the Bulletin

BROOKHAVEN NATIONAL LABORATORY

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Physicists Announce Latest Muon g-2 Measurement

Earlier measurement confirmed with twice the precision

Roger Stoutenburgh CN5-684-95

The 1995 photograph above shows many members of the muon g-2 team gathered around the world's largest superconducting magnet, which was built at BNL's Alternating Gradient Synchrotron for the experiment.

Scientists at BNL, in collaboration with researchers from 11 institutions in the U.S., Germany, Japan, and Russia, recently announced their latest result from a groundbreaking experiment known as muon g-2 (pronounced gee-minus-two). Performed at BNL's Alternating Gradient Synchrotron (AGS), muon g-2 is a precision measurement of the anomalous magnetic moment of the muon, a type of subatomic particle.

The new measurement, based on data collected in 2000, directly confronts what is called the Standard Model of particle physics, thereby strengthening scientists' confidence in a previous measurement reported by the same group in February 2001, based on data collected in 1999 (see Bulletin of February 16, 2001).

The new result, which has twice the precision of the earlier result and has been submitted to *Physical Review Letters*, was presented by physicist James Miller of Boston University at a special July 30 colloquium at BNL.

"The present difference between our experimental result and theoretical predictions may indicate new physics that lie beyond the Standard Model."
— Vernon Hughes

"Any difference, if we can find it, between experiment and theory has to be attributed to new physics," Miller said, citing supersymmetry, a theory that postulates a wide range of yet-to-be-discovered particles, as the most likely explanation.

The result was also presented on July 31st both by BNL physicist Yannis Semertzidis at the International Conference on High Energy Physics in Amsterdam, and by BNL physicist William Morse at the International Conference on Atomic Physics in Cambridge, Massachusetts.

"While not definitive, this new result is consistent with the presence of effects which are outside the Standard Model," said Boston University physicist Lee Roberts, co-spokesperson for the muon g-2 experiment. "Further work to clarify this hint of something new is essential; nevertheless this result is very interesting and provocative. Muon g-2 may provide a door that opens onto physics beyond the Standard Model," he said.

Vernon Hughes, Yale University, who initiated the muon g-2 program at BNL and is the other co-spokesperson, added, "Our new, higher-precision measurement of muon g-2 provides a unique and unusually sensitive test of the validity of the general theory of electromagnetism or, equivalently, of the Standard Model of particle physics. The present difference between our experimental result and theoretical predictions may indicate new physics that lie beyond the Standard Model. Effects on g-2 of speculative new theories have been extensively discussed in the literature."

Standard Model Test

The muon g-2 measurement is a very sensitive test of the Standard Model of particle physics, an overall theory of particles and forces that has withstood experimental challenge for some 30 years.

In February 2001, however, the muon g-2 collaboration published a finding that deviated significantly from the value predicted by the Standard Model. The result of that AGS experiment had a one percent statistical chance of being explained by the theory as it was understood at that time.

Since then, perhaps because of the startling experimental result at BNL, many theoretical physicists have taken a closer look at the predicted theoretical value for g-2.

In October 2001, theorists reported that a mathematical error had been made in calculating the predicted value. As a result of the revised theory estimate, the measured difference from the Standard Model prediction reported by BNL in 2001 was no longer as statistically significant. The result released

(continued on page 2)

BNL employees' ideas help protect the environment

Eight Pollution Prevention Proposals Funded

Every year since 1998, the BNL Pollution Prevention (P2) Council has asked BNL employees to submit proposals for reducing waste and emissions, thereby protecting the environment and cutting waste-management costs. This year, eight out of 21 proposals were selected. While they will cost $120,000, the expected return on investment is $268,000 per year.

As P2 Council Chair George Goode, Environmental Services Division (ESD), pointed out, 11 of the 21 proposals, or 52 percent, submitted to the P2 Council this year were from scientific staff. In comparison, 45 percent of the fiscal year (FY) 2001 proposals were from scientific staff, and 23 percent in FY00.

"This is an encouraging trend," said Goode, whose committee is composed of one representative per BNL's nine directorates. "The increasing participation by scientific staff is evidence of the successful integration of pollution-prevention planning into the experimental review process. Additionally, the ISO 14001 Environmental Management System emphasis on pollution prevention also drives this positive trend. The next call for proposals will be in October 2002, and we hope to see continued broad participation in the program."

One of the projects funded this year involved the BNL garbage truck (pictured at right), which was recently retrofitted to use vegetable oil in its hydraulic system. Peter Pohlot, ESD, and Kenneth Mohring, Staff Services Division, thought of the idea, which will cost $7,500 and is expected to save BNL $15,000 in administrative and disposal costs per year.

While petroleum-based fluids can threaten the environment and are expensive to clean up, vegetable-oil hydraulic fluid is biodegradable. Once on the ground, it is consumed by naturally occurring microorganisms.

According to Mohring, "Plant Engineering has been using vegetable-based hydraulic fluid

(continued on page 2)

Roger Stoutenburgh D0650202

(From left) BNL's Richard Allingham, Peter Pohlot, and Roland Baillargeon are standing next to the Lab's garbage truck, which is now using the new environmentally friendly hydraulic system.

Photo at far right taken on site by Roger Stoutenburgh D6240402

Calendar

of Laboratory Events

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

— EACH WEEK —

Weekdays: Free English for Speakers of Other Languages Classes

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

Mon., Tues., & Thurs.: Kickboxing

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

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

Noon- 12:45 p.m., Rec. Bldg. Scott Bradley, Ext. 5745, bradley@bnl.gov.

Tuesdays: Aqua Aerobics

5:15-6:15 p.m. $2 pool fee per class or use pool pass. Mary Wood, Ext 5923.

Tuesdays: BNL Music Club

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

Tuesdays: Welcome Coffee

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

Tuesdays: Toastmasters

Meetings are 1st and 3rd Tuesday of each month at 5:30 p.m. in Bldg. 463, Room 160. Guests, visitors always welcome. www.bnl.gov/bera/activities/toastmstrs/default.htm.

Tuesdays & Thursdays: Aerobics

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

Wednesdays: On-Site Play Group

9:30-11:30 a.m., Meet at the playground in the apartment area. Parents meet while children play. Monique de la Beij, 399-7656.

Wednesdays: Farmer's Market

11:30 a.m.-1:30 p.m., Berkner Hall parking lot

Wednesdays: Hispanic Heritage Club

11:30 a.m., Berkner Hall, Room D. All are welcome. Carmen Narvaez, Ext. 3254, or www.bnl.gov/bera/activities/hispanic.

Wednesdays: Weight Watchers

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

Wednesdays: Yoga Practice

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

Wednesdays: Stretch

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

Wednesdays: BNL Ballroom, Latin & Swing Dance Club Lessons

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

Thursdays: Science Discussion Group

12:30-1:30 p.m., Berkner Hall, Room A or D. Patrice Pages, Ext. 3270, pages@bnl.gov.

Thursdays: Falun Dafa Class

Noon-1 p.m., Free. Rec. Bldg. Falun Dafa refines the body and mind through exercises, meditation. www.falundafa.org.

Fridays: BNL Social & Cultural Club

7-11:30 p.m., Brookhaven Ctr., social. Rudy Alforque, Ext. 4733, rudy@bnl.gov.

Fridays: Science Museum Tours

11 a.m.-2 p.m. BNLers are invited to a free tour of the BNL Science Museum. No reservations are needed. Gail Donoghue, Ext. 2838.

— WEEK OF 8/19

Tuesday, 8/20

National Bond & Trust Company Demo

10 a.m. to 2 p.m., Berkner Hall. A representative from the National Bond and Trust Company will answer any questions and set up payroll deduction for BNLers wishing to purchase U.S. savings bonds.

Thursday, 8/22

Safety Shoe Office Closed

The BNL Safety Shoe Office will be closed today and will reopen tomorrow, August 23.

BERA Bridge Club

7 p.m., Brookhaven Center. South Room. Morris Strongson, Ext. 4192, mms@bnl.gov.

Saturday, 8/24

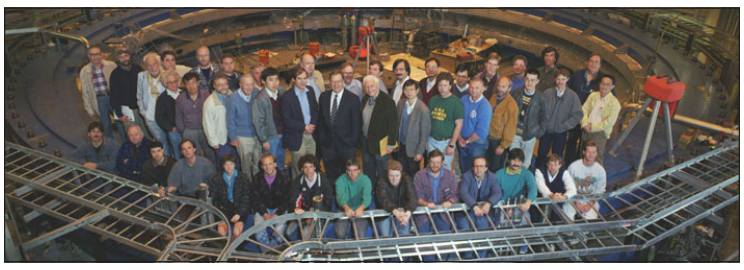
Bronx Zoo Trip

$32 per adult, $28 per child. Includes bus transportation and Zoo Adventure tickets. Bus leaves Brookhaven Center at 8:00 a.m. and returns at approximately 5:30 p.m. Reservations can be made at the BERA Sales Office, weekdays, from 9 a.m. to 3 p.m. Andrea Dehler, Ext. 3347.

SOLD OUT

Muon g-2 Measurement

(cont'd.)



in July is twice as precise as the previous finding and is in excellent agreement with it, making this new measurement a much more sensitive test of the Standard Model.

In addition, the Standard Model theory value for g-2 is being refined further based on experiments at accelerators in Russia and China. When available, these new results will provide an even stronger test of the Standard Model. "The theory is in disarray at this point," Miller said in his presentation. "We're going to have to wait for the high-energy theorists to sort this out."

"This ongoing dialogue between theory and experiment is typical of how progress is made in science," said Roberts. "The intense activity in the theory that was stimulated by our announcement in 2001 will eventually result in a much more reliable number for us to compare our experimental result with."

Effects of Three Forces

The g-2 value measures the effects of three of the four forces known to exist in the universe — the strong force, the electromagnetic force, and the weak force (but not the fourth force, gravity) — on a characteristic of these particles known as "spin," which is somewhat similar to the spin of a toy top.

Using Standard Model principles, theorists can calculate with great precision how the spin of a muon, a particle similar to but heavier than the electron, would be affected as it moves through a magnetic field.

The scientists and engineers led by Hughes and Roberts have been collecting data at BNL since 1997.

"This experiment makes use of the AGS's very intense source of muons, the world's largest superconducting magnet, and very precise and sensitive detectors to measure g-2 to a much higher level of precision than previously possible," said Morse, the BNL resident spokesperson for g-2.

"Given the widespread interest with which our experiment has been received in the scientific community, it's clear that additional data collection should be an important priority to permit us to obtain the most accurate measurement we can," said Roberts. "However, the President's budget removed funds for high-energy physics operations at the AGS in fiscal year 2003."

At present, the team has one more data set, collected in 2001 and currently being analyzed, which will further increase the precision of their measurement.

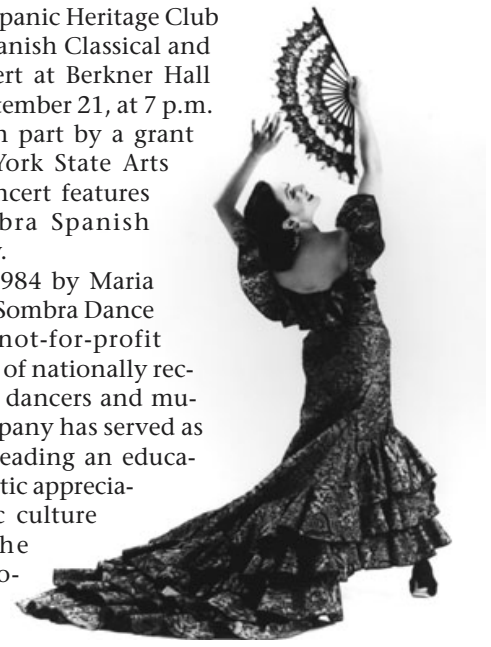
This research was funded by the U.S. Department of Energy, the U.S. National Science Foundation, the German *Bundesministerium für Bildung und Forschung*, and the Russian Ministry of Science, and through the U.S.-Japan Agreement in High Energy Physics.

— Karen McNulty Walsh

Note: For technical background and a link to the Phys. Rev. Letters *paper, go to: http://phyppro1. phy.bnl.gov/g2muon/index.shtml. For previous news on g-2, go to: http://www.bnl.gov/bnlweb/pubaf/pr/2001/bnlpr020801.htm.*

BERA Hispanic Heritage Club Presents Concert, 9/21

Spanish Flamenco Music, Dance



The BERA Hispanic Heritage Club will present a Spanish Classical and Flamenco Concert at Berkner Hall on Saturday, September 21, at 7 p.m. Made possible in part by a grant from the New York State Arts Council, the concert features the Sol y Sombra Spanish Dance Company.

Founded in 1984 by Maria Loreta, the Sol y Sombra Dance Company is a not-for-profit group composed of nationally recognized Spanish dancers and musicians. The company has served as a vehicle for spreading an educational and aesthetic appreciation of Hispanic culture throughout the New York metropolitan area and beyond.

The gypsy flamenco of Andalucia mixes the rich traditions of Spain's Arabic, Moorish and Hebrew past with South American and indigenous Spanish music to create this exciting and dramatic art form. During the BNL concert, the dancers will be accompanied by live music and singers.

Starting today, tickets will be sold at the BERA Sales Office in Berkner Hall, from 9 a.m. to 3 p.m. Only cash or checks will be accepted. Tickets purchased before the concert cost $10 for adults, and $5 for children under 12. At the door, tickets for adults will cost $12, while children's tickets will remain at $5. Seating is limited, so purchasing advance-sale tickets is recommended.

For more information about the concert, call Ext. 3347.

In Memoriam

Eugene Kaplan, who had joined the Alternating Gradient Synchrotron Department as a technician C on January 6, 1958, and had retired as Senior Technical Specialist after 35 years of service to the Lab, died on April 10, 2002. He was 72.

Morris Beller, who had started at BNL as a processing development engineer II in the Department of Nuclear Engineering, died on April 17, 2002, at the age of 74. On December 31, 1992, he had retired from the Reactor Division as a chemical engineer.

Nicholas Alonzo, who had joined the Biology Department as a biology associate III on August 1, 1963, and had left the Lab after 21 years on February 25, 1985, as Biology Associate I, died at the age of 82 on April 30, 2002.

Julius Diener, who had come to BNL on May 10, 1949, as a machinist A in the General Shop Division, died on February 2, 2002, at age 83. He had served for 32 years before retiring from the Physics Department as a design engineer on September 18, 1981.

Eight Pollution Prevention Proposals Funded

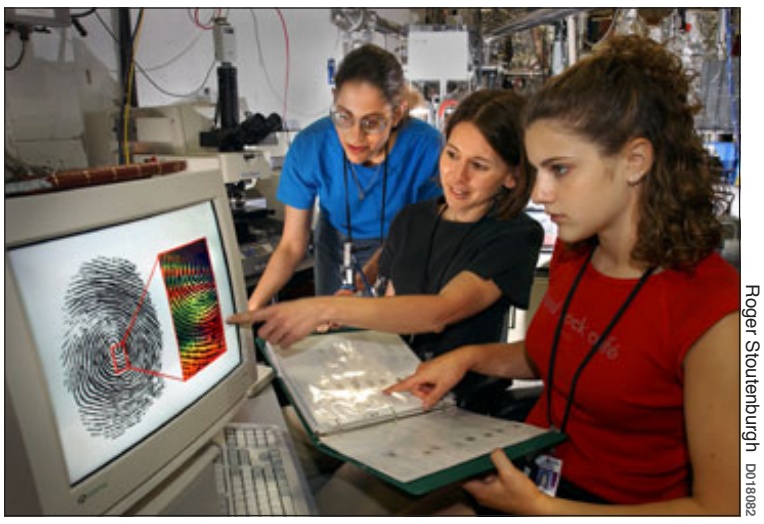
(cont'd.)

in lawn mowers since 2001, with good results. Based on their success, Staff Services has decided to evaluate our equipment. Our goal is to stop using petroleum-based hydraulic fluid at the Lab for all machinery whenever possible."

Other P2 proposals that were funded are:

- **Hydraulic vehicle lifts retrofilled with vegetable-based hydraulic oil**: Vegetable-based oil was being used in one of five motor-pool hydraulic lift systems at BNL; Mohring and Pohlot's proposal to use it for the other four was recently implemented. BNL has a fleet of 335 vehicles, and this $8,000 project is expected to save $25,000 per year.
- **Minimization of silver waste from silver-staining electrophoretic mini-gels**: Betsy Sutherland, Biology Department, requested $1,670 to develop a miniaturized staining protocol, with the goal of a tenfold reduction in volume, thereby cutting costs and wastes by 90 percent. This method is expected to perform as well as or better than current staining methods. It has the potential to eliminate as much as 2,200 pounds of hazardous waste and result in an annual cost savings of $30,000.
- **Replacement of film-based autoradiography and other radioisotopic imaging with a phosphor imager**: Andrew Gifford, Medical Department, proposed buying a $25,000 phosphor-imaging system. Currently, the Medical Department uses film-based radioisotopic imaging which generates both industrial and hazardous wastes. The new imaging system uses lasers and phosphor screens to capture data in reduced time and is easier to use than the film-based system. The new system is expected to save $22,000 in labor and waste disposal costs annually.
- **Evaluation of carbon dioxide snow-cleaning for National Synchrotron Light Source (NSLS) instrumentation and Collider-Accelerator Department applications**: Deborah Bauer, ESD, requested $5,000 to rent and test a carbon-dioxide snow-cleaning system which will be evaluated in a variety of laboratory applications, including optics cleaning at the NSLS, high-vacuum pump cleaning, scanning electron-microscope cleaning, and others. This method produces no secondary waste and, potentially, will improve cleaning capabilities, while reducing emissions and hazardous waste.
- **Reduction of hazardous, radioactive and industrial waste with a digital imaging system:** Dax Fu, Biology Department, requested $25,000 for a digital imaging system, which will be shared by Biology researchers to replace conventional film-based photography and some radioactive assays with digital imaging, thereby reducing the use of toxic chemicals and the generation of waste. The project is estimated to save $25,000 in labor and waste disposal costs within about one year.
- **Sewage treatment plant drying shed**: Gregory Flett, Plant Engineering, proposed constructing a drying shed at a cost of $25,000 to separate water from slightly radioactive sludge that is processed at the sewage treatment plant. The shed will provide a low-cost method of drying the sludge to meet disposal requirements and, potentially, could reduce the volume of waste from the sewage treatment plant's digestor by 96 percent. The project could save $120,000 per year.
- **Development of a fluorescence-based assay for the DNA-dependent protein kinase to replace current 32P assay**: John Flanagan, Biology, requested $22,000 to develop and test a fluorescence-based assay technique to replace current techniques that use radioactive materials. The project will reduce mixed waste, and labor time will be reduced from several hours to several minutes for each assay. Estimated savings are $30,000 per year. — Diane Greenberg

BNL Community Summer Science Program: Mount Sinai HS Student Studies at the NSLS



Roger Stoutenburgh D018082

Working on the fingerprinting project together are: (from right) Lara Hershcovitch; Lisa Miller, a National Synchrotron LIght Source (NSLS) Department scientist who volunteered to mentor Hershcovitch; and Jackie Tetenbaum, an NSLS guest technical collaborator who, as an undergraduate, participated at the Lab in the Energy Research Undergraduate Fellowships, another student program run by BNL's Office of Educational Programs.

Despite evidence on walls and mirrors to the contrary, children's fingerprints can disappear faster than those of adults. This little-known fact can hamper investigations of kidnapping cases, which have been so prevalent in the news this summer.

But, this summer, this mystery has been studied at BNL: Lara Hershcovitch, who will be a senior at Mount Sinai High School this September, is using an infrared microscope at the National Synchrotron Light Source (NSLS) in an experiment to determine why adults' fingerprints can last longer on objects than children's prints do.

Hershcovitch is a participant in BNL's Community Summer Science Program, managed by the Lab's Office of Educational Programs (OEP) and funded by Brookhaven Science Associates. Through this program, 26 high school students have been spending six weeks at BNL this summer in hands-on workshops or, as is Hershcovitch, in a research internship. All students also attend morning lectures on various scientific fields.

In her experiment, Hershcovitch is using the infrared microscope to study fingerprints from fathers and their sons ages 5-8, to determine the differences in the prints' chemical composition. Her data analysis may eventually be published in a scientific journal, and it could lead to more effective forensic investigations.

— Diane Greenberg

Smithtown HS Honors BNL Scientists In Community Summer Science Program

On May 29, at the Science Research & Technology Honor Society Awards ceremony at Smithtown High School, the Smithtown Central School District presented awards to BNL and individual BNLers who served as advisors to Smithtown students during last summer's Community Summer Science Program, which is run by the Lab's Office of Educational Programs (OEP). The awards were presented "for dedication and commitment to the advancement in Science and Technology for our Students."

Awardees were: Brookhaven National Laboratory, Jonathan Hanson, Chemistry Department; Louise Hanson, OEP; Garman Harbottle, Chemistry; Lore Holmes, Chemistry; Steven Kane, Physics Department; Roy Lebel, Quality Management Office (QMO); John Miller, Chemistry; Steven Stein, QMO; and Helio Takai, Physics.

An Evening of Indian Classical Dance, 9/7

Join the BERA Indo-American Association on Saturday, September 7, from 4:30 to 7:30 p.m. in Berkner Hall for an evening of Indian classical dance presented by Gargi Chattopadhyay, founder and director of the Omna Ancient Art Institute.

Buy tickets, $7 for adults and $5 for children, from: Achyut Topé, Ext. 5672, tope@bnl.gov; Kumi Pandya, Ext. 7734, pandya@sun2.bnl.gov; Abhay Deshpande, Ext. 8783, abhay@bnl.gov; or Sharadha Sambasivan, Ext. 4862, sharadha@bnl.gov.

Fishing Trip, 9/14

Join BERA for fishing on the *Capt. Bob*, off Mattituck, on Saturday, September 14. The cost of $49 per person includes the boat, bait, tackle, fishing rods, and the initial tip for the mate. The boat will leave the dock at 8 a.m. and return at 3 p.m. Buy tickets from Andrea Dehler, Ext. 3347, at the BERA Sales Office.

Fidelity Investment

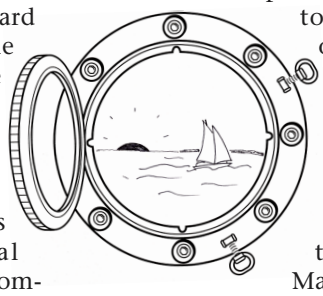
A Fidelity Investment Representative will be at the Lab on Thursday, September 12, to hold individual sessions with employees interested in learning more about their retirement-savings and investment options. Schedule one of the 45-minute appointments by calling 1-(800) 642-7131.

Walk to Fund Cancer Research, 9/22

The Women's Program Advisory Committee is organizing BNL's participation in the ninth annual "Walk for Beauty," to be held on September 22 to benefit breast and prostate cancer research at Stony Brook University Hospital. All are invited to join the BNL group for the walk, which will start at 9:30 a.m. at the Stony Brook Village Green. For more information or to be added to the mailing list, contact Kerry Mirabella, Ext. 2632 or mirabella@bnl.gov.

Come Cruisin' on Port Jeff Ferry, 8/28

Save Wednesday, August 28, to take a Sunset "Cruise to Nowhere" on the Port Jeff Ferry, 6-9 p.m. The ferryboat will cruise to Bridgeport, Connecticut, and return at sunset. Pack a picnic dinner or buy snacks and drinks on board to enjoy with the scenery and the lively music of Banjo Bob and Crazy Henry.



The Hospitality Committee has arranged special rates for all BNL community members and their families: adults, $10; children 6-12, $6; and children of age 5 and under, free. Buy tickets on the boat. Hospitality members will meet participants on the pier to give out BNL-group nametags. Arrive by 5:45 p.m. to board the ship.

Getting there: Car-pooling is encouraged. If you do not have a ride, call Michelle Herman, 344-8481 — she will try to get a ride for you. Parking is free in the lot west of the ferry with proof of Brookhaven township residency on driver's license or car sticker, or in the lot behind the Gap store on the east side of Main Street, and behind the retail shops on the west side of Main Street.

From the Lab, go north on William Floyd Parkway until it ends at Rte. 25A. Go west (left) on 25A to Rte. 112. Go north (right) on 112, which becomes Main Street and leads right to the ferry dock. Don't miss the boat! Questions? Call Herman, 344-8481.

African American Culture Club

Cookout! 8/24

All are invited to join the fun and games at the African American Culture Club cookout to be held on Saturday, August 24, from 1 to 6 p.m., at the gazebo in the ball fields, or, if it rains, in the Recreation Building in the apartment area.

To attend, you must have paid cash in advance: take $12 (adults), $6 (children under 12) to Nicole Trent, Bldg. 326, by Tuesday, August 20.

For more information, call Renée Flack, Ext. 3316; Barbara Simpson, Ext. 7643; or Nicole Trent, Ext. 4956.

Arrivals & Departures

Arrival

Tae Joo Shin ..... NSLS
Joseph Stanisci ..... Plant Eng.

Departures

Luis Estevez ..... Medical
Joan Sperry ..... EENS Dir.

BNL Science Museum Open Lunchtime Today

Today, Friday, August 16, 11 a.m.-2 p.m., all are invited to visit the BNL Science Museum, Bldg. 935, Railroad St. and East Fifth Ave.

Find out what makes it such a popular stop for more than 13,000 elementary school children each year: hair-raising activities in electricity, exploring magnetism, and other scientific wonders. Children under 14 must be with an adult.

Atlantic City Trip 9/21

Join the next BERA-sponsored, one-day trip to Atlantic City, which will be on Saturday, September 21, to the Hilton Resort and Casino on the Boardwalk. The cost is $25 per person (18 and older only), with a $9 coin return.

The bus will leave the Brookhaven Center at 8 a.m. As usual, there will be free movies, games, and rolls or donuts on board; bring your own juice and coffee. After a seven-hour stay in Atlantic City, the bus will return around 11:30 p.m.

Buy tickets now at the BERA Sales Office in Berkner Hall, 9 a.m. to 3 p.m. For more information, call Andrea Dehler, Ext. 3347, or Chris Carter, Ext. 2873.

Get to Know Your Lab!
Site Walk, Noon Today

Roger Stoutenburgh D6630602

All are invited to join the third employee lunchtime tour, to be held today, Friday, August 16. Meet at noon in the upper lobby of Berkner Hall. The group will bus to the Upton Ecological Reserve, where Peter Kelly of the U.S. Fish & Wildlife Service will lead a walk and describe environmental features and current research in the reserve. Wear strong shoes and tick-proof clothing such as thick socks and trousers.

The group will return to Berkner by 1 p.m. No reservations are needed. For information, call Elaine Lowenstein, Ext. 2400.

Softball Party

All softball players — adults only — are invited to the Annual BERA Softball League party. The party will be held at the East Wind Caterers, Wading River, on Thursday, September 26, from 6 to 10 p.m.

Tickets are $25 per person for the first 100 paid softball players — you must be on a roster — and $40 for all guests and for any player after the first 100 tickets are sold. The price includes full open bar, cocktail reception, salad, two pasta specialties, four hot entrees, cake and coffee, and music by DJ John.

Everyone must have a ticket! Bring cash or a check made payable to BERA Softball to the BERA Sales Office by 3 p.m., Friday, September 13. No tickets will be sold after this time. If the minimum number of tickets has not been sold, all tickets will be refunded. So, buy your ticket early. For more information, e-mail softball@bnl.gov.

Calendar

(continued)

— WEEK OF 8/26 —

Monday, 8/26

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.

Thursday, 8/29

VoiceStream Wireless Demo

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

— WEEK OF 9/2 —

Tuesday, 9/3

U.S. Open Tennis Trip

$61 per person for ticket and bus to U.S. Open. Bus departs BNL tennis courts at 8:30 a.m. and leaves the Nat. Tennis Center at 7:30 p.m. No seats remain.

Saturday, 9/7

***An Evening of Indian Classical Dance**

4:30-7:30 p.m., Berkner Hall. Join the BERA Indo-American Association for an evening of Indian classical dance presented by Gargi Chattopadhyay. Tickets are $7 for adults, $5 for children. For contacts, see notice below, left.

— WEEK OF 9/9 —

Thursday, 9/12

BNL Blood Drive

9:30 a.m.-3 p.m., Brookhaven Center. BNLers 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.

***Investment Advice**

A Fidelity Investment Representative will be at the Lab to hold individual sessions with employees interested in learning more about their retirement-savings and investment options. To schedule one of the 45-minute appointments, call (800) 642-7131.

Friday, 9/13

Yankee Baseball Game

$55 per person, includes ticket and bus transportation. Bus leaves the Brookhaven Center at 4 p.m. for the 7 p.m. Yankees vs. White Sox game. Make paid reservations at the BERA Sales Office, Berkner Hall.

Saturday, 9/14

***BERA Fishing Trip**

$49 per person, includes boat, bait, tackle, fishing rods, tip for the mate. Boat will leave Mattituck dock at 8 a.m., return by 3 p.m. BERA Sales Office. Andrea Dehler, Ext. 3347.

— WEEK OF 9/16 —

Wednesday, 9/18

Ballroom, Latin & Swing Dance Club: 2002-03 Wednesday lessons start

First 8-week series of lessons begins:

- 5-6 p.m. Quick-Start lindy & swing, $40/person
- 6-7 p.m. Intro A: cha cha, fox trot, mambo, merengue, $30/person
- 7-8 p.m. Syllabus peabody & quickstep review I & II, $30/person
- 8-9 p.m. Syllabus American tango & bolero IV, $35/person

Registration: Marsha Belford, Ext. 5053 or belford@bnl.gov; Sue Perino, Ext. 2483 or perino@bnl.gov.

Saturday, 9/21

Atlantic City Bus Trip

$25 per person, with $9 coin return. Bus leaves BNL at 8 a.m.; returns at 11:30 p.m. See also notice at left. BERA Sales Office.

***Spanish Flamenco Music & Dance**

7 p.m., Berkner Hall. Concert features Sol y Sombra Dance Co. See notice top left, page 2. At BERA Sales Office, adults: $10, under-12, $5. At the door, adults: $12.

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.

Free Summer Sundays

BROOKHAVEN NATIONAL LABORATORY

This Sunday, August 18, Energy & Environment

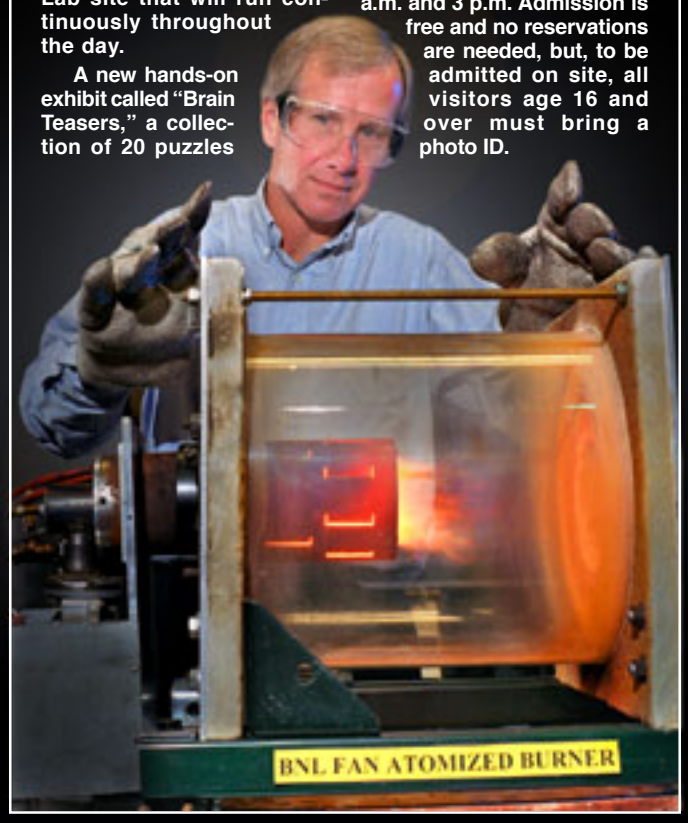
This Sunday, August 18, Summer Sunday visitors to BNL can learn about energy efficiency, pollution prevention, and BNL initiatives in advanced technologies for home heating, alternative-fuel vehicles, and fuel cells.

There will be games available for younger visitors and a recycling relay race.

In addition, visitors may take guided bus tours of the Lab site that will run continuously throughout the day.

A new hands-on exhibit called "Brain Teasers," a collection of 20 puzzles ranging from giant jigsaws to rope tricks that will challenge both children and adults, is available in Berkner Hall. Also, local high school students will demonstrate the robots they built. In addition, the "Whiz Bang Science Show" — popular with both adults and children — will be shown at 10:30 a.m., noon, 1:30 p.m., and 3 p.m. every Sunday during the summer program.

Tour hours are between 10 a.m. and 3 p.m. Admission is free and no reservations are needed, but, to be admitted on site, all visitors age 16 and over must bring a photo ID.



Roger Stoutenburgh CN10-45-00

Tours Continue Through August 25

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.

MK2802. POSTDOCTORAL RESEARCH ASSOCIATE — Requires a Ph.D. in biochemistry, chemistry or related field relevant to protein crystallography and/or strong background in biochemistry with emphasis in enzymology. Will be involved in research to crystallize a membrane protein from Pseudomonas that hydroxylates omega carbon of alkanes. This work will involve both quantitative biochemistry and crystallography under the guidance of both a biochemist and crystallographer. Under the direction of J. Shanklin, Biology Department.

NS2467. TECHNOLOGY ENGINEER (I-6) - Requires a bachelor's degree in IT, computing, or equivalent, plus at least three years' relevant experience, or an AAS in IT, computing, or equivalent, plus at least six years' relevant experience. Experience installing and maintaining a Red Hat Linux system, including all standard Unix/Linux system administration skills is required; knowledge of Debian or Mandrake is a plus. Will provide support to about 300 Linux desktop users; be in charge of Department SGI server; help users with installations and upgrades; help with hardware failures and provide some hardware support; maintain Department's web server; provide computer security support and assist with some HTML programming. Physics Department.

NS2867. PROJECT ENGINEER II / CONSTRUCTION SAFETY ENGINEER (P-7) — Requires BS, MS preferred, in safety, industrial hygiene, or related field; Certified Safety Professional (CSP) or Certified Industrial Hygienist (CIH) preferred. A minimum of seven years' total safety and health experience, including at least three years' experience in comprehensive construction safety and health inspection of civil, mechanical, electrical, asbestos, lead, or environmental/HAZWOPER cleanup work is necessary. The ability to read blue prints and understand project specification and contract language is required. Thorough knowledge of construction safety and health, material handling, hoisting and rigging, OSHA 29 CFR 1926 and 1910 Regulations and applicable ANSI Standards, formal classroom training preferred. Knowledge of DOE Orders a plus. Will provide guidance and support to the Laboratory for interpreting, establishing, and implementing policy regarding construction safety and health issues and material handling requirements. Safety & Health Services Division. (ERAP Eligible - $1K)

NS2064. ADVANCED APPLICATIONS ENGINEER (I-7) – Requires a BS in computer science or equivalent technical education, plus five years' experience in design/development of database applications and exceptional organizational, communication, and problem-solving skills. Requires significant and demonstrable experience in VB, HTML, VBScript, JavaScript, ASP, SQL, and MS Access as well as experience in object-oriented design, relational databases, web-enabled forms and reports, and stored procedures. Will develop, program, and maintain custom client/server/web-based VB and ASP Oracle-based applications in Windows and IIS environments. Will integrate new applications with existing databases and data sources and be responsible for testing, troubleshooting, documentation and user support. National Synchrotron Light Source Department. (ERAP Eligible - $1K)

TB3090. CARPENTER – Under minimum supervision, lays out, constructs, modifies, and maintains buildings and component parts from construction drawings, rough sketches or verbal instructions. Works with wood, wood substitutes, combination materials, and flooring, roofing, and wall materials. Uses hand, portable, and fixed tools common to building construction trades. Installs cabinets, door frames, window glass, and interior finishes; and hangs doors. May perform Cabinetmaker duties as required. Plant Engineering Division.

the Bulletin

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

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