroots sounds of the Doobie Brothers, Robert Palmer, and the Eagles.

Tickets are $10 at the BERA Store or at the door. For more information go to: www.argentfantasy.com.

— Jane Koropsak

Defensive Driving
Two Parts, 7/28 & 31

The next six-hour Defensive Driving (Point & Insurance Reduction) course will be held in two parts on Monday and Thursday: July 28 and 31, in the Brookhaven Center South Room, 6-9:15 p.m. The course is open to BNL, BSA, and DOE employees, facility-users, and their families. The cost is $38 per person. Preregistration is required. To register, call Ed Sierra, 821-1013, and leave a message. Include your phone number. For more information, call Sarah Wiley, Ext. 4207.

BSA Noon Recital: Pianofest, 7/23

At noon on Wednesday, July 23, in Berkner Hall, prize-winning young pianists who are participating in Pianofest, a summer workshop held in the Hamptons, will perform in a free recital sponsored by Brookhaven Science Associates, the company that manages BNL. The concert is open to the public. All visitors to the Lab age 16 and over must bring a photo ID.

Talk: 'Early Detection of Kidney Disease,' 7/21

A talk on "Early Detection of Kidney Disease" will be presented by the Janet & John Raggio Nephrology Institute, noon-1 p.m. on Monday, July 21, in the Medical Department Large Conference Room, Bldg. 490. All are welcome, especially adults who are in the early stages of renal disease, or diagnosed with diabetes, hypertension, heart disease, anemia, or high cholesterol, or with a family history of hypertension, diabetes or chronic kidney disease. In the U.S., the leading causes of kidney failure are diabetes and high blood pressure. There will be an opportunity for attendees to provide a urine sample for testing. Registration is requested — please contact Michael Thorn, mthorn@bnl.gov or Ext. 6612, before the lecture.

Benefits Office Reminder on Deadlines

The birth of a child, adopting a child, or getting married are all exciting life events. Please remember to enroll any newly attained dependents in your medical and/or dental programs within 30 days from the date your new dependent is born, adopted, or otherwise becomes eligible for coverage. If you do not enroll your dependent through the Benefits Office within 30 days from the date he/she first becomes eligible, you will be required to wait until the next Open Enrollment Period to enroll him/her. Call the Benefits Office, Ext. 2877 or Ext. 5126, if you have any questions.

***Weston** from page 1*

number of roles. He was an assistant chairman from 1974 to 1979 and then assumed the role of associate chairman, which he held until 1981. He served as acting chairman for several months in 1981 and 1982 and as deputy chairman until 1990.

Weston has also been active in the outside scientific community. He has served as an advisor and consultant to numerous committees including the National Research Council (NRC)/National Academy of Sciences (NAS) Committee Advisory to Army Research (1975-1981), NRC/NAS Committee on Chemical Kinetics (1975-1977), NRC/NAS Advisory Board for the Office of Chemistry and Chemical Technology (1980-1981), and American Chemical Society Executive Committee, Division of Physical Chemistry (1986-1989). He was a visiting scientist at the *Centre d'Etudes Nucléaires de Saclay* in France in 1960 to 1961 and has also been a guest lecturer at Hunter College, University of California at Berkeley and Irvine, and Columbia University.

Reflecting on his experiences, Weston offered advice to both future and current scientists. "It's unfortunate that so many kids are not interested in science, and they go off into other things," he said. "My advice to them is: When you choose a career, be sure you're doing something you love to do. Don't make a decision based on what kind of paycheck you get."

— Joe Gettler

***Detecting** from page 1*

environmental and geological sciences for measuring trace element concentrations in a sample.

Typically, an x-ray spot is focused on a sample, which ionizes electrons from the material's atoms. These excited atoms relax, filling the vacancies, and in doing so, emit a "signal" in the form of x-rays at energies characteristic of a specific element. Conventional devices such as passivated implanted planar silicon (PIPS) and Lytle detectors are generally used in extended x-ray absorption fluorescence spectroscopy experiments to pinpoint weak signals. However, neither is perfect: Lytle detectors produce noise that can further hide the already weak dilute element signals, and PIPS detectors are sensitive to light and temperature changes.

"There are a lot of detectors on the market that can amplify a signal, but the trick is getting rid of the noise," said Shaban. "When you use electrical equipment to try to make a signal bigger for one element, you make noise that kills the other signals in the spectrum."

That's why Shaban, along with Siddons and Kuczewski, explored the use of a detector based on a gas electron multiplier (GEM), which amplifies a signal without electronics, and therefore, virtually without noise.

"You can think of this sort of amplification as an avalanche," Shaban said. "Similar to a single chunk of snow falling down a mountain and taking more and more snow with it until it's very big, we can accelerate a small group of electrons in a field, which hit and excite other atoms and generate other electrons over and over again until the signal is very strong."

With this technique, the otherwise small signals can be made observable. Using an arbitrary tree leaf as a sample on NSLS beamline X19, the research team tested its GEM detector against the effectiveness of the PIPS and Lytle detectors in the search for the dilute element iron. They found that the GEM device resulted in an improvement in signal amplitude by a factor of 20 and a factor of 2 when compared to the Lytle and PIPS detectors, respectively.

In addition, unlike PIPS, the GEM detector is not affected by light and is fairly independent of temperature, Shaban said. The researchers are now exploring the possibility of adding more GEMs to the device in order to detect even more dilute elements. The GEM used in the experiment was supplied by 3M Corporation.

— Kendra Snyder

Roger Stoutenburgh D0400708

Health Promotion Program Manager Michael Thorn (far left) joins several successful participants in the LEARN Program for Weight Management: (from left) Kris Duryea, Biology Department; Ruth Comas, Staff Services; Don Hensley, Facility and Operations; and Tom Baldwin, Maintenance and Fabrication Division.

Successful Losers Learn New Diet and Exercise Habits

New LEARN Session To Start in September

The LEARN Program for Weight Management, sponsored by the Health Promotion Program (HPP), has proven to be a great success at BNL, with participants' losing a total of 384.3 pounds over the course of the program. (LEARN stands for Lifestyle, Exercise, Attitudes, Relationships and Nutrition.)

"The results are great," said HPP Manager Michael Thorn. "Those who attended at least 10 of the 12 sessions of this pilot program that we had started in February lost the most weight. We will be offering a new 12-week session in September, with an informational meeting on July 24."

The goal of the program is to lose one to two pounds per week through healthy diet and exercise habits. Those who attended at least 10 of the 12 sessions offered on site lost an average of 16.95 pounds per person. Women averaged an 11.68-pound weight loss, and men averaged a loss of 20.3 pounds.

Tom Baldwin, Maintenance and Fabrication Division, lost 23 pounds during the program and would like to lose more. "I write down everything that I eat, and I make sure I don't get too hungry," he said. "My problem was that I wasn't eating enough during the day, and then I'd eat too much at night. Now I eat breakfast every day as well as healthy snacks during the day."

Baldwin runs the BERA Jiu-Jitsu Club and gets a good workout during his weekly class. He also lifts weights five days per week at the BNL gym, and he joined a second gym to work on cardio machines.

"I'm motivated to continue with the weight management program because I want to stay healthy," Baldwin said. "My father had a heart attack at age 48 – luckily, he survived." Baldwin is on the right track for good health because he has been able to stop taking his cholesterol-lowering medication after his participation in the LEARN program.

Ruth Comas, Staff Services, lost 29 pounds during the program and says she intends to lose more weight by tracking what she eats every day in writing. She also tries to exercise a minimum of 30 minutes per day at least five times per week.

"We counted calories in the program, and I now spend calories just as if I'm on a budget," said Comas. "I cut portion sizes, but since I can eat any food I want, I don't feel deprived."

Comas said she has tried many diet plans, but the LEARN Program as been the easiest way for her to lose weight. "There is no race to lose," she said. "Realistic goals are set. Another benefit for me has been lowering my cholesterol by 35 points."

Kris Duryea, Biology Department, lost 15 pounds as a LEARN pilot-program participant, and she intends to lose another 10 pounds. "The classes were entertaining, and there was a lot of class participation," she said. "The class now has one-month reunions, which I attend to keep me motivated."

Duryea said the LEARN program was so easy to follow that she thought the scale was broken when she lost several pounds after her first week on the program. Helpful for Duryea was practicing "mindful eating" — being aware of what she is eating — as well as eating slowly and understanding that your body can take up to 20 minutes before registering that you are full.

Her biggest change was making a commitment to exercise most days of the week. "I go for a 30-minute walk at least five days a week after dinner," she said. "I can think things through when I'm walking, so the exercise is good for my mental health, too."

Don Hensley, Facility and Operations, was the "biggest loser" in the program. At the end of the 12-week program, he was 40 pounds thinner, he had lost ten percent of his body fat, and his cholesterol had dropped by 60 points. He continues to follow the program, and today he maintains a 50-pound weight loss.

Hensley's family follows the LEARN program with him, and they also have been successful at losing weight. His wife and 24-year-old daughter each lost 25 pounds, and his 21-year-old daughter lost 33 pounds.

"I used to be very active, but when I had back surgery several years ago I lost my mobility and I couldn't exercise for a long time," Hensley said. "It took years, but I finally started to feel better. The LEARN program helped to reinforce that it is important to stay active. I bought a treadmill and I like camping, fishing and gardening. I like to play softball, and I plan to join the Brookhaven Town over 40 softball league again in the fall."

"The program also made me more knowledgeable about the calories in foods and appropriate portion sizes," Hensley added. "I like that I can make my own choices and control everything that I eat."

BNL employees who are interested in joining the next LEARN session must attend the informational meeting at noon in Berkner Hall on Thursday, July 24. Participants must be at least 20 pounds overweight. Space is limited to 40 people. A separate LEARN session for diabetics and pre-diabetics will also be held each week, also starting the same week in September; employees interested in these specialized LEARN sessions must also attend the July 24 meeting. For more information, visit www.thelifestylecompany.com, or contact Michael Thorn at Ext. 8612, or mthorn@bnl.gov.

— Diane Greenberg

Join Jones Beach Walk/Run/Picnic, 7/29

The BNL Running Club and BERA members will participate again in the annual MK Workplace Challenge Run/Walk at Jones Beach on Tuesday, July 29.

Last year, 50 participants from BNL took part in this event. They have great memories: Jones Beach on a July evening! A great 3.5 miles on a beautiful course! Thousands of walkers and runners from most of the major and minor companies on Long Island! Long Island's largest office picnic! This event is open to all BNL employees, their families and friends.

The event starts at 7 p.m. The BNL Captains are Paul Geiger, pgeiger@bnl.gov, Bldg. 460, Ext. 3308; and Mike Mapes, mapes@bnl.gov, Bldg. 911A, Ext. 2841. You can register online at https://secure.marathonguide.com/register/MKWorkplaceChallenge/TeamAdditions.cfm?Code=1419MdWw for $22 through July 28.

The fee for the picnic is $10 per person. Send or deliver your payment to Betty Elder, Bldg No. 1005S, in cash or in a check made out to Elder. Contact Elder, Ext. 3562 or belder@bnl.gov if you have any questions or if you would be willing to volunteer to help to set up the picnic. Thanks!

Last year's event was covered by News 12 Neighborhood Journal, and it is now on You Tube. Check it out and see how exciting this event is! http://www.youtube.com/watch?v=7phmOeiYas&fmt=6.

Brookhaven Women In Science Reception, Chasman Scholarship Presentation, 7/30

Brookhaven Women in Science (BWIS) invites the BNL community to a summer reception and presentation of the Renate W. Chasman Scholarship for Women, on Wednesday, July 30, at 5:15 p.m. in the Physics Seminar Lounge, Bldg. 510. All are welcome.

Refreshments will be served. For more information, contact Loralie Smart, Ext. 2425, or lsmart@bnl.gov.

Office Management: SCCC Course Offered on Site

Suffolk County Community College (SCCC) will offer the following course on site for the fall 2008 semester that will satisfy requirements for most SCCC degrees as a business or unrestricted elective. A minimum of 15 students is needed to offer the course.

BA52 – Office Management – 3 credits

Introduces scope and responsibilities of administrative office management. Topics include planning, organizing, operating and controlling operations; leadership and human relations factors; and an overview of the effect office technology has had on the business world including telecommunications, reprographics, office systems, records management, data processing, word processing and voice processing.

Employees who take college courses may apply for tuition assistance. BNL offers tuition advances or reimbursements at 75 percent for undergraduate courses. For more information, contact Starr Munson, munson@bnl.gov or Ext. 7631.

CALENDAR

Sunday, 7/20

***Start of Summer Sundays: NSLS**

10 a.m.-3 p.m. From today and for four more Sundays, all are invited to visit the Lab. The public is welcomed at these free tours. No reservations needed. Witness the Whiz Bang Science Show, try the Brain Teasers exhibit. This week, visitors will be taken to the National Synchrotron Light Source, the brightest light on Long Island and one of the most intense sources of light in the world. Visitors to the Lab of 16 and over must carry a photo ID. See p. 4.

— WEEK OF 7/21 —

Tuesday, 7/22

***Sambamurti Memorial Lecture**

3:30 p.m. Physics Large Seminar Room, Bldg. 510. Christine Aidala, University of Massachusetts Amherst, will talk on "The Whole Story Behind a Half: The Quest to Understand the Proton's Spin." All are welcome. See p. 1.

Wednesday, 7/23

***BSA Noon Recital: Pianofest**

Noon. Berkner Hall. Prize-winning participants in Pianofest, will be selected by the workshop's founder and director, Paul Schenly to perform. Sponsored by Brookhaven Science Associates, the concert is free and open to the public. All visitors to the Lab age 16 and over must bring a photo ID. For more information on Pianofest go to: www.pianofest.com/

Sunday, 7/27

***Summer Sundays: Science Learning Center**

10 a.m.-3 p.m. Open to the public. Today, all are invited to visit the Lab for free tours. No reservations needed. Witness the Whiz Bang Science Show, try your hand at the Brain Teasers exhibit. Visit the Science Learning Center, have fun playing and testing out your hands-on science skills. Visitors to the Lab of 16 and over must carry a photo ID. See p. 4.

— WEEK OF 7/28 —

Monday, 7/28

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 nominations for union president and officers.

***Defensive Driving, Part I**

6-9:15 p.m. Brookhaven Center, South Room. Part I of a two-part course. See notice, p. 2.

Wednesday, 7/30

***BWIS Reception, Chasman Award**

5:15 p.m. Physics Seminar Lounge, Bldg. 510. The Renate W. Chasman Scholarship will be presented, and refreshments served. All are welcome.

Thursday, 7/31

***Defensive Driving, Part II**

6-9:15 p.m. Brookhaven Center, South Room.

Friday, 8/1

***Rock Band: Argent Fantasy**

7 p.m. Brookhaven Center. Sponsored by the BNL Music Club, the concert by Argent Fantasy and his six-musician band will feature hits from the 1960s to the 1980s. Tickets are available at the BERA Store, at $10 each. See notice, p. 2.

Arrivals & Departures

— Arrivals —

William Bedula.....Em. Srvcs
Michael Bromfield .....NSLS II
Emily Lebel .....Biology
William O'Brien .....NSLS-II
Bruno Semon.....NSLS-II
Christopher Zimmer ..... C-AD

— Departures —

John Searing..... Fac. & Oper. Dir

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 benefits-eligible employees within the department/division and/or appropriate bargaining unit, with preference for those within the immediate work group; (2) present benefits-eligible 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. Access current job openings on the World Wide Web at www.bnl.gov/HR/jobs/.

To apply for a position, go to www.bnl.gov. Select "Careers at Brookhaven" then "Employment Opportunities."

OPEN RECRUITMENT – Opportunities for Lab employees and outside candidates.

ASSISTANT PHYSICIST/X-RAY OPTICS (S-1) (reposting) - Requires a Ph.D. in physics or a related discipline, and at least two years postdoctoral experience. Experience in x-ray optics and coherent wave field characterization and skill in optical phase-retrieval methods are highly desirable. Candidate will perform experiments and data analysis associated with achieving 1-nm spatial resolution in novel x-ray optics for NSLS-II. Candidate will also interact closely with the x-ray nanoprobe beamline staff by supporting the experimental group in the implementation of the novel x-ray optics. Candidate must have excellent written and oral communication skills and be able to interact effectively with a diverse group of scientists, technical staff and users. The selected candidate will work under the direction of the X-ray Optics theory physicist, National Synchrotron Light Source II. Apply to Job ID # 4472.

ASSISTANT PHYSICIST/ACCELERATOR PHYSICS (S-1) - Experimental physicist needed with expertise in the design and operation of electron accelerators and a successful track record in the development and use of advanced accelerator systems. Requires a PhD in physics and at least two years of post-doctoral experience with electron sources, diagnostic hardware and accelerator design codes. Responsibilities include: participating in the design, testing and commissioning of the NSLS-II accelerators. In addition, there will be the opportunity of carrying out R&D to advance the state-of-the-art in the beam physics of synchrotron light sources. Reports to the NSLS-II Accelerator Physics Group Leader, National Synchrotron Light Source II. Apply to Job ID # 14542.

RESEARCH ENGINEER I/NANO-POSITIONING SYSTEMS (P-9, reposting) - Require a minimum of a Masters degree in engineering or equivalent, and 10 years of relevant experience. The successful candidate must have hands-on abilities and prior experience developing precision positioning systems, preferably for optical or similar applications. A strong background in experimental engineering and instrumentation is required. Substantial knowledge of state-of-the-art piezo stages and optical interferometers is desirable. Will report to the High Spatial Resolution Group Leader and will lead the R&D necessary to meet technical challenges associated with developing positioning systems with sub-1nm precision for NSLS-II. Responsibilities will include: identifying promising approaches to achieving sub-1nm precision, carrying out the necessary R&D to demonstrate the feasibility of these approaches and then developing prototypes and ultimately working stages for use by experimenters. Will also supervise a small staff to assist with this work. Candidates must have excellent written and oral communication skills and be able to interact effectively with a diverse group of scientists, technical staff and beamline users, National Synchrotron Light Source II. ERAP Eligible - $1,000.00. Apply to Job ID # 4477.

STAFF MECHANICAL/CIVIL ENGINEER (P-5) - Requires a bachelors degree in mechanical, civil or marine engineering with a minimum of 5 years engineering design and analysis experience, and a broad knowledge of engineering disciplines and construction techniques. CAD/CAE computer skills with ANSYS, Pro-E, Inventor, or equivalent software are desirable and office skills with MS Word, Excel, and Project are required. Excellent written and verbal communication skills are required to direct the efforts of laboratory craft and technical personnel during maintenance and installations. A desire to do creative engineering, to work hands on with mechanical equipment, and work as a team to develop and build unique equipment is required. The Collider-Accelerator Department is responsible for operation, maintenance, and upgrade of the Relativistic Heavy Ion Collider (RHIC). Mechanical engineers assigned to the Experimental Support & Facilities Division design new equipment installations, build large static and dynamic structures, lifting fixtures, water and air cooling systems, and support the installation of cryogenic systems. Collider-Accelerator Department. Apply to Job ID # 14547.

TECHNOLOGY ENGINEER/CONTROLS ENGINEERING (I-6, reposting) - Requires a BS degree in engineering, computer science, physics, or equivalent experience and a minimum of three (3) years experience in controls engineering and/or programming. Responsibilities include working on a team to design, develop, and deploy accelerator subsystem applications including all aspects of the subsystem; gathering requirements, developing any new drivers and tools as needed and provide component test, installation, integration, automation and operational support. The successful candidate will have strong analytical and problem-solving skills, strong communication skills and the ability to work effectively with a diverse group of scientists and engineers. Experience or education in programming, hardware design, and VHDL are preferred. Knowledge of modeling and online simulation, instrumentation, steady state control, and state transition diagrams, and data acquisition is desired. Reports to the Controls Group Leader, National Synchrotron Light Source II. ERAP eligible - $1,000.00. Apply to position # 14392

SR. TECHNICAL SPECIALIST/DEPOSITION (T-3) - Requires an Associate's degree or equivalent and at least six years of relevant experience in the maintenance and operation of UHV systems, cryogenics, power supplies, motion control systems and machine automation. Under general technical direction, and with considerable latitude for the exercise of initiative and judgment, the successful candidate will be responsible for the preparation of specifications, procurements, installation, and operation of equipment to establish a state-of-the-art thin-film optics lab, and later on a satellite machine shop. Regular interaction with BNL Central Shops is expected. Must be able to follow written test procedures, troubleshoot and perform a wide variety of electrical testing. Working knowledge of Autocad or Pro/E is desirable. Will work under the direction of the Deposition Research Engineer and report to the NSLS-II High Spatial-Resolution Group Leader, National Synchrotron Light Source II. ERAP eligible - $500.00. Apply to position # 14541.

ADMINISTRATIVE SERVICES ASSISTANT (A-2, term appointment) – Requires formal office administration training or equivalent, plus four years of relevant experience, or a BA degree in a business field. Good communication and interpersonal skills, extreme accuracy, and proficiency in Microsoft Excel and Word required; knowledge of Microsoft Access is a plus. Responsibilities include working independently within established mobile communication device procedures, handling related non-routine matters, and assisting administrative staff in a full range of support functions (procurement, shipping, general office processes). Mobile communication device procedures include: ordering/activating mobile communication devices, interfacing with vendors and end users, maintaining accurate records of ownership/equipment/calling plans, updating call tracking system, providing charge-back data, monitoring inventory levels, and ensuring accuracy of online catalog of BNL standard equipment and services available to users. Information Technology Division. Apply to Job ID # 14526.

ADMINISTRATIVE SERVICES ASSISTANT (A-2, term appointment) – Requires an AAS in business, computer technology, or database management, plus two years' relevant experience or a BA degree in a business field. Requires working knowledge of basic database skills; strong analytical, communication, and interpersonal skills; and proficiency in MS Office. Knowledge of PeopleSoft and BTMS required. A working knowledge of INS documents, badging, dosimetry badges, BTMS, and intellectual property agreements and knowledge of Laboratory policies and procedures is a plus. Working under the direction of the manager of the Laboratory GUV Center, candidate will coordinate the notification, collection, and documentation of computer user agreements for guests of the laboratory on behalf of ITD. Candidate will also provide assistance to GUV Center staff on various issues pertaining to registrations and check-in, when required. Position may require working non-traditional business days and/or hours. Director's Office. Apply to Job ID # 14545.

Motor Vehicles

04 NISSAN ALTIMA - V6, 3.5, all leather, side & front air bags, mint cond, one owner. 38K mi. $12,500. Bruce, 732-2145.

04 DODGE RAM - 1500 SLT Quad Cab, 4x4, Hemi, silver, auto start, cd changer, a/t, a/c, loaded bedcover. 17K mi. $17,000. 878-8221.

04 HONDA ODYSSEY - dark grey w/new tires, 4cyl., compact disc, roof rack. 48K mi. $13,550. Anthony, Ext. 4035.

03 MERCURY MARAUDER - black/black, auto start, 6 cd changer, loaded, warr., excel. cond. 19K mi. $25,500/neg. 379-7961.

02 LINCOLN TOWNCAR - Cartier Ed., 4 dr, moon rf, blk/w blk top, heated seats, fully loaded, auto start. 14K mi. $9,500. 878-8221.

02 FORD FOCUS - 4dr. sedan, 4 cyl., 2.OL, 16 valve, 5spd. man. trans., s/roof, am/fm, 6 disc cd, p/s p/w p/l a/c 97K mi. $3,600/neg. Keith, Ext. 3458 or 369-2504.

99 TOYOTA COROLLA - rusted front, runs excel, maint'd v. well, wonsuby@bnl.gov. 115K mi. $2,500/neg. Won-Sub, Ext. 6145.

99 NISSAN QUEST - 7 pass., p/s, a/t, a/c, p/w, stereo, TV, privacy glass, orig. owner, excel. cond. 45K mi. $9,500/neg. Jim, Ext. 5018 or 675-0990/335-9007.

99 ISUZU RODEO LS - 24/19 MPG, 4wd, 6cyl, a/t, a/c, cass/cd, c/c, p/w, p/l, orig. owner, dlr. maint, excel cond. 117K mi. $3,950/neg. Ext. 3492 or 734-2593.

99 DODGE DURANGO - 8 cyl, 4wd, a/c, c/c, p/l, p/s, p/w, am/fm/cd, abs, town pkg, excel. cond. 120K mi. $4,300/neg. 258-4607.

98 FORD EXPLORER - 40K on new eng., & tires, a/t, 4wd, cd/cass., keyless ent, alarm, gd. cond. 90K mi. $3,000/neg. 286-0701.

97 BMW 328I - 5 spd, 30mpg, prem sound, htd lthr seats, gar., serv recs, new cat conv, needs nothing. 173K mi. $5,500. Ext. 2913.

94 DODGE INTREPID - green, a/t/, a/c, p/s, p/w, p/l, c/c, abs, cd, dual air bags, gd gas mi. 160K mi. $1,000/neg. Frank, Ext. 3835.

88 FORD MUSTANG GT CONVERTIBLE - 5.0 liter, 5 spd, rebuilt tranny & rear, new clutch, gd. cond. 119K mi. $3,550. Ken, Ext. 8463 or 878-7655.

BRAKE CALIPER - PM chrome for American Motorcycles, PM part #0052-2400-CH, brand new in pkg., $275. Kenneth, Ext. 8463 or 878-7655.

CHROME RIMS - 18", great cond. w/gd. tires. $800/neg. 445-4027.

Boats

23' STEIGER CRAFT CHESAPEAKE - extnded hdtop, elec. trim tabs, Portapotti. '90 Johnson 225hp O/B–ran last yr, needs work $6,900/neg. 741-9169.

Furnishings & Appliances

AC UNIT - Maytag, 5500 Btu, 2 yrs. old $35. Anthony, Ext. 4035.

COUCH FUTON - dark blue, steel and wood frame, convertible, gd. cond., $85. Ext. 3319.

DEHUMIDIFIER - fine cond., $55. 929-8321.

KITCHEN TABLE SET - Round oak table top, 4 chairs w/deep blue upholstered seats, brand new, pd/$450, ask/$250. Katherine, Ext. 2269 or 560-2959.

MICROWAVE - Magic Chef, 12d x 14w x 8h, $15; B&D Light 'n Easy Iron, $5; table, oval, 2 inserts & chairs, $65. Ext. 7647.

VACUUM CLEANER - Hoover Empower upright bagless, gd. cond., $50/obo. Fran, 284-3054.

WASHER & DRYER - heavy duty model, gd. working cond., $50/both/obo. Wendy, Ext. 4884.

Audio, Video & Computers

DELL LAPTOP - Latitude D430, super slim, 2.5 lbs., Intel Core Duo, 1.4 ghz. 2 GB Mem., 60 GB HD, DVD-RW, wireless, bluetooth. Warlyn, Ext. 3633.

IPOD TOUCH - new in sealed box, 8Gb, $250 . Zhening, Ext. 2787.

PHOTO & NEGATIVE SCANNING - www.pictureperfectscans.com scans & enhances photos, negatives & converts them to DVD, music slideshows avail., Port Jeff Dianne, 928-6469.

STEREO - Comes w/remote and surrond sound spers, 5 disc changer, gd. cond., $80. Patrick, Ext. 3664 or 765-461-6233.

Tools, House & Garden

DOG CRATE - for medium size dog, $40; compound miter Saw, Sears Craftsman, 10"w blades $60. 924-7476/816-6891.

GENERATOR - works very well, compact, 200. Larry, 473-7832.

LAWNMOWER, - Yardmachine, 4hp 21" cut mulching; 17" Sears rototiller, 3hp needs carb work, $40/ea. 924-7476.

PRESSURE WASHER - Generac 3.8hp 1500psi w/hose and wand $25; weedwacker Sears 2 stroke 25cc 17", $25. 816-6891.

SAW HORSES - folding, metal legs, wood top 28"l x3 1/2" w, $15 pr; Buckhorses, 47"l x3 1/2"w, $15 pr.; bandsaw, $45. Ext. 7647.

SEARS 8" TABLESAW - & 2 nu blades,$50; Edison McGraw Bandsaw, $45; B&D Workmate&vise clampdown, $20; 2 sets sawhorses,$10. Ext. 7647.

SEARS SNOWBLOWER - attchmt for Model 1000 ride on tractor, hardly used, 2 stage, $350. Kenneth, 772-2965/245-4757.

TRUCK TOOL BOX - for a full size pickup, side entries w/locks and keys, $100. 924-7476/816-6891.

USED WOOD - Pressure Treated CCA; 2x6x8', $2/ea; 4x4x8&10', $4/ea. straight, no nails. 744-1706.

Free

BABY ITEMS - strollers, Booster seat, infant wash basin, carrier and swing. Joseph, 924-7476/816-6891.

Miscellaneous

CAR BIKE RACK - Allen Receiver,$60; Triv. Pursuit, 20 Anniv. ver., $5; wood checkerbrd, new, $5; trvl iron, $5. Ext. 7647.

DOG CRATE - X-lg size 29"x47"x30"H. Blk metal, plastic bottom tray. VG cond. $75 OBO. Fran, 284-3054.

GIFT CERTIFICATE - Perfect Body, $200 value, will sell for $100; www.perfectbodyNY.com. Patricia, Ext. 6044 or 708-6239.

GIFT CERTIFICATES - Gentile Touch Laser, 2/$100; will sell sep. for $50/ea. www.gentletouchlaser.com Patricia, 708-6239.

MICHAEL THURMOND BODY MAKE-OVER - Full set. Put together, but never used. Ask. $70. 631-445-4027.

NURSERY COLLECTION, BARNYARD - Comtorter, crib skirt, bumper, 3 sheets, lamp,2 valances,diaper stacker,area rug&more asking 60.00. jayne, 929 5054.

SLIDE SCANNING SERVICE, 35MM - www.pictureperfectscans.com scans & color corrects 35mm slides & converts them to DVD, DVD Music slideshows avail. Port Jeff. Dianne, 928-6469.

SPRINKLERS - and poly pipe, installation & repair. Michael, Ext. 5262 or 284-2277.

Yard & Garage Sales

SHIRLEY - 452 River Rd., Sat,7/19, 9:00 AM; furniture, bird cages, books, vertical blinds, household items. Ext. 7885.

Farewell Gatherings

JOHN SEARING FAREWELL - BBQ & Roasting Event, 7/25, 5-10 pm, Middle Island Fire Dept. Rte 25 & Arnold Dr. Mid. Isl. w. of Spring Lake. $30/pers. for food, drink, gift. RSPV by TODAY, 7/18, Ext. 3545, Ext. 3555, Ext. 6033.

Wanted

BALLY'S LIFETIME MEMBERSHIP - w/ reasonable rates for an affordable price. Ext. 5665.

BOX TRAILER - clean and in gd. cond. w/rear ramp, if possible, dr. is ok, 5'x 8' single axel. Joseph, 924-7476/816-6891.

INSTALL THRU-WALL A/C UNIT - Need someone to remove old unit and install new unit on 2nd floor. Will pay reasonable $$. Anna, Ext. 7132 or 793-4551.

PERSON WHO WANTED TURNTABLE - I lost your name and number. I may have want you want. Ext. 7647.

Lost & Found

FOUND - Audio recorder, call the Research Library, Ext. 3483.

LOST MALE CAT - Curtis, 8 mo. old from Whittier Dr, Mastic Bch on 6/23. Orange w/white paws, chest. Friendly, neutrd. Sharon 987-8152, or Kathy, Ext. 3832.

For Rent

BNL - 2 bdrm effic. apt. to shae, sep. ent., all util. incl. $600/mo. Arshe, Ext. 4648.

FARMINGVILLE - lg bdrm in house, full kit., l/r, d/r, share bath w/1, incl. cable, wifi, phone. $595/mo. Ben, 513-8275.

MASTIC - new apt, 1 bdrm, kit. l/r combo, full bath, priv. ent, quiet area, own thermostat, util. incl, nr LIRR, no smkg/pets, walk to shop, 7 min to Lab. $775/mo./neg. 335-4907.

RIDGE - beautiful, lg. bsmt. apt., 2 mi. to lab, 1 bdrm, lr/kit combo, office area w/int. access, lg. bthrm, for pics email tstein@bnl.gov $1,050/mo. Ext. 5753 or 252-3356.

WADING RIVER - SWRSD, 2 story cape, 3 BD, 2 bath, cul de sac w/priv. bkyrd, updated appli., heating/elect. $2,100/mo. 929-8232.

For Sale

BELLPORT - 4-BR. ranch, 2 bth, l/r w/ dble fp to den, d/r, eik, oak flrs, screened deck, laundry rm, fin. bsmt: w/4th BR, bar, full bth, 2 rms; gar., 2 sheds, sprinklers, $375,000; 949-7797.

RIDGE - custom Victorian, 3,000 sqft, mins to Lab, 4/5 BR, 2+1/2 bath, Andrsn wndows, Jacuz, hardwd flrs, cent.air, full bmt w/sep ent; 2car gar, 1 acre+, surr. by protected land, owner sale, $549,000/neg. 255-8445.

ROCKY POINT - immac 3-bdrm, 3-bath ranch, newly decorated, nice neighborhood, beautiful yard, easy walk to beach. $365,000, 790-2966.

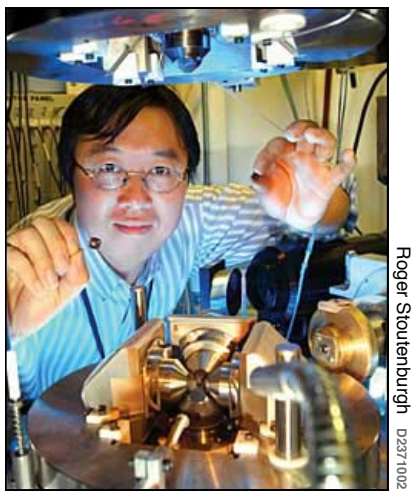
SHOREHAM - 4 bdrm, 2.5 bath Colonial, new kitchen, wood floors, private 2/3 acre lot with above-ground pool. 7 min. to Lab. $455 John, 356-4299.

SHOREHAM - Middlecross Estates, 4 bdrm., 2.5 bath Col., frml l/r and d/r, den w/fp, lg. kit. w/dinette, 2 car gar., fin. bsmt., igs, SWRSD, much more. $529,000/neg. Don, Ext. 2253 or 821-3320.

In Appreciation

We thank all of our friends for their kind thoughts and support after the passing of my mother. She didn't suffer during her short illness and was at home with us when she passed; that plus your kindness helped us to get through a very difficult time.—Lois Caligiuri & George Greene

Summer Sundays Start: NSLS, 7/20



Roger Stoutenburgh D2371002

BNL again opens its doors to the public this summer, every Sunday from July 20 through August 17. The Lab will feature a different tour on each of five Sundays. Each week, adults and children can enjoy a variety of entertaining activities, including the Whiz Bang Science Show and the Brain Teasers exhibit.

Summer Sundays are offered free, and no reservations are needed. Visitors may arrive any time between 10 a.m. and 3 p.m. The Whiz Bang Science Show will be staged at 10:30 a.m., noon, 1:30 p.m. and 3 p.m. All visitors age 16 and over must bring a photo ID. For more information, visit the BNL website: www.bnl.gov. The Summer Sundays schedule follows:

July 20 — National Synchrotron Light Source (NSLS)

This Sunday, visit the NSLS and see the brightest light on Long Island, one of the most intense sources of light in the world. Find out how synchrotron light is used to look into all kinds of materials, from moon rocks to computer chips.

July 27 — Science Learning Center

Play with science, no matter what your age. Have fun testing your hands-on science skills. Enjoy a science magician's tricks.

August 3 — National Weather Service

Come to the weather-forecasting center for the entire New York metropolitan area. Track storms, big or small. Learn about hurricane preparedness. Witness a 3:30 p.m. weather-balloon launch.

August 10 — Center for Functional Nanomaterials

Visit a new center where studies of the ultra-small may lead to ultra-big discoveries in many areas, from energy to electronics. This tour is appropriate for adults and children over 10 years old.

August 17 — Relativistic Heavy Ion Collider

Learn how gold ions are smashed together in an underground tunnel to recreate the temperature and energy density of the early universe. Tour appropriate for adults and children over 10 years old.

Come to the Summer Talent Show, 7/22

All the Lab community is invited to attend the annual Summer Student Talent Show on Tuesday, July 22, 5:30 p.m., at Berkner Hall. This free event is sponsored by the Office of Educational Programs, and everyone always has a great time.

the Bulletin

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Liz Seubert, editor
John Galvin, reporter
Roger Stoutenburgh, photographer

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

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