

## Israel, Bishop, Orbach Host Alternative Energy Employee Meeting



BNL Deputy Director Doon Gibbs



U.S. Representative Tim Bishop



U.S. Representative Steve Israel



DOE Under Secretary for Science Ray Orbach

Stressing the possibility that Long Island could become the “next advanced energy economy of the country,” U.S. Representative Steve Israel hosted an all-employee meeting on Friday, August 10, with U.S. Representative Tim Bishop and DOE’s Under Secretary for Science Ray Orbach.

The Berkner Hall audience also included members from Israel’s Next Generation Energy Security Task Force, comprised of Long Island community, business, and scientific leaders dedicated to coordinating local efforts in developing alternative-energy technologies.

“We understand at Brookhaven that finding significant sources of energy is possibly the most important challenge of the 21st century and it’s going to require enormous effort on all of our parts,” said Lab Deputy Di-

rector for Science & Technology Doon Gibbs, who welcomed the speakers. “At BNL, that vision is to carry out the basic and applied research that underlies breakthroughs in the effective use of renewable energy, particularly for improved conversion, transmission and storage.”

After pledging his personal support for that research at the Lab, Bishop highlighted how recent congressional action will help scientists at Brookhaven and across the country in solving the nation’s energy problems.

“We live in a time in which science often does not receive the value that it should,” Bishop said. “We in the Congress are trying to change that. We are trying to see that the resources that are necessary to move this nation forward are made available to the scientific community.”

Those actions include new energy legislation awaiting approval in the Senate, and the passage of the America Competes Act, which will “take the very best that our nation has to offer in intellectual firepower and push them in the direction of science, technology, engineering, and mathematics (STEM) fields,” Bishop said. The act calls for increased funding for the National Science Foundation, the DOE’s Office of Science, and the National Institute of Standards and Technology, and creates STEM graduate assistantships, postdoctoral positions, and four-year scholarships for students who commit to teaching in these fields after graduation.

“This represents a dramatic departure from where we were two years ago,” Bishop said. “We can’t drill our way out of this problem.”

Next to speak was Israel, who explained how after serving on the House Armed Services Committee for four years, he concluded that “every single military threat we face is exasperated by our reliance on foreign oil.

“We are in a perilous situation right now,” Israel said, noting how the government must end the continuous cycle



At the Center for Functional Nanomaterials (CFN), Emilio Mendez (left), CFN Director, talks with visitors (front, from left) U.S. Representative Steve Israel and U.S. Representative Tim Bishop; DOE Under Secretary for Science Ray Orbach (right); and others.

of borrowing money, and deepening the national debt, to buy oil. “I have learned something every single day about how integrated this problem is.”

In order for Long Island to take the lead on finding a solution, Israel said, two changes need to occur: parochial attitudes supporting just one type of alternative energy source should give way to exploring the wide variety of energy options available; and after this broad research is performed, the most efficient and effective energy sources should be identified by scientists and the marketplace — not politicians.

“Long Island has the capacity, the capability, the intellectual heritage, and the skill sets to create a game change, to truly turn the corner on this problem,” Israel said, adding that Brookhaven should be a natural leader in that change, and that Congress should be able to mention Brookhaven when asked who’s doing cutting-edge work on renewable energy.

Next, DOE’s Orbach described how nanotechnology research at BNL will help address the “biggest challenge that we face today and in the coming decades.”

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## Humboldt Foundation Awards BNL’s Werner Vogelsang

Werner Vogelsang of the Physics Department has received a 2007 Friedrich Wilhelm Bessel Research Award from the Humboldt Foundation for his outstanding research in theoretical physics. The award is given annually to approximately 20 internationally renowned scientists and scholars who have received their doctoral degree within the past 12 years and who perform their research outside Germany. The award allows recipients to work on research projects of their own choice in cooperation with colleagues in Germany for periods of six months to a year.

“I am delighted to receive this award,” Vogelsang said.

“It gives me the opportunity to start new collaborations, which will benefit both my own theoretical research as well as Brookhaven’s Relativistic Heavy Ion Collider [RHIC] program.”

Vogelsang makes calculations based on a physics theory called quantum chromodynamics, which describes the interactions of subatomic particles, and compares his results to data obtained by scientists who perform experiments at RHIC to understand how protons get their spin — a fundamental question about elementary particles that has not been adequately answered, despite decades of study.

Protons are made of smaller particles called quarks, which are held together by particles called gluons. Protons, quarks and gluons have an intrinsic property known as spin, similar to Earth spinning on its axis. Scientists collide polarized protons — protons that mostly spin in the same direction — at RHIC, and by “seeing” the products of these collisions via huge detectors, scientists hope to learn more about the proton’s spin.

In earlier work at accelerators in which photons are used to probe protons, Vogelsang, like other researchers, has found that the spin of quarks accounts for only about 20 percent of proton spin — a surprise, since scientists had

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Roger Stoutenburgh D1840705

## Hidden Order Found in a Quantum Spin Liquid



Guangyong Xu

Joseph Rubino D0200807

Scientists at BNL and collaborating institutions around the world have detected a hidden “string order” that extends over a length of 30 nanometers (billionths of a meter) in a material that is otherwise apparently disordered. The findings, which were published online on Thursday, July 26, 2007 by *Science*, could have implications for the design of materials at the nanoscale, including those used for a developing concept known as quantum computing.

In quantum computing, data are recorded using quantum properties, such as electron spins, instead of ordinary magnetism. It is widely believed that if large-scale quantum computers can be built, they will be able to solve

certain problems exponentially faster than classical computers.

“Our goal is to understand the factors that affect the distance over which the hidden ‘string order,’ or quantum phase coherence, can be maintained,” says BNL physicist Guangyong Xu, lead author on the paper. That distance — and how sensitive it is to changes in temperature or chemical impurities in the material — can be essential in determining whether a material will have useful applications.

“If you are manufacturing something, you don’t want a certain property to be maintained only at one spot,” Xu explains. “You want the property maintained throughout the material.”

In quantum computing, the material also needs to be scalable physically to increase the amount of information it can store, and coherence must be maintained over a relatively long

time, “otherwise your computing information would be lost over time,” Xu says. The findings in this paper have clear implications related to these problems.

### The Who

Collaborators with Xu on this research include: Collin L. Broholm, Ying Chen, and Michel Kenzelmann of Johns Hopkins University and the National Institute of Standards & Technology (NIST) Center for Neutron Research; Yeong-Ah Soh of Dartmouth College; Gabriel Aeppli of the London Centre for Nanotechnology and University College, London; John F. DiTusa of Louisiana State University; Christopher D. Frost from the ISIS Facility, Rutherford Appleton Laboratory, U.K.; Toshimitsu Ito and Kunihiko Oka of the National Institute of Advanced Industrial Science and Technology (AIST), Japan; and Hidenori Takagi from AIST and University of Tokyo. The work was funded by the Office of Basic Energy Sciences within DOE’s Office of Science, the National Science Foundation, the Wolfson-Royal Society (UK), and by the Basic Technologies program of the UK Research Councils.

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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](http://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](mailto:alforque@bnl.gov).

**Mondays: Pilates**  
Will resume in September.

**Mondays: Jiu Jitsu Club**  
6-7:30 p.m. B'haven Center. All levels, ages 6 & up. \$10/class. Ext. 4556.

**Mondays & Thursdays: Kickboxing**  
\$5 per class. Noon-1 p.m. in the gym. Registration is required. Christine Carter, Ext. 5090.

**Mon., Tue. & Thu: 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](mailto:bradley@bnl.gov).

**Mon., Thurs., & Fri.: Tai Chi**  
Noon-1 p.m., B'haven Center N. Rm. Adam Rusek, Ext. 5830, [rusek@bnl.gov](mailto:rusek@bnl.gov).

**Tues. & Thurs: Jazzercise**  
Will resume in September.

**Tuesday & Thursday: Aerobic Fitness**  
Will resume in September.  
**Tuesday & Thursday: Aqua Aerobics**  
Will resume in September.

**Tuesdays: Welcome Coffee**  
Will resume in September.

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

**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/toastmstrs/](http://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.

**Wednesdays: On-Site Play Group**  
10 a.m.-noon. An infant/toddler drop-in event. Parents meet while children play. During July and August, the group meets informally at the playground in the apt. area.

**Wednesdays: Ballroom Dance Class**  
Will resume in September.

**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](mailto:ila@bnl.gov).

**Thursdays: Reiki Healing Class**  
Noon-1 p.m., Bldg. 211 Conference Rm. Nicole Bernholz, Ext. 2027.

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

**Fridays: BNL Social & Cultural Club**  
Noon-1 p.m., B'haven Center, South Room, free beginners dance lessons. 7-11:30 p.m. North Ballroom, Dance Social, workshops. Rudy Alforque, Ext. 4733, [alforque@bnl.gov](mailto:alforque@bnl.gov).

CIGNA: Tuesdays, Bldg. 400

A CIGNA Healthcare representative will be on site in Human Resources, Bldg. 400, on Tuesdays, to assist with any claims issues that you have been unable to resolve yourself. Janice Petgrave will be available for 30-minute meetings, by appointment only, 10 a.m.-1 p.m. Bring all pertinent documentation. To schedule, call the Benefits Office, Ext. 5126.

Alternative Energy Employee Meeting (cont'd)

"The availability of sufficient and environmentally friendly energy sources to meet the needs of a rapidly growing and developing world population, in my view, is the most pressing problem our civilization on Earth has faced," Orbach said. Current technologies will not meet this challenge. Incremental improvements in technology will not suffice. We need transformational discoveries. We need what I call disruptive technologies — discoveries that will fundamentally change the rules of the game."

Those transformational discoveries, Orbach said, will be made through nanotechnology at BNL's Center for Functional Nanomaterials (CFN) and the future National Synchrotron Light Source II (NSLS-II).

"Nanotechnology is not just another step toward miniaturization," Orbach said. "There are fundamental differences in the physical, chemical, and biological behavior at this level to

make it significantly different from bulk materials, for individual atoms and molecules."

The unique suite of capabilities shared between the CFN and NSLS-II could enable applications such as efficient and cost-effective solar cells, highly selective catalysts for clean and energy-efficient manufacturing, solid-state lighting, super-strong lightweight materials for use in cars and airplanes, hydrogen-storage materials, low-cost fuel cells, and efficient plug-in hybrid vehicles, Orbach said.

"The development of new nanoscale materials, and methods to characterize, manipulate and assemble them creates a new paradigm for developing new and revolutionary energy technologies," he said. "This will be done here, at Brookhaven National Laboratory."

— Kendra Snyder



DOE's Under Secretary for Science Ray Orbach meets student interns Kaitlin Thomassen and Chris Brown.



Congressmen Tim Bishop (left) and Steve Israel view equipment at BNL's Relativistic Heavy Ion Collider.

Humboldt Foundation Award (cont'd)

thought that quarks would account for a major part of it. In more recent work at RHIC, data combined with Vogelsang's calculations indicate that gluon spin also accounts for a very small portion of proton spin — another surprise, since gluons were the next most likely component to provide the spin. More research is needed to solve the proton-spin mystery.

In addition to ongoing research at RHIC, Vogelsang is planning to work with collaborators at the University of Regensburg in Germany to extend his theoretical calculations to polarized proton-antiproton scattering experiments, expected to be performed at an accelerator in Darmstadt, Germany. These studies are expected to provide new insights into the structure of matter.

Werner Vogelsang earned his Ph.D. from the University of Dortmund, Germany, in 1993, and then took a postdoctoral position in the theory group at the Rutherford Appleton Laboratory in England. In 1997, he became a fellow in the Theory Division at CERN, the world's largest particle physics laboratory, located near Geneva, Switzerland, and, in 1999, he came to the U.S. to join the C.N. Yang Institute for Theoretical Physics at Stony Brook University. He was named a RIKEN fellow at BNL's RIKEN BNL Research Center in 2000, and he advanced to become an associate physicist in 2003 and a tenured physicist in 2005 in the Physics Department's Nuclear Theory Group.

— Diane Greenberg

Hidden Order In a Quantum Spin Liquid (cont'd)

The How

To look for the quantum phase coherence and get a handle on the factors that affect it, Xu and his collaborators studied a one-dimensional quantum spin liquid consisting of chains of nickel-oxygen-nickel atoms. A quantum spin liquid is a system in which the electron spins (analogous to tiny bar magnets) point in random directions with no particular order, even at very low temperatures.

To find out if there was phase coherence throughout this otherwise disordered system, the scientists used inelastic neutron scattering to see if magnetic excitations — "flips" or fluctuations of the spins — could propagate far enough along the spin chains.

"Neutron scattering is a very powerful and probably the most direct tool in studying

orders in spin systems", says Xu. The experiments were performed at the NIST Center for Neutron Research and at the ISIS pulsed neutron source at the Rutherford Appleton Laboratory in the U.K.

The Results

The researchers found that despite the apparent disorder, magnetic excitations could propagate over long ranges — up to 30 nanometers at low temperature.

"We found order in an otherwise disordered system," Xu said.

Other examples of large-scale quantum phase coherence include superconductors and superfluids where quantum physics leads to fascinating properties.

The scientists also found they could limit the coherence or make it disappear altogether by introducing impurities into

Integrated Safety Management Awareness

Integrated Safety Management (ISM) is the framework used to help guide all work at BNL and is a key requirement of BNL's contract with DOE. ISM's five core functions call for the Lab, as well as each employee, to define the scope of work; identify and analyze all hazards; develop and implement controls for those hazards; work within these controls; and provide feedback to improve safety in future work.

BNL will undergo a crucial ISM review August 20-31. The auditors will likely interview a wide cross-section of BNL employees. Below are the ninth in a series of general ISM questions for managers, supervisors, and staff. The text below the questions gives examples of processes that may be appropriate as references for understanding the Lab's ISM program.

**Question for Managers:** What is your response to employee environment, safety, and health (ES&H) concerns?

**Question for Staff:** What mechanisms are available to you to report environment, safety, security and health (ESS&H) concerns?

**Response:** All BNL employees, facility users, contract workers and guests have an obligation to comply with the Lab's ES&H regulations. Everyone is required to report any unsafe conditions within the workplace that may threaten their physical well-being or violate ES&H or other relevant standards.

Avenues for reporting ES&H concerns include:

- Alerting your line management.
- Reporting to the department or division's ES&H coordinator, facilities support representatives, safety & health services representatives, work control managers/coordinators, building managers, safeguards & security, and/or subject matter experts.
- Alerting personnel in the ESHQ Directorate by calling the BNL safety hotline at Ext. 8800.
- Those covered by a labor agreement may address ES&H concerns through the labor-grievance process.
- If you still believe a condition or practice violates BNL's standards, you may contact the Employee Concerns Manager, Ext. 2888.
- If all other avenues have proved unsatisfactory, the concerned individual may call DOE's Brookhaven Area Office, Bldg. 464, Ext. 4363.
- Stop Work — If imminent danger exists that could result in injury, death, or significant risk of environmental or equipment damage, and when immediate action is required.

For more information, contact Steve Coleman, at Ext. 8705 or [coleman@bnl.gov](mailto:coleman@bnl.gov).

Answering Employees' Concerns

BNL is committed to the highest ethical standards, to working safely, and to protecting the environment. The Lab's Employee Concerns Program was established to safeguard these commitments. Should any employee have unresolved issues concerning: the environment, safety, health, waste, fraud, or abuse, he or she may proceed in the following way:

- Alert your line management to your concern
- Is your environment, safety or health problem still not resolved? Contact your Environment, Safety & Health (ES&H) Coordinator or Facilities Support Representative. Concerns covered by labor agreements must be addressed through the labor grievance process.
- You may also report an environmental, safety or health concern through the BNL ES&H Hotline, Ext. 8800, or via the web using the ES&H Concern and Suggestion Form at [http://intranet.bnl.gov/ESHQ/ESH\\_Concern\\_Form.asp](http://intranet.bnl.gov/ESHQ/ESH_Concern_Form.asp) You may request anonymity in both cases.
- If you still believe a condition or practice violates BNL standards, contact the Employee Concerns Program, Susan Foster, Ext. 2888, or [EmployeeConcerns@BNL.GOV](mailto:EmployeeConcerns@BNL.GOV). A formal and confidential investigation will be conducted, and you will receive a response. The Lab will not discriminate against any employee who has filed a complaint.
- Still not satisfied? You may request an inspection from a DOE representative by filing a request directly with the Brookhaven Site Office, you may contact them at Ext. 4089.

Also, be aware that DOE has a process for resolving differing professional opinions, "Differing Professional Opinions Manual for Technical Issues Involving Environment, Safety and Health," (DOE M 442.1-1, Approved 11-16-06). For information, call Ext. 4089. DOE will maintain confidentiality, if requested.

More useful information is available at [http://intranet.bnl.gov/ESHQ/ESH\\_concerns.asp](http://intranet.bnl.gov/ESHQ/ESH_concerns.asp).

the material either by adding other elements (doping) or heating. In essence, these impurities break the chain. This implies that methods might be developed to tailor-make materials with coherence at particular lengths. Xu cautions that

his team's work is not intended to have direct application, but suggests that what the team is learning could be applied by others in a range of fields related to nanofabrication and quantum computing.

— Karen McNulty Walsh



BAC 'Changing of the Guard' — Five New Members Added, Positions Changed



Members of the Brookhaven Advocacy Council (BAC) are: (front, from left) Angela Melocoton, RHIC and AGS Users' Center; Barbara Blenn, Community, Education, Government, & Public Affairs; Betty Elder, Business Systems Division; BAC Secretary Kristina Duryea, Biology Department; (middle row, from left) Ripp Bowman, Collider-Accelerator Department; Fred Horn,\* Safety & Health Division; BAC Co-Chair Gretchen Cisco, National Synchrotron Light Source (NSLS); Susan Wong, Information Technology Division; (back row, from left) Al Borrelli, NSLS; John Reddy, Information Technology Division; and BAC Chair, Ernie Tucker, Training Office. (\*photo digitally added)

The Brookhaven Advocacy Council (BAC), composed of BNL peers, is an independent, confidential committee that reports directly to the Laboratory Director. As a key component of the Lab's justice system, the BAC is charged with the authority to receive and respond to employee, guest, and facility user concerns or issues; analyze and research data; and propose resolutions. The BAC may also make recommendations to the Lab Director on the resolution of certain of these problems and concerns.

Ernie Tucker, Chair of the BAC, states, "The Brookhaven Advocacy Council is a consortium of 11 BNLers with a variety of backgrounds and work experiences. The diverse makeup of the Council offers an opportunity for different perspectives when searching for resolution to a conflict, be it real or perceived.

"When someone feels strongly enough about an issue to solicit the services of the BAC, the members of the Council realize the gravity of the concern and are committed to fairness and confidentiality while looking for a resolution," Tucker emphasizes. "This philosophy is continuously exercised by each member while fulfilling their term on the Council."

Once a month, usually on the third Thursday, the BAC holds an open meeting, 11:30 a.m.-1 p.m. Employees, guests, and users are invited to share general thoughts. However, because the BAC has a monthly agenda, contact the BAC in advance if you desire to attend. Meetings are usually held in one of the conference rooms in Berkner Hall or the Research Support Building.

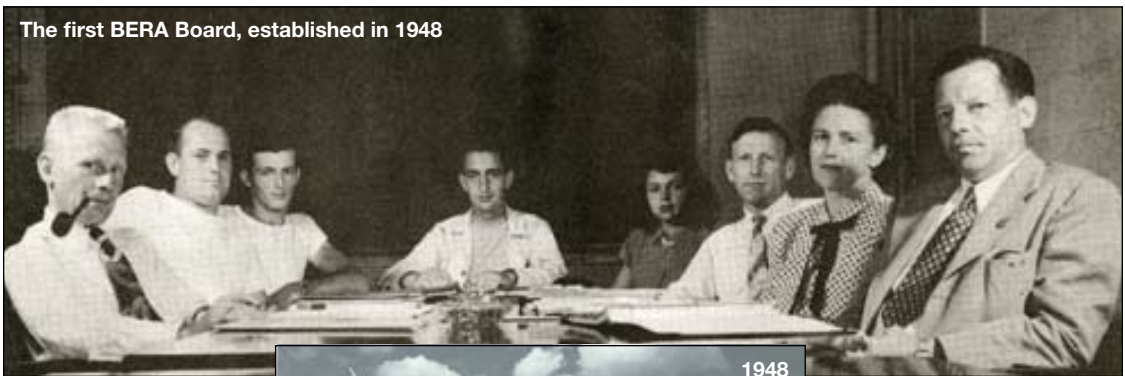
To bring a concern or issue to the BAC's attention, contact a member or call the BAC hotline, Ext. 4200. For more information, see [www.bnl.gov/bac](http://www.bnl.gov/bac).

Then & Now — A Great Old Institution: BERA

Nowadays, there's no time, we say, and everybody worries: about job requirements, quality commitment for children and elderly parents, eroding savings, the drains in one's dwelling that started gurgling when it rains. Available free moments are too often whiled away in a doze in front of the TV.

Yet, at the Lab, a vital force exists that can and frequently does lure BNLers into enjoyment in which some worries can fade and friendships can form. The Brookhaven Employees Recreation Association, or BERA, encompasses everyone who works or has worked at BNL, including employees, retirees, facility users, guests, and subcontractors, and their families. In BERA clubs, people with all sorts of hobbies meet, get acquainted, and make events happen. The several hundred active members at any given time participate in sports, music, dancing, debate, art, camping, martial arts, biking, motorcycling, taking trips to cultural or sporting events, and more. BERA is run by a Lab administrator and a small, elected board of BNLers, all dedicated to helping as many people as possible enjoy recreation with others who have similar interests.

Time was, BERA brought more than pleasant extra-curricular activities to Lab life. Many regret the passing of yesterday's Long Island, when highways were byways, and malls were farms. But entertainment was most often "do-it-yourself." Photos in *Isotopics*, the Lab's earliest newspaper, show that the first BNLers took every opportunity to join group



recreation and enthusiastically created theater, bowling, archery, and other clubs. This part of BNL life was considered important enough to be included in an Administrative Progress Report dated December 15, 1947:

"Since June, an employees' welfare supervisor has been in charge of a welfare and recreation program. During the summer, this included operation of six tennis courts, a swimming pool, a recreation room for the "on-site"

apartments, and the men's dormitory, and a soft ball program. The bowling alleys were activated early in November. An association of Laboratory employees is now being established which will conduct recreational activities such as

dances, choral singing, bowling, and amateur theatricals."

In the six decades since 1947, thousands of hours of fun, talent development, and unexpected bonding have been seeded and tended by BERA, enriching and unifying the BNL community spirit.

— Liz Seubert

TIAA-CREF Retirement Counseling, 8/24

A TIAA-CREF consultant will visit BNL on Friday, August 24 to answer employees' questions about financial matters. The consultant will help you: understand the importance of protecting your assets against inflation, find the right allocation mix, learn about TIAA-CREF retirement income flexibility, and compare lifetime income vs. cash withdrawal options. For an appointment, call Suzanne Leone, (866) 842-2053, ext. 4601.

Defensive Driving in Two Parts, 8/23 & 30

The six-hour Defensive Driving (Point & Insurance Reduction) course will be held in two parts on consecutive Thursday nights: August 23 and 30 in the Brookhaven Center South Room, 6 p.m.-9:15 p.m. The course is open to BNL, BSA, and DOE employees, facility-users, and their families, at \$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.

Fidelity Investment Counseling, 8/28

A Fidelity Investment representative will be at the Lab on Tuesday, August 28, to hold sessions with individual employees interested in learning more about their retirement-savings and investment options. Schedule one of the 30-minute appointments by calling (800) 642-7131.

Arrivals & Departures

— Arrivals —

Michael Canavan.....P&PM  
Dean Green.....C-AD  
Lisa Kerr.....P&PM  
Daniel Love.....ITD  
Jerome Malley Jr. ....NSLS-II  
John Ricciardelli .....NSLS-II  
William Wilds .....NSLS-II  
Xi Yang .....NSLS

— Departures —

None

CALENDAR

— THIS WEEKEND —

Friday, 8/17

Visit BNL Science Learning Center

Noon-1:30 p.m. Science Learning Center, Bldg. 935, corner of E. Fifth Ave. and Railroad St. All Lab community invited to try interactive exhibits, visit the 3-D visualization theater. Some science-related toys for sale. An adult must accompany children under 14 years old.

Saturday, 8/18

\*Mem Shannon in Concert

8 p.m. Brookhaven Center, (Note: change of venue). Mem Shannon and his band will play jazz, funk, blues, soul, and R&R. The BNL Music Club and the Long Island Blues Society, sponsors of the event, regret that Sam "Bluzman" Taylor will not appear that night. The concert is open to the public. Visitors to the Lab age 16 and over must bring a photo ID. Tickets are \$15. Buy at the BERA Store, or at the door. See also page 4.

— WEEK OF 8/20 —

Thursday, 8/23

\*Defensive Driving Course, Part I

6-9:15 p.m. First half of course, 2nd part on 8/30. \$38. Register with Ed Sierra, 821-1013, leave message. See notice below, left.

— WEEK OF 8/27 —

Monday, 8/27

IBEW Meeting

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

Thursday, 8/30

\*Defensive Driving, Part II

6-9:15 p.m. 2nd half of course. \$38. Contact Ed Sierra, 821-1013. See notice below.

Friday, 8/31

Yankees vs. Tampa Bay

4 p.m. Brookhaven Center. Bus leaves for Yankee Stadium, departs for BNL after the game or 11 p.m. All are welcome. Tickets are \$44 each, Tier Box. Make paid reservations at the BERA Store, weekdays, 9 a.m.-3 p.m. Tickets are non-refundable.

— WEEK OF 9/3 —

Mon. & Tues., 9/3 & 4

Holiday, Lab Closed

On Monday, 9/3, and Tuesday, 9/4, the Lab will close for the Labor Day holiday and a floating day holiday. No Bulletin will appear on Friday, 9/7.

— WEEK OF 9/10 —

Wednesday, 9/12

BSA Noon Recital: Sher, Felcman

Noon. Berkner Hall. Internationally renowned cellist Richard Sher and gifted pianist Marta Felcman will appear in concert. The event is free and open to the public. All visitors to the Lab age 16 and over must bring a photo ID.

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](mailto:bulletin@bnl.gov). Write "Bulletin Calendar" in the subject line.



## 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/](http://www.bnl.gov/HR/jobs/).

**OPEN RECRUITMENT – Opportunities for Lab employees and outside candidates.**

**POSTDOCTORAL RESEARCH ASSOCIATE** - Requires a Ph.D. in molecular biology, microbiology or protein chemistry. Must be familiar with molecular techniques and the heterologous expression plus biochemical characterization of proteins. The work will involve diversity screening and construction of expression libraries of glycosyl hydrolases from forest soil and leaf litter, as well as the characterization of new glycosyl hydrolases. Study the composition and the metabolic potential of the lignocellulosic biomass degrading communities that decay poplar wood chips, corn stover and switch grass biomass under aerobic/anaerobic conditions. Exploring biomass decaying microbial communities and their metagenomes, the project's primary aim is to perform bio-prospecting of the glycosyl hydrolase potential of microbial communities which efficiently decay poplar wood chips, corn stover and switch grass biomass, this in relation to cell wall decomposition. Under the direction of D. van der Lelie, Biology Department. Send CV to [felicia@bnl.gov](mailto:felicia@bnl.gov), referring to Position No. FH 3903.

**POSTDOCTORAL RESEARCH ASSOCIATE** – Requires a Ph.D. in physics or related discipline with specialty in accelerator physics and experience in accelerator simulation and operation. Familiarity with simulation codes for linacs and FELs desirable (such as PARMELA, ELEGANT, MATLAB Toolbox for particle accelerator modeling, or equivalents). Will participate in Ultra-fast Electron Diffraction (UED), THz and FEL experiments at the NSLS Source Development Lab (SDL), and perform both simulation and experimental investigation of electron beam optimization for UED and FEL. Under the direction of X.J. Wang, National Synchrotron Light Source Department. Send CV to [felicia@bnl.gov](mailto:felicia@bnl.gov), referring to Position No. FH 3270.

**PLUMBER A** (term appointment) - Under minimum supervision, lays out, constructs or installs, repairs, and maintains water and gas distribution systems, related facilities and auxiliary equipment and equipment utilizing water, gas and heat distribution services. Plant Engineering Division. Send resume to [tbuck@bnl.gov](mailto:tbuck@bnl.gov), referring to Position No. TB 4737.

### Motor Vehicles & Supplies

07 MAZDA 3 - 2.3L, pearl white, 5 spd, load- ed, heatd/lther seats, excel. cond., warr, 6-dsk. cd. 14K mi. \$19,000/neg. 926-0985.

05 HARLEY DAVIDSON SPORTSTER 883 CUSTOM - whte/chr, excel., wind shield, hwy. lights, saddle bags, fwd. ft. ctrls., 3100 mi. \$6,500/neg. Ext. 3505 or 929-6467.

04 DODGE 1500 - Quad Cab, 8 cyl. HEMI. 4x4, 4wd, a/t, loaded, tow pkg., 20" chrome rims, excel. cond. 32K mi. \$21,000/neg. Heather, Ext. 4138 or 779-3226.

03 HYUNDAI TIBURON - 6 spd. manual trany, sports pkg., fully equip., excel. cond. 30K mi. \$11,000. Ext. 5149 or 929-0961.

00 HYUNDAI ELANTRA GLS SEDAN - am/fm cd radio, new tires, rear spoiler, power m/roof, ABS, a/t, a/c, add. rf rck incl., 8 spkrs. 178K mi. \$3,500. 335-9651.

00 FOREST RIVER CHEROKEE 5TH WHEEL - 30", orig. owner. Bunks, slps 8. Rear bath, slide-out w/awn. Winter cover. excel cond. \$10,000. Ext. 2979 or 929-8294.

99 CHRYSLER 300M - Hwy mil., well maint. Gd cond in & out. New tires/brakes. 147K mi. \$4,000/neg. Ext. 3050 or 278-6252.

98 VOLVO V70 - wagon, excel., 5 cyl., side/ft airbags, ABS, a/t, a/c, add. rf rck incl., 8 spkrs. 178K mi. \$3,900/neg. Ext. 3078.

98 FORD EXPEDITION XLT - 4wd, 5.4 liter, 3rd seat, leather, 6 cd, loaded, white/tan, excel. cond., KBB value \$8,500. 127K mi. \$6,800. Rich, Ext. 7294.

98 VOLVO V70 - station wagon w/3rd. seat, orig. owner, gd. cond., 116K mi. \$4,500/neg. Stephen, Ext. 4305.

98 ACURA TL-3.2 - white, very clean, leather, moon roof, KBB value \$7700. 96K mi. \$5,500. Jing, 891-9430.

97 SATURN SC2 COUPE - black/gold, runs well, well maint., 98K mi. \$3,000. George, Ext. 4549.

97 SATURN SC2 - runs well, well maint. 97K mi. \$3,000/neg. George, Ext. 4549.

96 FORD VAN E-150 - XLT, 5.8L, 7 pass, 4 capt. chairs, a/c, c/c, tow pkg, cd, excel. cond. 144K mi. \$4,500. 874-2838.

96 JEEP GRAND CHEROKEE - runs well, lots of pwr., 5.2 V8 a/t, white/grey cloth, 4wd, skid/tow pkg., a/c p/w p/l alarm, 10dc 158K mi. \$4,295. 516-446-8373.

96 BUICK CENTURY WAGON - V-6, excel. cond., 114 mi. \$3,300. Ext. 2841 or 369-2170/eves.

96 CHEVY BLAZER - runs well, looks great. 137K mi. \$2,900/neg. Joseph, Ext. 2386 or 399-1013.

92 FORD LARGE BOX TRUCK - must sell, perfect work veh., int. shelving, ladder racks, a/c, brand new brakes. 116K mi. \$3,500/neg. 849-4705.

87 CHEVY SUBURBAN - 4wd, P pass., a/c, p/w, p/l, am/fm/cass., 5.7L TBI, ser. records/manual incl. \$950/neg. Chris, Ext. 2094 or 831-3469.

85 COACHMAN CRUSADER CAMPER - bunks, slp 6, a/c, toilet, sink, tub, shwr, new h/w htr., mwave, 2-20lb LP, batt., extras, 0 mi. \$2,995/neg. Ext. 7237 or 929-6571.

84 CHEVY MONTE CARLO SS - all orig/stock/paint, 2 owner car, always maint., runs well. \$2,800. Rich, Ext. 7294.

CAR RAMPS - used car ramps, v. well built, must sell, \$15/neg. will trade for jack stands. William, Ext. 7139 or 205-0501.

TOOLBOX - Husky aluminum diamond plate, you pick up, \$50. Ext. 2841.

### Boats & Marine Supplies

23' RENKIN W/A CUDDY - must go! \$600/neg. Joseph, Ext. 2386 or 399-1013.

### Furnishings & Appliances

BEDROOM SET - Queen Formica, incl. headboard, 2 end tables, dresser w/mirror, blk/grey,\$150/obo. Ext. 2269.

BUREAUS - 3 different styles; 5 drwrs; 9 drwrs, 19"x74"; 3 drws, 19"x34"; \$25 ea. Ext. 7647.

DESK - pine, 3 drawers, gd cond. \$15; 2 bar-style chairs, gd. cond., \$10. Ext. 7647.

GIRL'S BEDROOM - Antique wht, floral design: dresser, mirror, hdbd, desk w/hutch, chair. VG cond. \$450. 744-0074.

KENMORE RANGE - Electric, 220V, white, 4 element solid surface cook top, 30"w, gd cond. \$200. Ext. 7936 or 241-8440.

MATTRESS - wooden base spring, from IKEA. qu size, gd. cond. \$60. 924-4068.

RECLINER - chair lift, used only 1 mo., orig/\$864, ask/\$350. 928-5185.

SOFA, LOVESEAT - Sofa: 84", velvet stripe, wood trim, earth colors. Matching l/seat: 58", VG cond., Both \$300. 744-0074.

### Audio, Video & Computers

CAR STEREO - Acura orig. equip., 1 unit w/am/fm radio, CD & cass. player, all works, \$25. Jim, Ext. 2432 or 821-9178.

GRETAG MACBETH EYE - 1 display, calibrates color characteristics of yr monitor, for digital photog, new in box, \$80. Ext. 3621.

KORG M3R MIDI MODULE - A classic sounding Korg synthesizer in 1 rack unit, manual incl., \$150. Ext. 3621.

MONITOR & DRIVES - Dell 20" CRT monitor \$15; Sony DVD/ROM drive \$15; IBM 40GB HD \$10; All for \$35. Ext. 7505.

PHOTO SCANNER - Epson Perfection 3170, used 1x, \$75; HPDesketj840C printer, \$35; Compag 13" color mon. \$25. Ext. 7647.

SUBWOOFERS - Atlantic Technology #pbm70, self pwred, 125 watt 10" woofers, self pair only \$250/obo. Edward, Ext. 7160.

SUZUKI Q-CHORD DIGITAL GUITAR - portable synthesizer shaped like guitar w/strum plate, MIDI, effects, speaker, \$170. Ext. 3621.

### Free

GARLIC CHIVES - great herb for cooking that grows into late fall, Steve, 404-8109.

RAGDOLL CAT - Beautiful male, de-clawed, 3 yrs old. Loving & cuddly. Seal mitted color. To a good cat lover only. Linda, Ext. 5165.

### Sports, Hobbies & Pets

GLASS AQUARIUM - Perfecto, new 20 gal. w/screen lid, dbl-seald, for fish/sm. animals/snakes, \$20. Ext. 4931 or 929-2867.

GOLF CLUBS - several sets w/ bags, call for details. Chris, Ext. 2094 or 831-3469.

KASTLE SNOW SKIS - 170 length; w/ski bag & poles; Solomon quick-release bindings; b/o. Sue, Ext. 4931 or 929-2867.

### Tools, House & Garden

GOLF CART TYPE - Sears, 8HP 30, 3 spd + reverse, floating deck, need sm. tire, \$125/obo. Frank, Ext. 4748 or 277-0464.

HEDGE TRIMER - elect., excel. cond., \$20. Joseph, Ext. 3783 or 487-1479.

LAWN TRACTOR - needs eng., otherwise in grt cond. \$150. Joe, Ext. 3783 or 487-1479.

LAWN TRACTOR - 11 hp, 38" cut, \$100. Ext. 2841 or 369-2170/eves.

LOGSPLITTER - hand hydraulic, home made w/extra pump, \$50. Ext. 5551 or 772-4751.

PATIO SET - green trim, 7 pc. oval table w/glass top, 4 chrs w/pads, umbrlla w/base, clean, seats 8, \$150. Nancy, Ext. 4567.

TABLE SCROLL SAW - Delta, grt for intric. wood work, \$50. Ext. 2094 or 831-3469.

### Miscellaneous

CHILD SAFETY SEATS - for children 20-80 lbs, 5 point harness or booster w/existing belts, \$15/ea. Kelly, Ext. 4901 or 580-2940.

GLASSES, WREATH - 2 sets drinking glasses, hardly used, \$1/ea.; floral wreath, xl, blue/mauve hydrangea, pic avail. mb@bnl.gov. Mary, Ext. 3670.

### For Rent

CENTER MORICHES - 1 bdrm apt., grnd. lvl., priv. ent., lr, kit., full bath, ns/np, util. incl., avail. immed. \$1,000/mo. 236-3884.

EAST MORICHES - lg, 1 bdrm. apt. on lake w/pvt. deck, walk/n/closet, l/r, eik, d/w, micro, lg. bath, w/d, cac, heat incl., no smkg/pets. \$1,175/mo. 874-0148.

MT SINAI - 2 bdrm, eik, l/r, cac, full bath, approx. 900 sq. ft., all util. incl. except phone, no smkg/pets please. \$1,500/mo. Ed, 474-1205.

NEW PORT RICHEY, FL - 2 bdrm., 2 bth golf condo, 2 pools, 2 g. crses, 15 min. to beaches, avail. Dec-Mar. discont for all 4 mos., 2 mos. min. \$1,300/mo./neg. Ext. 2539.

REMSENBURG - 1 bdrm. guesthouse, furn., gar. space, cac, heat, single, year-round, \$1500/mo, util not incl., avail. 10/1, 1 mo sec., \$1,500/mo. 325-1733.

REMSENBURG - lg. studio, furn., gar. space, suitable single, cac, heat, \$900 mo, util. not incl., yr-round, avail. Oct., 1 mo.sec. \$900/mo. 325-1733.

ROCKY POINT - 1-bdrm. apt., kit., l/r, bath, pvt. drway/ent., no smkg/pets, 1 mo. sec., util. not incl., \$850/mo. 821-3287.

ROCKY POINT - 1 bdrm. house, priv. area nr beach, newly renv., no pets, incl. elect./wtr., + sec. \$1,100/mo. 744-5282.

SHIRLEY - wide & bright, 2.5 bed & 2 bath apt. w/lg kit. & l/r, 10 mins. to Lab & beach, looking for only 1 roommate to share it. \$700/mo. Altaf Karim, 302-562-8410.

SHIRLEY - 1 rm., kitnet., full bath, sep. ent., furn., tv, wireless int., all incl., 5 min. to stores/beach., 15 to lab., 1 mo. sec., no smkg/pets. \$650/mo. Regis, Ext. 8321.

SHOREHAM - furn 1 bdrm. apt., l/r, d/r, full kit.& bath, a/c, many extras, util. incl. no smkg/pets, pvt/ent/drway., single/couple, 1 mo. sec/rent, 5 min. to Lab \$1,000/mo. Ext. 5263 or 375-7959.

SHOREHAM - 1 partial furn. bdrm., share a house w/professional, 7 mi. to BNL, internet & tv incl., no smkg/pets, single pref. \$600/mo. Ext. 3785 or 744-3543.

SOUND BEACH - 1 bdrm., 1 bath house, OHW heat, w/d, close to BNL and SUNY. pets ok. \$1,050/mo. John, Ext. 4028.

WADING RIVER - clean 1 bdrm., pvt. ent./deck, full kit/bath, newly painted, cable, incl. all util., no smkg/pets, 1 mo. sec. \$1,100/mo. Sue, Ext. 4931 or 929-2867.

YAPHANK - 2 bdrm. apt., l/r, eik, full bath, util. incl., close to BNL and county bldgs., no pets/smkg., 1 mo. sec./ref. req \$1,000/mo. Hank, 516-551-1901.

### For Sale

BELLPORT - 4-BR. ranch, 2 bth, l/r w/dble opening fp to den, d/r, eik, oak flrs, screened deck on priv. yard, laundry rm, fin. bsmt: w/4th BR, bar, full bth, 2 rms; gar., 2 sheds, sprinklers, gt. cond. \$425,000; 949-7797.

FARMINGVILLE - custom ranch, 2500 sf, 3 br, 2 bth, eik, l/r, d/r, den, wood flrs., 2.5 car gar., igs, ipp, many upgrades, dead end st. <http://li4salebyowner.com/publ> \$499,900/neg. 516-906-3348.

SOUND BEACH - 1 bdrm, 1 bath house in gd. cond. ohw heat, w/d, close to BNL and SUNY, taxes 1200. \$189,900/neg. John, Ext. 4028 or 821 5334.

### On-Site Services

ENTERPRISE RENT-A-CAR - Stop by the on-site office at Bldg. 355, 50 Brookhaven Ave., to check weekend specials, daily rates. Or call Ext. 4888 or see [www.enterprise.com](http://www.enterprise.com).

ON-SITE SERVICE STATION - gas, all vehicle services: NYS inspections, new batteries, tires, timing belts, etc., we also service starter motors for boat engines. Done while you are at work. Ext. 4034.

NAYYARSONS CATERING - Cafeteria: b/ fast: wkdays, \$2.99 up; lunch: \$4.95 up; grill, \$6.50 up incl. fries, soda; Fridays, Catch of Day, from \$5.99; see link on BNL homepage or Ext. 4636 or 3541; B/haven Center - full menu dinners 5-8 p.m.; specials 5-6:30 p.m. 3-course, wine/soda, coffee, \$10.95 or \$9.95 (no take out); all plus tax.

## Hospitality Committee Bus Trip to Bronx Zoo, 9/16

The Hospitality Committee announces a trip to the Bronx Zoo on Sunday, September 16., leaving from the Lollipop House in the apartment area at 9 a.m. and leaving the zoo at 5 p.m., returning to BNL at about 7 p.m. Tickets must be reserved in advance; contact Monique de la Beij, [mdelabey@optonline.net](mailto:mdelabey@optonline.net) or at 399-7656 after 9/3. The cost is \$10 per adult and \$5 per child 2-12 (under 2s are

## Last of BNL's Summer Sundays, 8/19 Tour the Relativistic Heavy Ion Collider

BNL's Summer Sundays open days for the public conclude by featuring the Lab's Relativistic Heavy Ion Collider, RHIC. There, using three-story-tall detectors to track the results, scientists find out what happens when they smash two beams of gold particles moving at 99.9 percent of the speed of light around the RHIC ring. Recently, scientists have identified a state of matter that existed in the first millionth of a second after the Big Bang. It's a "perfect" liquid — a scientific surprise.

**Recent visitors at the STAR Detector at BNL's Relativistic Heavy Ion Collider (RHIC) were U.S. Representative Tim Bishop (left) and U.S. Representative Steve Israel (right). (See story, page one.)**



Joseph Rubino D0330807

As usual, both adults and children can also enjoy 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 from 10 a.m. to 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.

## Mem Shannon in Concert, 8/18

Tomorrow, Saturday, August 18, at 8 p.m. in the Brookhaven Center (*note change of venue*), the BNL Music Club and the Long Island Blues Society present Mem Shannon, a former New Orleans cab driver who is now a guitar player, songwriter, and singer. Accompanied by his band — drums, bass, saxophone and keyboard — Shannon will play jazz, funk, blues, soul, and R&R. Nominated for two 2006 Blues Music Awards, he uses sharp wit and social commentary in his vocals.

The Music Club regrets that another featured performer, Sam "Bluzman" Taylor of the



Blues Hall of Fame will not appear. Buy tickets at \$15 at the BERA Store or at the door of the show. Visitors to the Lab age 16 and over must bring a photo ID.

## Concert: Commander Cody, Professor 'Louie,' 9/15

Commander Cody and his Band will play on Saturday, September 15, at 8 p.m. in Berkner Hall. They will be joined on stage by Professor "Louie" and the Crowmatix. Sponsored by the BNL Music Club, the event is open to the public. Buy tickets at \$25 each at the BERA Store or at the door the night of the show. Visitors to the Lab age 16 and over must bring a photo ID.



Commander Cody (a.k.a. George Frayne) has been playing music for decades. Most notably on his resume is the runaway hit, "Hot Rod Lincoln," recorded by Paramount Records. The song reached the top ten in 1972. The members of the band at that time were billed with legendary musicians such as the Eagles, the Doors, Jefferson Airplane and the Grateful Dead. Today, Cody and his band tour and entertain fans across the country. Current band members include Steve Barbuto, drums and vocals; Rick Mullen, bass; and Mark Emerick, lead guitar and vocals.

Professor "Louie" and the Crowmatix's several recordings include their first CD, *Souvenir, Vol. 1*, released with Levon Helm, on Woodstock Records in 1997. The band's set includes originals and songs by other artists, blending country, folk, and rock and roll. They have opened shows for Taj Mahal, Cyndi Lauper, and The Band.

free). After reserving, pay at: Berkner Hall lobby, Bldg 488, Tuesday, September 11, 10:30-11 a.m., or at the Rec Hall, Wednesday, September 12, 10:30-11 a.m. Buy your zoo admission tickets at the zoo, at \$14 per adult and \$10 for children ages 2-12. For information about a 20 percent admission discount for BNL employees only, contact Joanna Rula, [jrula@bnl.gov](mailto:jrula@bnl.gov).