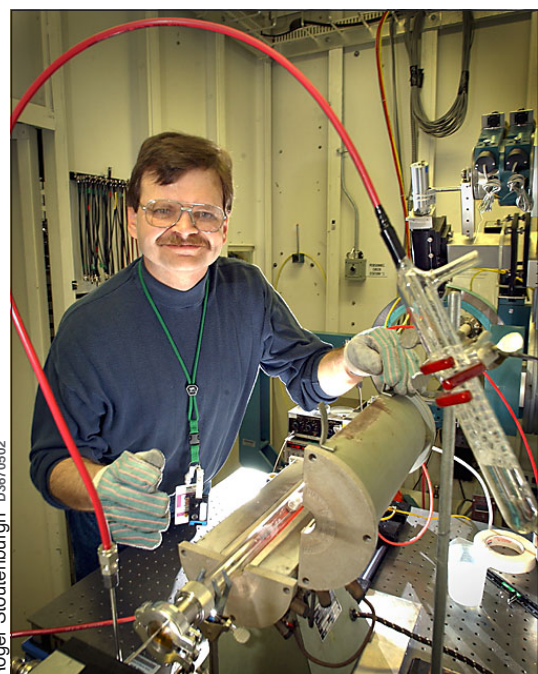


NSLS User Research

Curbing Nitric Oxide in Car Exhaust



Dave Mullins

Smog and acid rain could be reduced in large cities if nitric oxide could be removed from car exhaust.

Nitric oxide, which also causes skin irritation and blood damage, is usually destroyed inside a car's catalytic converter, but existing catalysts are unable to meet new standards for pollution control and fuel efficiency. Now, funded by DOE's Division of Chemical Sciences, Geosciences & Biosciences in the Office of Basic Energy Sciences, Oak Ridge National Laboratory (ORNL) scientists working at the National Synchrotron Light Source (NSLS) at BNL have unveiled some of the inner workings of a compound that promises to curb cars' nitric oxide emissions more efficiently.

For the last four years, led by ORNL chemist Dave Mullins, the scientists have been looking at how a catalyst – a material used to accelerate chemical reactions – made of cerium oxide and

dispersed particles of rhodium or thin oxide films grown in vacuum – and pass reactant gases over them. Then they direct x-rays produced by the NSLS toward the samples while adjusting the sample temperature or reactant gas composition. Acting as a camera, the x-rays produced "snapshots" of how the catalyst broke the nitric oxide gas apart.

Two processes, called photoemission and photoabsorption, allowed the scientists to get a glimpse at the nitric oxide breakup mechanism.

In the photoemission process, light absorbed by the compounds ejects tiny particles called electrons. By measuring the energies of these electrons, the scientists can determine the identities of gases adsorbed on the catalyst. In the photoabsorption process, light that is absorbed by the catalyst provides complementary information about the composition of the catalyst itself.

(continued on page 2)

NSLS's Podobedov Wins APS Award For Outstanding Thesis Research

Boris Podobedov of the National Synchrotron Light Source (NSLS) Department has won the American Physical Society's (APS) 2002 Award for Outstanding Doctoral Thesis Research in Beam Physics & Engineering.

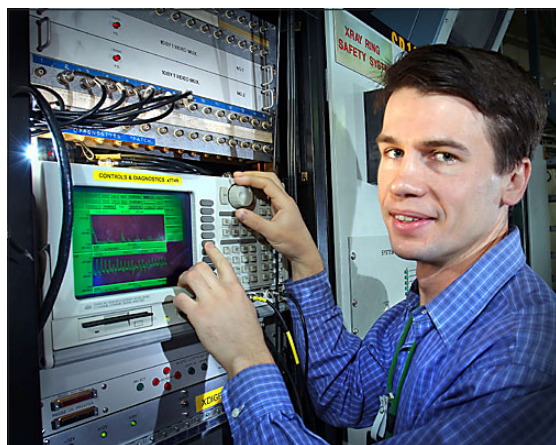
The annual award was established in 1990 by the APS Division of Physics and Beams and is currently supported by Brookhaven Science Associates, Southeastern Universities Research Association, and Universities Research Association.

"I am honored to receive this award, which is related to my studies at the Stanford Linear Accelerator Center," said Podobedov. "Since I came to BNL in

ticated technique provides a powerful tool for the study of nonlinear instabilities above threshold."

Most storage rings, whether used as light sources or high-energy physics accelerators such as SLC, require high beam current. When the current is increased, electrons or other types of stored subatomic particles reach a critical density and various kinds of instabilities tend to occur, which degrade beam quality.

For example, microwave instability affects internal bunch structure – the way in which particles are grouped together in a beam – which is often hard to measure. Using some novel diagnostics as well as an instrument



Boris Podobedov

1999, I've been applying similar techniques to study beam dynamics at the NSLS rings."

The award, which consists of \$2,500 and a certificate, was announced at an APS meeting in Albuquerque, New Mexico, on April 21.

Podobedov was cited "For an experimental study of the microwave instability in the Stanford Linear Collider (SLC) damping rings using a streak camera to correlate each event to the RF. The development of this sophis-

able to show understanding of the detailed structure of the instability and to identify the mechanism that caused it.

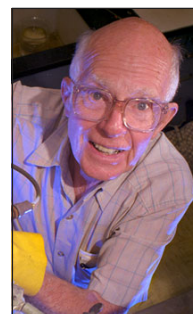
At the NSLS, Podobedov has led a team of NSLS staff in designing and implementing the digital orbit-feedback system. This system stabilizes electron beam motion, which in turn results in more stable synchrotron light for experiments.

Installed in the vacuum ultraviolet (VUV) ring since

(continued on page 2)

Ray Davis Wins

NATIONAL MEDAL OF SCIENCE



Inside story, page 2

NSLS User Research

Structure of Anthrax Toxin's Final Component Determined



Andrew Bohm

A team of scientists from the Boston Biomedical Research Institute and the University of Chicago's Ben-May Institute for Cancer Research has determined the structure of anthrax's third and last component, a protein called edema factor (EF).

By using very intense x-rays from the National Synchrotron Light Source at BNL, biologist Andrew Bohm, one of the team members, revealed the first steps of the process by which this protein inhibits the immune response of a person who has inhaled anthrax. EF binds to a protein called calmodulin – which is present in the host cell – prompting EF to produce chemicals that inhibit the immune response.

Although the researchers do not yet have a complete understanding of how EF allows anthrax to infect host cells, this work, which is funded by the National Institutes of Health, may ultimately lead to new antibiotics.

— Patrice Pages

NSLS User Research: Shortcut Found For Examining Protein Structures

Scientists from Los Alamos National Laboratory, led by physicist Robert Von Dreele, are pioneering a faster use of x-ray powder diffraction, a well-understood technique to determine the structure of large proteins. This technique is based on x-ray diffraction, in which researchers look at the way x-rays scatter off a crystal to determine its structure.

To study large proteins using x-rays, scientists usually grow one large crystal of a protein made of hundreds of thousands of atoms – a task that requires weeks of intense work. Instead, the Los Alamos scientists prepared a powder made of numerous very small



Robert Von Dreele

crystals of a protein, a process that takes only a few seconds. They then bombard the powder with x-rays generated by the National Synchrotron Light Source.

The scientists successfully applied this method to examine the structures of large pro-

teins, such as complexes involving lysozyme – an antibacterial protein – and a new form of insulin. X-ray powder diffraction shows great promise for wide application in the pharmaceutical industry. This research is funded by the Office of Basic Energy Sciences in DOE's Office of Science.

— Patrice Pages

NSLS Annual RapiData Course in X-Ray Crystallography Again Successful



2002 RapiData Course participants

Brookhaven's offering of RapiData 2002, the fourth in an annual series of crash courses in x-ray crystallography, was once again a huge success. Forty-eight students from around the world participated from April 21 to 26.

More formally titled "Rapid Data Collection and Structure Solving at the NSLS: A Practical Course in Macromolecular X-Ray Diffraction Measurement," the program was developed by BNL's Biology and National Synchrotron Light Source (NSLS) departments to introduce students to the best people, newest equipment, and latest techniques in macromolecular x-ray crystallography.

Half the students came to observe; the other half came with their own specimens with the goal of solving the structure of a particular enzyme. About four structures were solved during the course, and each of these is likely a publishable result.

Designed and run by Bob Sweet and Denise Kranz of BNL's Biology Department, the program is funded by a range of agencies. Key support comes from the National Institutes of Health National Center for Research Resources, with significant support from DOE's Office of Biological & Environmental Research.

(continued on page 2)

Calendar
of Laboratory Events

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

The list of regularly scheduled weekly events will appear in next Friday's Bulletin

May is Asian Pacific
American Heritage
(APAH) Month

— THIS WEEKEND —

Friday, 5/17

Verizon Wireless Demo

11 a.m. - 2 p.m., Berkner Hall. A representative will present BNLeers with special rates on wireless service. Harry Campbell, 516-458-9122.

Saturday, 5/18

BNL Ballroom, Latin & Swing Dance Club:
10th-Anniversary Celebration Social

8 p.m.-midnight, special evening of contemporary ballroom, hot Latin, and retro swing, 10:30 p.m. awards ceremony. Marsha Belford, belford@bnl.gov or Ext. 5053.

— WEEK OF 5/20 —

Monday, 5/20

IBEW Meeting

6 p.m., Knights of Columbus Hall, Railroad Ave., Patchogue. A meeting for shift workers will be held at 3 p.m. in the union office. The agenda includes regular business, committee reports, and the president's report.

Wednesday, 5/22

373rd Brookhaven Lecture Postponed
This month's Brookhaven Lecture has been postponed. See Tuesday, 6/4.

Thursday, 5/23

Skin Cancer Screening

9 a.m.-noon, Occupational Medicine Clinic. All screening appointments are filled and 15 people are on a waiting list. Mary Wood, Ext. 5923.

Friday, 5/24

*APAH Piano Recital

Noon, Berkner Hall. Piano Recital presented by Eric Sun. For more information about Asian Pacific American Heritage Month events, see www.apaa.bnl.gov/.

— WEEK OF 5/27 —

Tuesday, 5/28

'March Into May' Spring Walk

Noon. The two-mile walk begins at Bldg. 438. Registration is not required. Mary Wood, Ext. 5923, wood2@bnl.gov.

Wednesday, 5/29

'March Into May' Mountain Bike Ride

Noon. The five- or eight-mile bike ride begins at the gazebo. Bike and helmet are required. Registration is not required. Mary Wood, Ext. 5923, wood2@bnl.gov.

Music Recital

Noon, Berkner Hall. Recital will be given by pianist Ruth Bennett. More information to follow.

Thursday, 5/30

VoiceStream Wireless Demo

10 a.m. - 2:30 p.m., Berkner Hall. Special rates will be presented to BNLeers on VoiceStream's wireless network. Richard Goll, (516) 343-5900.

BWEN Brown-Bag Lunch Meeting

noon-1 p.m., Berkner Hall, Room C. For more information on the Brookhaven Women Engineers Network, contact Arlene Zhang, Ext. 5369, arling@bnl.gov.

'March Into May' Golf Workshop

Noon at the ball field by the gazebo. Registration is required. Mary Wood, Ext. 5923, wood2@bnl.gov.

Friday, 5/31

'March Into May' Tennis Workshop

Noon at the tennis courts. Registration is required. Mary Wood, Ext. 5923, wood2@bnl.gov.

What Is the Most Beautiful
Experiment in Physics?



Roger Stoutenburgh DO300399

Robert Crease

Some of the criteria Crease quotes are that the experiment must change what people think, must not be too complicated or expensive, and must be within reach of students.

Already, Crease's article, which was featured in slashdot.com, has drawn much interest from readers. To see his full article and nominate an experiment, go to www.bnl.gov/bnlweb/physq/.

As many BNLeers know, Robert Crease, the Lab historian and philosophy professor at Stony Brook University, writes a monthly column in *Physics World*. In this May's issue, he asks, "What is the most beautiful experiment in physics?" Among his suggestions, Crease cites BNL Distinguished Scientist Maurice Goldhaber's 1957 experiment "in which he established that neutrinos have a 'negative helicity' — in other words, that their intrinsic angular momentum, or 'spin,' is in the opposite direction to their momentum."

NSLS Annual Users' Meeting

Monday-Wednesday, May 20-22

Monday, May 20, Workshops

Tuesday, May 21, Main Meeting

Wednesday, May 22, Workshops

2002 NSLS Annual Users' Meeting Sponsors

Albert Einstein College of Medicine • Brookhaven Science Associates • Cold Spring Harbor Laboratory • Dow Chemical Company • ExxonMobil Research & Engineering Co. • General Electric Corporate Research & Development • IBM Research Division • International Radiation Detectors Inc. (IRD) • National Synchrotron Light Source • Princeton Gamma-Tech, Inc. (PGT) • Stony Brook University • UOP LLC

2002 NSLS Annual Users' Meeting Exhibitors

ACCEL Instruments GmbH • Advanced Design Consulting, Inc. • Alcatel Vacuum Products • Blake Industries • Bruker AXS • Brush Wellman, Inc. • Electrofusion Products • Faber Industrial Technologies • Gammadata Scientia AB • Goodfellow Corporation • Janis Research Company, Inc. • Key High Vacuum Products, Inc. • K-tek International, Inc. • MDC Vacuum Products Corporation • Micro Photonics, Inc. • Oxford Danfysik • Oxford Instruments • Pascal Technologies, Inc. • Pfeiffer Vacuum, Inc. • SR Associates, Inc. • Tektronix, Inc. • Thermo Vacuum Generators, Inc. • UW-Madison Physical Sciences Laboratory • Vacuum Solutions Group, Inc. • Varian Vacuum Technologies • VAT, Inc.

For registration, meeting, and workshop information, go to:
<http://nslsweb.nsls.bnl.gov/nsls/users/meeting>



Curbing Nitric Oxide in Car Exhaust (cont'd.)

These experiments confirm that the rhodium particles are the movers and shakers responsible for destroying nitric oxide.

"The rhodium particles first weaken the bond between nitrogen and oxygen," Mullins explains. "Then the nitrogen is released as a gas, and the oxygen goes into the cerium oxide or reacts with surrounding hydrogen and carbon, leading to water and carbon dioxide, respectively."

Much to their surprise, the scientists also found that the rhodium particles were being influenced by the cerium oxide.

"We thought that a rhodium particle and the cerium oxide were as independent as an object sitting on a table," Mullins says, "but you can get indirect interactions between the powder and the particles."

The interaction between the rhodium and the cerium oxide makes the rhodium more active, increasing its ability to break the nitrogen-oxygen bond, Mullins adds.

Adding impurities in the cerium oxide can also make it work better, the scientists observed. After trying various types of impurities, they noticed that zirconium, a steel-gray metal used in

alloys and ceramics, "dramatically improved the ability of the cerium oxide to exchange oxygen," Mullins says.

The scientists also looked for ways to reduce the temperature at which nitric oxide is broken down. Much of the pollution emitted by an automobile is produced just after a car is started, before the engine and catalyst reach their operating temperature. Reducing the temperature for nitric oxide decomposition will improve the catalysts performance during the warm-up period.

As it turned out, the added zirconium lowered the temperature at which cerium oxide exchanges oxygen by about 100 degrees Celsius.

Mullins and his collaborators are now investigating the mechanisms by which zirconium improves the catalytic properties of cerium oxide. They are also studying the action of other impurities such as dysprosium.

"The research efforts needed to optimize the destruction of nitric oxide in car exhaust are extensive," admits Mullins, "but the knowledge that we have gained so far will lead to more new discoveries."

— Patrice Pages

Chemistry's Raymond Davis Wins
2001 National Medal of Science



Mort Rosen 11-769-67

In 1967, Ray Davis, at the bottom of the ladder, talks to team member John Galvin who is on the catwalk atop the 100,000-gallon tank used in the solar neutrino experiment Davis led in the Homestake Gold Mine in Lead, South Dakota.

For lifetime achievements in scientific research in the physical sciences, Raymond Davis Jr., who did pivotal work on neutrinos while a member of BNL's Chemistry Department, has been named as one of the 15 recipients of the President's 2001 National Medal of Science.

Davis was the first scientist to detect solar neutrinos, the signature of nuclear fusion reactions occurring in the core of the sun. In research from 1967 to 1985, using chlorine detectors located deep underground in a South Dakota gold mine, Davis found only one-third of the solar neutrinos that standard theory predicted. His results initiated decades of "solar neutrino puzzle" research, which eventually confirmed the discrepancy and led to the discovery that neutrinos change, or oscillate, from one to another of their three forms.

For more information on Davis and background on solar neutrinos, go to <http://www.bnl.gov/bnlweb/pubaf/pr/2002/bnlpr050902a.htm>.

Podobedov (cont'd.) NSLS RapiData (cont'd.)

August 2000, the system measures the displacement of electron orbit due to various factors such as floor vibrations or electrical noise, and then uses small magnets to correct for it. Currently, Podobedov is adapting this system for the NSLS x-ray ring. His other projects include possible upgrade options for the NSLS, and experimental studies of collective beam dynamics in the VUV ring.

Podobedov received his M.S. in physics from the Moscow Institute of Physics and Technology, Russia, in 1993, and his Ph.D. in applied physics from Stanford University in 2000. He joined the NSLS in October 1999 and became associate physicist in 2001. — Diane Greenberg

Arrivals & Departures

Arrivals

Barbara Hoffheins NNS

Departures

Anthony Di Bono C-A

The course starts with two days of lectures and tutorials taught by BNL scientists and scientists from industry, academia, and other national labs — a total of 38 instructors, tutors, or helpers, many of them volunteers.

These mentors then serve as hands-on scientific supervisors when the students move to the NSLS beam lines to begin collecting data on their crystal samples. There are also plenty of occasions for stimulating conversation over drinks and meals.

"Everyone, teachers and students alike, finds the experience absolutely riveting. The 60 hours of data collection are near chaos on the NSLS floor. But each of us ends up exhausted but happy, having learned a little from each of the others," Sweet said.

— Karen McNulty Walsh
For more information about this year's program go to: <http://www.px.nsls.bnl.gov/>.

HR Self-Service Comes to BNL



Roger Stoutenburgh D0020502

Central to the success of the three-division collaborative effort to make HR Self-Service available at BNL are project leaders: (from left) Cheryl Burke, Fiscal Services Division; Bonnie Miller, Human Resources Division; and Robert Retundi, Business Systems Division.

Starting next week, on Monday, May 20th, BNL employees will be able to see their pay stubs, update their personal information, and change their W-4 withholding using any computer that supports a web browser.

The Human Resources and Fiscal Divisions, with the help of the Business Systems Division, have developed a web-based self-service function that is built into PeopleSoft HRMS (Human Resource Management System) to give employees this new option.

Since not all employees have access to computers, these features are being offered in addition to, not instead of, existing methods. So, although employees will now be able to see their pay stubs on their computers first thing in the morning each pay day, they will still receive pay stubs in paper form later in the day.

As for updating personal information, Mike Dooling, Business Systems Manager, said, "Employees are the best source of their own personal information. We hope that people will use this new option as an easy way to review existing data and make corrections where needed."

For example, it is important that people keep their emergency contacts updated. "In the past, the Medical Clinic has sometimes found that the contact information for an injured employee is either out of date or missing," Dooling commented.

Since web self-service involves personal information, great care is being taken to ensure security. Each employee will be issued a personal log-in and password to access PeopleSoft HRMS.

To Obtain Your Password

To request a password, go to the PeopleSoft HR log-on web page, a link that is available from either HR's home page or BSD's Applications page. Click on "Request/Forgot My Password" and a unique password will be mailed to your BNL e-mail address. If you need help with this, call the Help Desk, Ext. 5522. All communication between your computer and the PeopleSoft server is encrypted, using an industry-standard technology called Secure Sockets, and the PeopleSoft server can only be accessed at BNL.

More to Follow

"The self-service feature that will start this month is only the first phase of a plan to make it easier for employees to do business with HR and Fiscal," said HR Director Bill Hempfling. Later in the year, HR plans to implement a feature called eBenefits. This will let employees see their benefits elections and, during the annual enrollment period, change them directly on the web, Hempfling explained.

"We also intend to add the ability to change 401A and 401K elections via the web," said Mark Israel, who heads Fiscal. "Currently, employees can change their funds selection with a provider like TIAA-CREF on their web site, but, to change the amount that goes to each provider, paper is still needed. We'll be adding these extra features as soon as we can."

— Liz Seubert

Hispanic Heritage Club Seeks Members

The newly formed BERA Hispanic Heritage Club welcomes new members to help plan events to celebrate Hispanic Heritage Month this fall.

The club will hold a meeting on Monday, May 20, at 11:30 a.m. in the Bldg. 134 Conference Room. All BNLees are welcome. To join, contact Carmen Narvaez, Ext. 3254, or Alejandro Sonzogni, Ext. 5334.

Defensive Driving

A six-hour defensive driving course will be offered on Saturday, June 1, 9 a.m.-3:30 p.m., in Berkner Hall, Room B.

To register, send a check for \$26 per person, made out to Empire Safety Council, in care of Scott Zambelli, P.O. Box 670, Mount Sinai, NY 11766. Include your telephone number in case you need to be contacted. All checks must be received no later than May 24.



Piano by Eric Sun, 5/24 Asian Pacific American Heritage Month Celebration

Eric Sun, a 14-year-old pianist, will play works by Beethoven, Chopin, and Ravel at noon on Friday, May 24, in Berkner Hall, as part of the Asian Pacific American Heritage Month celebration.

Eric, son of Casper Sun, Waste Management Division, began his piano studies at the age of six, and, at age eight, he won first place in the ten-and-younger age group of the 11th Annual Chiang Wen-Yeh International Young Artist Piano Competition. Sun has performed at Carnegie Hall several times and has appeared with the Baylor Symphony in Waco, Texas, where he presented Gershwin's Concerto in F.

In April 1999, Sun was chosen to give the inaugural performance in the BSA Noon Recitals. The next year, he won a scholarship to the Preparatory Division of the Manhattan School of Music. This April, he won first place with honors in the 2002 Corpus Christi competition.

Noon recitals are free and open to the public. Bring your lunch and come and go as you please.



Asian Pacific American Heritage Month Dinner and Cultural Performance, 5/31 Tickets are still available

In celebration of the culture and achievements of Asian Pacific Americans and to support American values through cultural connections, BERA's Asian Pacific American Association (APAA), BNL's Diversity Office, the Asian American Faculty Staff Association, and Stony Brook University's Asian American Center Bridge are hosting a dinner and cultural performances on Friday, May 31, from 5:30 to 9 p.m. in Berkner Hall.

Tickets can be purchased from Achyut Topé, Ext. 5672; Hai-Dee Lee, Ext. 2062; Beth Lin, Ext. 3372; Susan Wong, Ext. 7988; Casper Sun, Ext. 3469; Rudy Alforgue, Ext. 4733; or Ila Campbell, Ext. 2206. For more information about Asian Pacific American Heritage Month and the events listed above, go to the APAA's website, www.apaa.bnl.gov.



Challenge to Lab Golfers! BNL vs. Suffolk Golf Outing

Last year, Suffolk County golfers again walked away with the trophy in the annual BNL vs. Suffolk County tournament. However, a great time was had by all. With support from on-site golfers, relatives, friends and guests, BNL could win this trophy! So, come to Cherry Creek Golf Course on Monday, June 10, starting at 7:30 a.m. (shotgun start). The \$75 per golfer entry fee includes prizes, cart, and lunch after 18 holes of fun.

There are two formats for the outing: Two-player teams using net score (two flights); and Suffolk County Golfers vs. BNL Golfers (trophy and bragging Rights).

Competitions will also include putting, closest to the pin on par-3s, and longest drive on No. 4. The outing is open to all Lab employees, contractors, and guests. Contact Joe Carbonaro, Ext. 5139 or joe1@bnl.gov before Wednesday, May 29.

U.S. Open Tennis, 9/3

Some seats remain for the BERA Tennis Committee's bus trip to the U.S. Open Tennis Championships at the National Tennis Center in Flushing on Tuesday, September 3. The cost of \$61 per person includes bus transportation and a ticket for the day session. The bus will leave from the BNL tennis court parking lot at 8:30 a.m. and return home from the Tennis Center at 7:30 p.m. Make paid reservations at the BERA Sales Office in Berkner Hall.

Retirement Counseling

A TIAA-CREF representative will visit BNL on Thursday, June 13, and on Thursday, June 20, to answer employee's questions regarding the TIAA-CREF retirement plan. You might ask about: TIAA and CREF differences; allocating funds between TIAA and CREF; options, flexibilities with TIAA/CREF; and retirement options.

To arrange a 45-minute appointment, call Duane Walden, (800) 842-2733, Ext. 7289 (not the on-site Ext. 7289).

Hospitality Committee Manhattan Bus Trip

The Hospitality Committee will sponsor a bus trip to Manhattan on Sunday, June 2. The bus departs from the Lollipop House at 9 a.m. Tickets at \$10 per adult, \$5 per child ages 2-12, can be purchased at the Rec. Bldg. on Tuesday and Wednesday, May 21 & 22, and on May 28 & 29, 11 a.m.-noon. For more information, contact Nora Robles, 345-5259, or Mimi Luccio, 821-1435.

Calendar

(continued)

Friday, 5/31 (continued)

*APAH Dinner & Cultural Performances \$20 per person. 5:30-9 p.m., Berkner Hall. To purchase tickets, contact Tope, Ext. 5672; Hai-Dee, Ext. 2062; Beth, Ext. 3372; Susan, 7988; Casper, Ext. 3469; Rudy, Ext. 4733; or Ila, Ext. 2206. For more information about Asian Pacific American Heritage Month events, see www.apaa.bnl.gov/.

Sunday, 6/2

*Bus Trip to Manhattan

\$10 per adult, \$5 for children ages 2-12. Bus departs the Lollipop house at 9 a.m. Tickets are available at the Rec. Bldg. from 11 a.m. to noon on Tuesday and Wednesday, May 21 and 22, and on May 28 and 29. For more information, contact Nora Robles, 345-5259, or Mimi Luccio, 821-1435.

— WEEK OF 6/3 —

Tuesday, 6/4

373rd Brookhaven Lecture

Arthur Suits, BNL Chemistry, will present the 373rd Brookhaven Lecture. More details will follow in a future edition of the Bulletin.

Thursday, 6/6

*An Evening of Acoustic Music

\$3 per person. 7 p.m., Berkner Hall. Guitarist Bruce MacDonald and singer/songwriter Michelle Monté will appear in concert, the third in a series presented by the BNL Music Club. Purchase tickets at the BERA Sales Office, Berkner Hall, weekdays from 9 a.m. to 3 p.m. For more information, call Ext. 3846.

— WEEK OF 6/10 —

Thurs. & Fri., 6/13-14

BNL Blood Drive

9:30 a.m.-3 p.m., Brookhaven Center. BNLees from 17 to 75 years of age, in good health, and weighing over 110 lbs. are welcome. All donors should have photo identification and know their social security number. Susan Foster, Ext 2888, donateblood@bnl.gov.

— WEEK OF 6/24 —

Monday, 6/24

IBEW Meeting

6 p.m., Knights of Columbus Hall, Railroad Ave., Patchogue. A meeting for shift workers will be held at 3 p.m. in the union office. The agenda includes regular business, committee reports, and the president's report.

— WEEK OF 7/1 —

Wednesday, 7/3

*Spirit Dinner Cruise

\$89 per person. Celebrate Independence Day by sailing around Manhattan. Cruise past Ellis Island, the Statue of Liberty, and other landmarks. Round-trip bus transportation, a hot and cold buffet dinner, live music, and other entertainment will be provided. This event is open to those 12 years of age and older. Tickets available at the BERA Sales Office, Berkner Hall, weekdays from 9 a.m. to 3 p.m. Andrea Dehler, Ext. 3347, or M. Kay Dellimore, Ext. 2873.

— WEEK OF 7/22 —

Monday, 7/22

IBEW Meeting

6 p.m., Knights of Columbus Hall, Railroad Ave., Patchogue. A meeting for shift workers will be held at 3 p.m. in the union office. The agenda includes regular business, committee reports, and the president's report.

— WEEK OF 8/5 —

Friday, 8/9

N.Y. Yankees Baseball Game

\$55 per person includes ticket and bus transportation to Yankee Stadium to watch the Yankees take on the Oakland Athletics. Bus departs the Brookhaven Ctr. at 4 p.m. and will return at approximately 11:30 p.m. Tickets available at the BERA Sales Office, Berkner Hall, weekdays from 9 a.m. to 3 p.m. Andrea Dehler, Ext. 3347, or M. Kay Dellimore, Ext. 2873.

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. Please enter the information for each event in the order listed above (date, event name, description, and cost) and send it to bulletin@bnl.gov. Write "Bulletin Calendar" in the subject line.

Classified Advertisements

Placement Notices

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

OPEN RECRUITMENT – Opportunities for Laboratory employees and outside candidates.

MK3038. ASSISTANT PHYSICIST (S-1) – Requires a Ph.D. in physics, postdoctoral experience and an internationally recognized research record. Must have a strong interest in interacting with the experimental research groups in electron spectroscopy, neutron scattering, powder diffraction and x-ray scattering. Will be expected to develop an independent, world-class scientific research program. This is a tenure track position in the area of computational electronic structure theory, covering such fields as crystalline solids, soft materials and nanoscience. Under the direction of A. Tsvelik, Physics Department.

MK3039. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in nuclear or particle physics and previous experience with experimental work measuring beam or target spin asymmetries. Knowledge of C++ and ROOT-based data analysis and experience with detector construction and electronic read out highly desirable. Will be involved in developing the STAR detector at RHIC for the study of polarized proton

collisions. This development includes the construction of new detectors and electronic read out; writing of software and performing simulation studies; analysis of data with the STAR software framework. Under the direction of L. Bland, Physics Department.

MK2109. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in accelerator physics with both theoretical and experimental capabilities, experience in ring electron-cloud calculation and measurement, skill in computer simulation software development, and instability threshold and growth rate calculations. Must be able to work as a member of a project team to effectively implement design goals. Will work as a member of the Accelerator Physics Group in the Spallation Neutron Source Project. Under the direction of J. Wie, Collider-Accelerator Department.

MK2451. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in physical chemistry or electrical chemistry with experience in theoretical/computational studies of molecular systems, sound knowledge of quantum chemistry and/or molecular dynamics and experience in the use of GAUSSIAN and MOLPRO electronic structure programs. Work will involve theoretical research in nanocatalysis involving the electronic structure and vibronic spectra of nanoclusters, and the dynamics of chemical reactions on nanoparticles as part of an integrated nanoscience program focusing on the structure, characterization and reactivity of metal and metal-containing nanoclusters. Under the direction of J. Muckerman, Chemistry Department.

MK7977. POSTDOCTORAL RESEARCH ASSOCIATE (reposting) – Requires a Ph.D. in nuclear chemistry, radiochemistry, analytical chemistry, or nuclear physics. Experience in experimental techniques such as nuclear detection methods, data analyses, handling and preparing of radioactive samples, and chemical separations/studies of inorganic species in aqueous and organic media highly desirable. Individual will work for the Solar Neutrino Group, part of the SNO collaboration, searching for neutrino oscillations at the Sudbury Neutrino Observatory. Will be expected to spend extended periods of time at the site of the SNO project in Ontario, Canada. Under the direction of R. Hahn, Chemistry Department.

TB3083. PLUMBER – 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.

An Evening of Acoustic Music, 6/6

On Thursday, June 6, from 7 to 9:30 p.m. in Berkner Hall, guitarist Bruce MacDonald and singer/songwriter Michelle Monté will appear in a concert presented by the BNL Music Club. All are invited to attend. Refreshments are available at intermission.

Tickets can be purchased at the door or in advance at the BERA Sales Office, Berkner Hall, weekdays from 9 a.m. to 3 p.m. The suggested donation for tickets is \$3 each for adults. All proceeds will go to the Long Island Voices Foundation, a community youth Gospel choir.

This concert is open to the public and all BNLers are welcome. All concert-goers age 15 and older must have a photo ID to be allowed on site. For more information, contact the BNL Music Club, Ext. 3846 or diaz@bnl.gov.



Children's Swimming

Applications are now being accepted for BERA's summer swimming lessons, which are open to children of all Lab employees, visitors, and facility-users. Lessons will run from Monday, July 1 through Friday, August 23.

Program: Each child will be scheduled for one lesson per week for a total of eight lessons. American Red Cross certificates will be awarded to children who qualify on completion.

Time: Monday through Friday, 2:15-3:15 p.m. Children should arrive at 2 p.m. for preparation.

Fee: \$60 for each child upon registration, plus \$2 daily admission fee or present a season ticket.

Height: For their safety, children must be a minimum 42 inches tall.

Registration: Pick up applications at Human Resources, Bldg. 185, 8:30 a.m.-5 p.m.; the BERA Sales Office, Berkner Hall, weekdays, 9 a.m.-3 p.m.; or the swimming pool during scheduled hours. Mail or deliver applications with registration fees (checks payable to BERA) to the Recreation Office, Bldg. 15, no later than Friday, June 14.

BERA Events

Buy tickets for these and other BERA events on weekdays, 9 a.m.-3 p.m. at the BERA Sales Office in Berkner Hall. For more information, contact Andrea Dehler, Ext. 3347, or M. Kay Dellimore, Ext. 2873.

Long Island Ducks Baseball

Tickets are \$10 each, non-refundable, and are sold in pairs only, with a limit of four tickets per person. The seats are in the second level, row J, seats 7-10.

Spirit Dinner Cruise, 7/3

Join BERA on Wednesday, July 3, to celebrate Independence Day by sailing on a luxury yacht past the Statue of Liberty, Ellis Island, and views of Manhattan. The cost of \$89 per person includes round-trip bus transportation from BNL, a hot and cold buffet dinner, live music, and entertainment. This event is open to all 12 years of age and older.