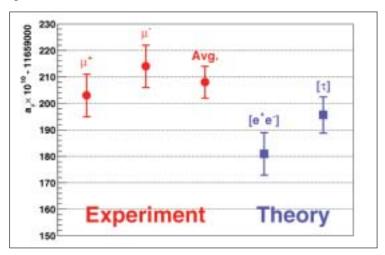


Vol. 58 - No. 2

January 16, 2004

# New Muon g-2 Measurement Deviates Further From Standard Model

scientists investigating how the deviates further than previous spin of a muon is affected as this measurements do from theoreti-



The results from E821 for the muon anomalous magnetic moment. Shown are the average of three measurements for the positive muon, the new result for the negative muon, and their combined value. Also shown are the direct (e<sup>+</sup> e<sup>-</sup> based) and indirect (tau-based) theory values taken from Davier et al., Eur. Phys. J. C31, 503 (2003).

experiment, known as muon g-2, first posed to the so-called Standard Model of particle physics in February 2001 (based on data collected in 1999), and then backed with a more precise result in July 2002 (based on data collected in 2000).

The new measurement, which has been submitted to Physical Review Letters, was announced in a talk by Gerco Onderwater, University of Illinois at Urbana-Champaign and now at KVI, Groningen, Netherlands, on January 8, at BNL, where the experiment was conducted by scientists from Brookhaven and 11 other institutions in the United States, Russia, Japan, The Netherlands, and Germany.

The research was funded by the Office of High Energy Phys-

The latest result from an in-ternational collaboration of moves through a magnetic field strengthens the challenge this ence, the U.S. National Science Foundation, the German Bundesminister für Bildung und Forschung, and the Russian Ministry of Science, and through the U.S.-Japan Agreement in High Energy Physics.

Based on data collected in 2001, this is the first precise measurement of how negatively charged muons "wobble" in the magnetic field; the two prior results were for positively charged muons. The precision

of the new result matches the combined precision of the previously reported results.

All three results are in good agreement with one another and with a long-standing theoretical prediction of what is called the PCT Theorem, that particles and antiparticles should wobble at the same rate in a magnetic field.

When compared with the latest Standard Model predictions for the g-2 value, however, (continued on page 2)

## **Gen Shirane of Physics Awarded** For Outstanding Neutron Science

t the third annual meeting of the Japanese Society for At the third annual meeting of the Jup and Annual Meeting of the Jup and Annual Meeting Of the Jup and Annual Meeting Department Japan, senior physicist Gen Shirane of the Physics Department was honored with a medal and citation for his internationally known work in neutron scattering techniques.



Four members of E821, the muon g-2 experiment at the Alternating Gradient Synchrotron, from an international team of 60 physicists from 11 institutions, celebrate the latest result from the negative muon data taken in 2001: (from right) Gerco Onderwater, University of Illinois at Urbana-Champaign and now at KVI, Groningen, The Netherlands, who reported on the experiment at the January 8 colloquium; and William Morse, Yannis Semertzidis, and Gerry Bunce, all of BNL's Physics Department. At left is theorist Bill Marciano, also of Physics, who works closely with the g-2 experimentalists.

## **390th Brookhaven Lecture** 'Making High-Temperature Superconductors Work,' 1/28

High-temperature supercon-ductors — materials that However, to make these materi-However, to make these materi-the second conduct electricity without resis- als into forms long and flexible are in what are called the second

igh-temperature supercon- at approximately 77 Kelvins. oxides, are available in long tance and without being cooled enough for winding magnets and generation conductors, made of



In presenting Shirane with his award, Yasuhiko Fujii of the University of Tokyo's Neutron Science Laboratory in the Institute of Solid State Physics said, "We honor Gen Shirane for his outstanding scientific accomplishments in solid state physics by neutron scattering and his great contribution to the Japanese community by training Japanese scientists at Brookhaven National Laboratory for nearly 40 years."

Said Shirane, "Brookhaven gave me the opportunity to conduct research and experiments that have gone far beyond the expectations I had when I first came here in the 1960s. BNL has also supported my collaboration with Japanese scientists, which has been a gratifying scientific and

to very low temperatures — were discovered in the late 1980s and the early 1990s. Useful high-temperature superconductors for utility applications are those which lose their resistance above the boiling temperature of nitrogen,

cables proved to be very difficult because these materials are oxides - the chemical term for ceramics — and thus very brittle.

Now, however, the "first generation" conductors, made of bismuth-strontium-calcium-copperyttrium-barium-copper-oxide.

Mas Suenaga, Senior Metallurgist in the Materials Science Department and an internationally known expert in the superconductor field, will give the 390th Brookhaven Lecture, on "Making High-Temperature Superconductors Work." The talk will begin at 4 p.m. in Berkner Hall on Wednesday, January 28. Suenaga will be introduced by James Misewich, Chair of the Materials Science Department.

In his talk, Suenaga will tell the story of the development of electric conductors utilizing high critical temperature superconductors for high-current (continued on page 3)

To join Suenaga for dinner at an off-site restaurant after the lecture, call Liz Seubert, Ext 2346.

personal experience."

Doon Gibbs, BNL's Interim Associate Laboratory Director for Basic Energy Science, added, "Gen Shirane is the best neutron scatterer in the world, and among BNL's and the DOE's most distinguished scientists. It's a pleasure to acknowledge his many contributions to condensed matter physics over 40 years."

Shirane received his Ph.D. in physics from the University of Tokyo in 1954. He first came to BNL in 1956 as a visiting scientist while working for Westinghouse Research Laboratories and formally joined the Lab in 1963. Over the course of his 50-year career, he used neutron scattering techniques as probes of solid-state physics and has published approximately 500 papers in the field.

Shirane did his first neutron research using the Brookhaven Graphite Research Reactor. Later, at the High Flux Beam Reactor, he conducted experiments that gave insight into the structure and bonding of atoms and spins in solids. His work has had a strong impact on the understanding of the nature of high-temperature superconductors.

Shirane has received many honors, including the 1973 American Physical Society Buckley Award and the 1993 Brookhaven Distinguished Research & Development Award. He was also elected to the National Academy of Sciences in 1989. - Jane Koropsak



# 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. Hall) is located in the apartment a
- 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 —

#### Mondays: BNL Gospel Choir

## 5:15-7 p.m. Berkner Hall. All faiths are wel-come. www.bnl.gov/bera/activities/choir/. 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. Christine Carter, Ext. 2873.

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

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

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

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

**Tuesdays: Singles Club** 5:15 p.m., Brookhaven Center. Contact: Jean, Ext. 4391.

Tuesdays: Jiu Jitsu Club

6:30-7:30 p.m. in the gym. All levels, ages 6 and above. \$10 per class. Tom, Ext. 4556. **Tuesdays: Toastmasters** 

Ist and 3rd Tuesday of each month , 5:30 p.m., Bldg. 463, room 160. Guests, visitors always welcome. www.bnl.gov/bera/activi-ties/toastmstrs/default.htm. Tuesdays & Thursdays: Aerobics

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

Tuesdays & Thursdays: Aqua Aerobics 5:15-6:15 p.m. Christine Carter, Ext 2873 Tues. & Thurs: Upton Nursery School 9-11:30 a.m. in the Rec. Hall. For 3 & 4 year olds. Alison Tilp, Ext. 4465, or tilp@bnl.gov.

Wednesdays: On-Site Play Group 10 a.m. noon. Rec. Hall. An infant/toddler drop-in event. Parents meet while children play. Cindy Otteman, 821-4482.

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

Wednesdays: Yoga Practice Noon-1 p.m., Brookhaven Center. Free. Ila Campbell, Ext. 2206.

Wednesdays: Open Chess Night 5-8 p.m., Rec. Hall. Christine Carter, Ext. 5090. Fridays: Family Swim Night

## 5-8 p.m. at the BNL Pool. \$5 per family Fridays: BNL Social & Cultural Club 6-9 p.m, North Ballroom, Brookhaven Ctr., dance lessons, 9-11:30 p.m. general dancing. Rudy Alforque, Ext. 4733, rudy@bnl.gov.

### – NEXT WEEK —

Monday, 1/19 **BNL Holiday** The Lab will be closed in observance of Martin Luther King, Jr. Day. No Bulle-

## Healthfest 2003 — A Week of Health, Fitness and Safety

tretching from October 20 to Stretching non-occuof personal health, fitness and safety again drew a large turnout from the BNL community. This year 500-plus people attended at least one Healthfest event. More than 80 BNLers volunteered to help run these events, and exhibitors from many different groups and organizations offered displays, demonstrations, and screening over two days in Berkner Hall.

For having the highest overall percentage of its staff involved in various events, the Fiscal Division earned the fourth annual Healthfest Participation Award.

Healthfest began on Monday with 320 completing a two-mile fitness walk that was kicked off by Laboratory Director Praveen Chaudhari. The stretch clinic before the event drew a crowd of over 50.

On Tuesday, enlivening music over a loudspeaker gave a festive atmosphere to the preparations of 98 runners gathered in front of the Biology building, who set off on the five-kilometer course of the fitness run. Terry Sullivan, the fastest man, had a time of 17:16:7 and Zhou Weimin, the fastest woman, had a time of 21:36:0.

Then, on Wednesday and Thursday, more than 650 BNL community members attended the Healthfest fair, sampling information and activities in Berkner Hall offered by some 35 outside organizations and 12 Lab departments, divisions, and offices. Three hundred BNLers also participated in the drinking-water taste-test.

During the fair, 97 had their blood pressure taken by an OMC registered nurse, 27 had their cholesterol checked, 72 were checked

for diabetes, and 72 had their body composition analyzed. Massage and or Reiki were experienced by 74 participants. Also, because the fair coincided with the annual open enrollment for health-care benefits, attendees had a chance to speak with representatives from Aetna, CIGNA, HIP, and Vytra who were showcasing their services at Berkner Hall on the day of the fair.

Meanwhile, demonstration exercise classes throughout the week were a great success. On Tuesday, 16 had a Jazzercise workout, while on Thursday, 30 experienced Belly Dancercise and Pilates gave 26 a good stretch.

Finally, on Friday, some 99 enthusiasts pedaled mountain bikes five to eight miles to an exhilarating finish.

T-shirts were distributed to 950 Healthfest participants, exhibitors, and volunteers, and

over 90 health-related raffle prizes were given away.

According to the more than 100 evaluations received by Healthfest co-chairs Michael Thorn and Denise DiMeglio, the event was very worthwhile. Many participants were inspired to renew and improve their personal health, fitness, and safety programs. One participant noted the inspiration of the "spirit of everyone participating." Many respondents reported learning new information that would cause them to make life-style changes. The feedback obtained will be used in future Healthfest and other program planning.

Said Thorn and DiMeglio, "We thank the 80-plus volunteers who made our 11th annual Healthfest successful, and we look forward to next year's event."



Terry Sullivan<sup>1</sup> 17:16.7 David Phillips<sup>2</sup> 17:53.5 Bob Kujawski<sup>3</sup> 18:02.4 Donald MacKay\* 18:10.8 Youri Filippov\*\* 18:49.8 Mike Mapes\*\* Paul Geiger\*\* 19:20.8 Victor Usack 19:27.6 Lance Cooley\*\* 19:41.2 Paul Montanez\*\* 20:09.2 Brian Boyer Wolfgang A. Caliebe Nikolay Filippov Roger Davis Chris Homes Ed Haas Greg Rakness Tim Morrin Ron Gill Weimin Zhou<sup>4</sup> Mark Pidkowich Shai Vaday 21:43.2 Jim Anselmini

Joe Nasta Kevin Corbett John P. Young Gene Van Buren John J Bohenek 19:12.1 Randy Smith\*\* Alistair Rogers Seth Nemesure Anthony Kuczewski David Graham Michael Sivertz Robert Lake Lisa Zimmerman<sup>5</sup> Alice Cialella<sup>6</sup> Neil A. Wade Werner Vogelsang Philip Pile D. John Millener Augie Hoffmann Patrick Moylan **Richard Sanniola** Garry Hubbard 21:45.6 Dardo Tomasi

Dennis Reichhold 22:09.0 Lisa Jansson\*\* 22:11.6 22:14.6 Robert J. Lee Peter Kohut 22:21.6 Robert McGraw 22:31.5 Wendy Morrin (S 23:02.0 23:05.4 Diana Teich Mark Opisso 23:07.6 23:11.3 Sheryl Carey\*\* Yugang Tan\*\* 2326.4Marie Van Buren Ken Perkins Charles S. de la l Robert Todd I eif Ahrens Christine Brakel\* Stephen Perlsteir George Walczyk\* Millie Laster Michael Seidman Les Fishbone J. Adams John Warren

b	25:27.0	Stephen
	25:27.5	Michael
	25:48.7	Philip Ha
	25:53.0	Heather
	26:22.3	Kathleer
paeth)**	26:27.7	Tom Clif
	26:34.8	Wailin Li
	26:35.7	Jack Gu
	26:41.3	Ken Mol
	26:46.8	Jeff Lan
	26:49.1	Tammy
	26:54.0	Luhong
Parra	27:00.6	Ping He
	27:01.4	Jack Ru
	27:04.9	Renat Y
*	27:18.4	Don Lyn
า	27:23.0	Brian Oe
**	27:31.4	David Al
	27:34.0	Dariara
1	27:36.9	
	27:40.8	1 5
	28:03.7	<sup>1</sup> First O
	28:09.6	<sup>2</sup> Secono <sup>3</sup> Third C

Stephen Shapiro**	28:45.9
Michael Jenson	28:55.4
Philip Harrington	29:17.3
Heather Hartmann	29:30.1
Kathleen Tuohy	29:37.4
Tom Clifford	29:50.7
Wailin Litzke	29:58.9
Jack Guthy	30:04.2
Ken Mohring	30:06.9
Jeff Landgraf	30:23.2
Tammy Heinz	31:07.5
Luhong Wang	32:22.2
Ping He	32:37.8
Jack Russell	36:34.0
Renat Yakupov	36:40.5
Don Lynch	37:23.9
Brian Oerter	41:43.9
David Alburger**	42:58.0

verall Male d Overall Male <sup>3</sup> Third Overall

23:50.9 23:58.9 24:02.3 24:02.6 24:21.0 24:23.5 24:26.5 24:26.8 24:28.4 24:34.0 24:36.2 24:38.3 24:39.1

20:12.2 20:20.1 20:26.5 20:44.9 21:01.7 21:05.2 21:11.7 21:28.7 21:29.5 21:36.0 21:42.8

tin will be printed this week

## Wednesday, 1/21

### **EcoQuest International Demo**

11 a.m.-2 p.m., Berkner Hall. Representatives from EcoQuest International will present BNLers with special offers on their various air- and water-purification products and services. Mel, 476-0027, Ann, 744-5344.

## Thursday, 1/22

### **BERA Bridge Club**

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

## Friday, 1/23

#### Podiatry: Foot Screening, Consultation

9-11:45 a.m. in the Occupational Medicine Clinic, Bldg. 490. Podiatrist Ben Dimichino. No more space available. Linda DiPierro, dipierro@bnl.gov.

Neville W. Williams	21:47.2	Ed Sierra	24:43.6	F
George Mahler	21:51.2	Joseph Tuozzolo	24:46.3	Ľ
Vincent Racaniello	21:51.9	Betty Elder**	25:13.3	k
Al Della Penna Jr.	21:54.7	John Flannigan	25:24.0	ŀ

Richard Wagener	28:12.2
Doug Ports	28:12.7
Kelly A. Warren**	28:26.2
Kurt Vetter	28:39.6

<sup>4</sup> First Overall Female <sup>5</sup> Secondt Overall Female <sup>6</sup> Third Overall Female \*\*Age Group Winners

the new experimental result differs from the most direct theory calculation by 2.8 standard deviations. and from a somewhat more indirect theory calculation by 1.7 standard deviations, making this the most significant deviation to date between experiment and theory. When the positive and negative muon results are combined, the result differs from the direct theory calculation by 2.7 standard deviations, and from the indirect theory calculation by 1.4 standard deviations.

The two theoretical predictions are in significant disagreement with one another and have been under close scrutiny

by the theory community for several years. The related theory issues are gradually being clarified and may get fully resolved soon.

Boston University physicist Lee Roberts, spokesperson for the muon g-2 experiment, said, "The measurement of this property, the anomalous magnetic moment of the muon, is a very sensitive test of the validity of the Standard Model, and is also sensitive to new physics beyond the Standard Model." The Standard Model seeks to describe the effects of three of the four known forces on all subatomic particles. "The fact that our measurement continues to deviate from what that theory predicts may be an indication that we are seeing new physics beyond the Standard Model," Roberts said.

While physicists have known for some time that the Standard Model is incomplete, the correct extension to this theory is still a matter of speculation, with one leading candidate being supersymmetry — a theory that predicts the existence of yet-tobe-discovered companion particles for all the known subatomic particles. "One reason there has been so much interest in our experiment is that the rate at which muons wobble in a magnetic field would be af



The 1995 photograph above shows many me the world's largest superconducting magnet **BNL's Alternating Gradient Synchrotron for t** 

#### The Bulletin

## Exercise, Weight Lifting Facility Marks Three-Year Anniversary

Three years ago, on January 23, 2001, the BNL Exercise & Weight Lifting Facility opened after extensive remodeling. Funding from BSA had provided a 650square-foot mezzanine and new exercise equipment.

Since that day, the new facility has drawn many new participants. In 1992, the gym had 45 members: now 518 exercise enthusiasts come to use the equipment.

Said Charles Gardner, president of the BERA Exercise & Bodybuilding Club (BBC), "The club's mission is to promote fitness and health through exercise. We have worked hard since 2001 to obtain new equipment such as a Lat Pull-down machine, a shoulder and chest press combination, an elliptical trainer, a chest fly/rear deltoid machine, a recumbent bike, and a stairmaster."

The club has also added stability balls for resistance training and a brand-new sound system that includes a television and CD player.

All employees and Lab visitors, guests, and their families are invited to join BBC. Each



In the BNL Exercise & Weight Lifting Facility in the gym with Lisa Zimmerman (right) are: (from left) Patrick Moylan, Mark Pidkowich, and Kelly Warren.

user pays \$25 yearly to help with expenses for maintenance and equipment upgrades. Users are issued a membership number that interfaces with a card-reader system. A one-time complimentary visit can also be arranged for those wishing to try the facility be-

With LEA

fore paying the full fee.

In addition to providing equipment, membership with the BBC also allows for access to a certified "personal trainer" at an additional cost. To find out more details, or if you are interested in joining or visiting the club, go to the club website, at www.bnl.gov/bera/ activities/bodybldg/, or contact club officers Charles Gardner, Ext. 5214 or chuckg @bnl.gov, Elliott Levitt, Ext. 2495 or levitt1@bnl.gov, David Dale, Ext. 2976 or dale@bnl. gov, Firoza Zanoni Ext. 4532 or firoza@bnl.gov.

## Get to Know Your Lab! Fast Chemist

On Friday, January 30, all are invited to visit the Laser Electron Accelerator Facility, LEAF, located in the Chemistry Department. Meet at noon in the upper lobby of Berkner Hall. Elaine Lowenstein of Community Involvement will take the group to LEAF where Trevor Sears of Chemistry will explain how, using this electron accelerator, incredibly fast chemical reactions can be measured. The group will return to Berkner by 1 p.m.

## Brookhaven Lecture, January 28 (cont'd.)

applications, such as high field magnets, power transmission cables and transformers in electric utilities. He will describe some of the large-scale demonstrations in the U.S. using second-generation conductors, and innovations required to overcome certain difficulties. The story will include BNL research that contributed to the present developments.

Suenaga joined BNL in 1969 as an assistant metallurgist having earned a B.S. and an M.S. in electrical engineering and a Ph.D. in metallurgy from the University of California at Berkeley in 1962, 1964, and 1969, respectively. His field of expertise at the Lab is the materials science of superconducting materials and the electromagnetic characterization and fabrication of superconductors.

Brookhaven lectures are free and open to the public. Refreshments are offered before and afterwards. Visitors to the Lab ages 16 and over must have photo identification.

## Retirement Counseling

A TIAA-CREF representative will visit BNL on Friday, February 6, Friday, February 13, and Tuesday, February 24, to answer employees' questions regarding the TIAA-CREF retirement plan. Questions might include, for example, differences between TIAA and CREF, allocating funds between TIAA and CREF, options, flexibilities with TIAA-CREF, and retirement options.

# Arrivals & Departures

Masafumi Fukuto ..... NSLS Edward Phillips ..... Plant Engr. Departures

Sheeba Arnold ...... Medical Abhay Deshpande ...... Physics Ming Tan ..... Chemistry

## In Memoriam

Abraham Sampson, who had joined the Plant Engineering Division on July 7, 1980, as a stationary engineer and, as a senior stationary engineer, had left the Lab on long-term disability on August 15, 1989, died on August 31, 2003. He was 75.

Ronald Peierls, who had first come to BNL as a visiting assistant scientist on July 30, 1962, had joined the Physics Department on July 1, 1963, as an associate physicist, and had retired from the Department of Applied Science on March 31, 1998, died at age 67 on September 2, 2003. He had been named physicist with tenure in 1966, senior physicist in 1972, and had chaired the Applied Mathematics Department from July 1979 to September 1988. For many years, he also played a

## Calendar

## (continued)

– WEEK OF <u>1/26 —</u>

Monday, 1/26

#### **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.

## Wednesday, 1/28

### \*Brookhaven Lecture

4 p.m., Berkner Hall. Masaki Suenaga, Materials Science Department, will talk on recent developments in hightemperature superconductivity. All are welcome.

## Friday, 1/30

BWEN Brown Bag Lunch Meeting Noon-1 p.m., Berkner Hall, Room C. Brookhaven Women Engineers Network. Loralie, Ext. 2425.

## WEEK OF 2/2

## Tuesday, 2/3

#### **Caring Friends Meet**

Noon, Berkner Hall, Room D. An informal support group meets to serve as a resource for individuals experiencing grief and the many emotions following the loss of a loved one. Gatherings are on the first Tuesday of each month. All are welcome. For more information, call Pat Hein, Ext. 3962, or Gerry Van Derlaske, Ext. 3476.

#### Thursday, 2/5

#### **BERA Bridge Club**

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

### — WEEK OF 2/9 —

## Friday, 2/13

#### Blood Drive

9:30 a.m.-3 p.m., Brookhaven Center. BNLers from age 17 to 75, in good health, and weighing over 110 pounds are welcome. All donors must have photo identification and know their social security number. To make an appointment, contact Susan Foster, Ext. 2888 or donate blood@bnl.gov.

## — WEEK OF 2/16 —

### Thursday, 2/19

## BERA Bridge Club

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

## Fri., 2/20 - Sun. 2/22

\*BERA Ski Weekend to Gore Mountain Bus departs BNL on 2/20 at 5 p.m. and departs Lake George at 5 p.m. on 2/22. Ski all day w/transfers to Gore Mt. Trip includes deluxe motor coach and two nights hotel, welcome refreshments, several buffet-style meals, and parties scheduled for Fri., Sat., and Sun. nights. See notice on page 4 and www. adventureunlimited.com.

## Saturday, 2/21

Lion King on Broadway

#### Need a 2004 Resolution?

Please remember to give to the BNL Food Drive.

For a 45-minute appointment, call Valerie James, (800) 842-2733, Ext. 7980 (*not* the on-site Ext. 7980).

leading role in the BERA Theater Club. After retiring, he had continued as a guest consultant until December 31, 2002. \$76 per person. Sold out. Christine Carter, Ext. 5090.

## — WEEK OF 3/1 —

## Thursday, 3/4

#### Eric Forsyth Talk on Latest Voyage

Noon, Berkner Hall. BNL retiree and yachtsman Eric Forsyth will talk and show slides of his latest voyage. All are welcome.

#### BERA Bridge Club

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

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

fected by the presence of new physics, such as supersymmetric particles, if they exist," said Roberts. "Historically, muon g-2 has provided an important constraint on new theories. Our experiment is now 14 times more precise than the experiment done at CERN [the European laboratory for particle physics] in the 1970s. This precision places important restrictions on potential new theories." Added William Marciano,

Added William Marciano, senior theoretical physicist in BNL's Physics Department, "The recent g-2 result strengthens the case for new physics effects with supersymmetry, a leading candidate, but it is by no means definitive. Continued scrutiny of theory and further running of the experiment are imperative."

For more information, including history of previous g-2 results, go to www.bnl.gov/bnlweb / pubaf/pr/2004/bnl pr010804.htm.

- Karen McNulty Walsh

Got the Coil on a String. In May 1992, the third coil for the g-2 magnet was hoisted into its position with the two previously completed inner coils.





mbers of the muon g-2 team gathered around

which, 15 meters in diameter, was built at

ne experiment.

Sponsored by The BNL Music Club

## Two Rock Bands Play BNL Next Week

## Brother Peach, Street Survivors Heat Up 'A Southern Thaw,' 1/24

Two rock groups — Brother Peach and Street Survivors — will perform in a concert called "A Southern Thaw" at BNL on Saturday, January 24, at 8 p.m. in Berkner Hall. The concert is open to the public. All visitors to the Laboratory age 16 and older must bring a photo ID.

Brother Peach will perform the best of the famous rock band with southern roots, the Allman Brothers. The local group has performed at numerous Long Island venues, including the Funky Monkey and Calico Jack's in Oceanside, the Village Pub South and Molly Bloom's in Amityville, the Fire Island Grill in Oakdale, and the Hairy Lemon in Selden. Recently, they performed with the classic rock cover band, Roadhouse.

The Street Survivors will play the best of the southern rock group, Lynyrd Skynyrd. Like Brother Peach, the Street Survivors have performed at the Funky Monkey in Oceanside, and they have also played at such venues as CPI in Hampton Bays, Cashmere's in Shirley, the Village Pub in Port Jefferson, and the Maples in Manorville.

Tickets for the concert are \$10 each if bought in advance, or \$20 each at the door. Buy tickets at the BERA Sales Office, Berkner Hall, weekdays, 9 a.m.- 3 p.m., or at the Bluepoint Brewery, or order from Act 1 Entertainment, at 631 758-0324.

## 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 tionships with faculty and program directors affiliated with educational organizations from local school districts to institutions of higher learning, Laboratory science and operations managers and researchers, the Department of Energy Office of Science, representatives from other science education funding agencies, government and elected officials, and the community. Will also be expected to work with the other offices and divisions within the CEGPA Directorate to build broad-based local, regional, and national support and recognition of the Laboratory's contribution to science, science education, diversity, and workforce development. Requirements include an advanced degree in science education or business management, a proven record of progressive management experience over a minimum of 15 years, and es-tablished relationships with federal science education funding agencies, particularly DOE's Office of Workforce Development for Teachers and Scientists. A thorough understanding of the DOE Field Work Proposal process for science education, DOE sponsored internship programs, and Laboratory cellent oral and written communications skills are a must. Experience in grant writing and educational proposal development as well as science education and training is highly desirable. CEGPA Directorate.

be expected to develop and maintain rela-

## BERA Ski Weekend, 2/20-22

Join BERA for a Ski Weekend to Gore Mountain, Lake George, NY, from Friday, February 20, to Sunday, February 22. The bus will depart BNL on 2/20 at 5 p.m. and will leave Lake George at 5 p.m. on 2/22 for the trip home. Ski all day with transfers to Gore Mountain. Tickets include deluxe motor coach and two nights at the hotel, welcome refreshments, several buffet-style meals, and parties scheduled for Friday, Saturday, and Sunday. Buy tickets at the BERA Sales Office in Berkner Hall at \$195 pp-quad, \$215 pp-triple, \$225 pp-double. For more information, see www.adventureunlimited.com.

## Adult Swimming

Classes begin on Wednesday, January 28, from 7:30 to 8:30 p.m. at the BNL swimming pool at a cost of \$60 for eight weeks. Make checks payable to BERA and send to Christine Carter, Bldg. 179B.

### Tread Softly

The Safety Shoe Office will be closed on Thursday, January 29. It will reopen on Monday, February 2.

#### Need a 2004 Resolution?

Please remember to give to the BNL Food Drive.

94 DODGE CARAVAN - a/t, a/c, p/s, p/b, V6, excel. cond, new tires, avail. 1/28/neg., 72K mi., \$2,700. Jung, Ext. 4021 or 344-1033.
93 FORD BRONCO XLT - 4x4, a/t, a/c, p/s, p/b, p/w, loaded, new tires, 6-disc cd changer, high mi., \$4,000/neg. Debbie, 513-5924.

93 FORD CROWN VICTORIA LX - a/t, a/c, p/s, p/b, leather, keyless ent., garaged, gd. cond., ask. \$2,500. Bob, Ext. 4867 or 654 3989.

93 MERCURY GRAND MARQUIS LS - a/t, a/c, all power, V8, leather, ABS, keyless, 85K mi., \$3,975. Michael, Ext. 2960 or 281-2414.

93 NISSAN QUEST - a/t, a/c, p/s, p/b, p/w, 7-seat van, many new parts, runs well, 128K mi., \$3,500. Najeh, Ext. 7538 or 344-1001.

92 TOYOTA CELICA - a/t, a/c, p/s, p/b, 130K mi., excel running & mint cond., in/ out, well maint., \$4,250. Paul, 765-1124. 92 VOLVO 240DL - a/t, a/c, p/s, p/b, p/w, new cap, rotor & wires, excel. cond., 150K mi., \$2,000. John, 878-3152.

91 CHEVY LUMINA - 6 cyl., a/c, 170K mi., \$400/neg. Doug, Ext. 4393.

91 VOLVO 940 - a/t, 132K mi., \$2,300. Rosa, 727-8514.

90 CHEVY ASTRO VAN - extended, a/t, a/ c, p/s, p/b, tow pkg., 8 pass., runs well, 165K mi., \$1,300. Walter, 750-3015, eves. 90 SUBARU LOYALE WAGON - 4WD, 5 spd. a/c, p/s, p/b, 175K mi., \$550. Steve, Ext. 5323 or 744-3902.

89 MAZDAMPV - a/t, a/c, p/s, p/b, p/w, 7 pass., new brakes, struts, shocks, tires, orig. owner, runs well, 149K mi., \$1,800. AI ,Ext. 7261. RIMS - 15", for Volvo, 2/\$25. Bill, Ext. 4774 or 929-6442.

TRAILER HITCH - fits Chevy Blazer, Jimmy type, v gd. cond., fit 2" receiver, new \$250, ask., \$125. Lou, Ext. 4312.

#### **Furnishing & Appliances**

ENTERTAINMENT UNIT - comb. w/curio lighting, storage, 80Hx19Dx34W, gray Formica, mirror, ask. \$150, Donna, Ext. 4599. GLIDER ROCKER - white-wash frame w/ light green cushion & arm rests, mint cond., ask. \$100. Angela, Ext. 5169.

REFRIGERATOR - Magic Chef/Maytag, 24 cu. ft., white, ice & water disp., energy efficient, excel. cond., \$200. Maria, 874-2504. REFRIGERATOR - GE, white, 20.5 cu. ft. w/ bottom freezer, excel. cond., you pick up, after 1/17, \$250. Anette, Ext. 6057. REFRIGERATOR - GE, white, 21.6 cu. ft. 66.5x33x31.5, side-by-side, icemaker/ crusher, v. gd. cond., \$300. James, Ext. 8370. SOFA GLASS TABLE - 16wx52Lx26h, excel. cond., ask. \$75. Donna, Ext. 4559.

## Tools, House & Garden

LASER PRINTER - w/copier, scanner Panasonic KX-FLM600, 8pm, 250/pg. tray, \$75; Ditto lomega, 76B bck-up, \$25. Ext. 2830. PROJECTOR BULB - Epson, ELP-LP04, brand new in box, must go to BNL dept./ division, for office use only. Lois, Ext. 8600. SOFTWARE - Norton Internet Security 2004, \$15. Richard, Ext. 3788.

#### Miscellaneous

BABY'S ITEMS - make offers: crib w/mattress, jogging stroller, boppy pillow, playgym & mobile, Graco hi-chair. Christine, 821-7297. SHREDDER CHIPPER - like new, \$95; Dehumidifer, \$60; microwave/convect. Panasonic oven, \$60. Joe, Ext. 3783 or 929-8321. SNUGIL SOFT CARRIER - baby faces in/ out, up to 22 lbs., \$15; Graco over dr. jumper for baby, \$20. Anna, Ext. 7132 or 793-4551.

#### Lost & Found

GLOVES - found outside TFCU. James, Ext. 8370.

#### Car Pool

CAR POOL - 4th person needed, meets in either Westbury or Plainview, 8 a.m.-4:30 p.m. shift. Ron, Ext. 6068.

#### Wanted

KARATE CLUB - anyone interested in joining on site, Rex, 872-4804 or pgarcia @bnl.gov.

REMINGTON 1100 SHOTGUN - In 410 Ga. Joe, Ext. 3783.

RESEARCH VOLUNTEERS - men & women, ages 18 and over, are needed for MRI study. Strictly confidential, fee provided. 344-2773. SKIERS - Windham, 2/11, \$53 for bus & lift; Jiminey Peak, Monday, 2/23, \$35/bus & lift, send pymt. to Augie Hoffman, Bldg. 510A. TOY TRAINS - Lionel, Amer. flyer & oth-

ers, cast metal toys, high cash pd., set also for sale. Bruce, 924-4097.

VACUUM TUBE & GEARS - electron vac. tubes, new/used for HIFI equip., radios, HAM, test gear, etc. Jonathan, 878-3430. WARMER WEATHER! - Joe Rubino.

#### For Sale

CENTER MORICHES - 3-bdrm., eik, 1 full bath, legal accessory apt., 1 bdrm., lr/kit. w/ bath, updates, beach & boat community, \$349,999. Peter, Ext. 4028 or 486-8199.

HAMPTON BAYS - panoramic Shinnecock Bay views, huge year-round sunroom, sun decks, newly renovated kit., low taxes, a fisherman's dream, \$1,250,000.

MANORVILLE - 3-bdrm. Colonial, 2.5 baths cul-de-sac, 1 ac., wooded, gar. dr/ way, shed, oil, hot water, igs, 10 min. to malls, all applies. \$363,000. Jack, 874-049. RIDGE - Leisure Village, Baronet model,

## For Love of Life: Blood Drive, 2/13

To replenish Long Island's blood supply, BNL is holding a blood drive on Friday, February 13, from 9:30 a.m. to 3 p.m. in the Brookhaven Center.

Those eligible to donate are people in good health between the ages of 17 and 75 who weigh at least 110 pounds. Donors should have photo identification and know their social security number.

To make an appointment, contact Susan Foster at Ext. 2888, or e-mail donate blood@bnl.gov. In your message, include your name, phone extension, and preferred time to donate.

CORAM - spacious 1- bdrm. gated apt. for sublease, 15 min. to BNL, incl. cooking gas & heat, central air, avail. Feb-Sept. 2004, \$1040. Dantong, Ext. 3042 or 816-0425.

EAST YAPHANK - 3-bdrm. apt, high ranch, unfurnished, main flr., 1 bath, Ig. kit. w/dishwasher, mint cond., lots of closets, avail. ASAP, \$1,800/mo./incl. all. Gerardina, 949-2215.

HAMPTON BAYS - 1-bdrm. apt., priv. ent., walk to beach, single, no smokg/pets, most util. incl., \$950. Leo, 728-0992.

MANORVILLE - 1-bdrm. apt., unfurnished, Ir, kit., full bath, priv., clean, quiet, 3 mi. to BNL, no pets, \$900/mo. incl. all. Walter, 878-8967.

MASTIC - 3-bdrm. apt., eik, \$1,450/incl. all, avail., 2/04. Kim, 968-8189.

MASTIC - Ig. 2-bdrm. priv. house & ent., no smokg/pets, \$1,250/mo./incl. all except cable. Jennifer, 399-2751.

MEDFORD - 2-bdrm. bsmt. apt., sep. ent., no smkg/pets, \$1,000/mo./all, incl. cable. Cynthia, 698-9016.

MILLER PLACE - 1 bdrm. house, a/c, w/d, fireplace, very clean, skylights, deck, priv. yd., near beach, no smkg/pets, \$1,325/mo. Paula, Ext. 473-3349.

RIVERHEAD - 2 sm. rms., bath, share kit., \$500. Chantal, 369-1654.

ROCKY POINT - 1 bdrm. apt., Ir, eik, full bath, priv. ent./parking, no smkg/pets, \$850 + util./sec., Ron, 821-3287.

SELDEN - furnished rm., working adult, priv. ent., refrig., cable, microwave, absolutely no pets, share bath, \$125/wk. + one mos./sec. Richard, Ext. 3082.

SHIRLEY - spacious 2nd. flr. apt., Ig. rm., Ir, full bath, oversized closets, priv. ent., \$950. Nancy, Ext. 4303.

SHOREHAM - share house, furn./unfurn. bdrm., 8 mi. to BNL, no smkg/pets, \$550/ mo. Genda, 744-3543.

STONY BROOK - 2 bdrm. in Ig. house, sep. bath, kit./refrig., util. incl. except elect., ½ mi. to LIRR, rent by mo. or ½ yr., furn., \$750-\$800. Jim, 344-5018, 335-9007/wkend.

WADING RIVER - 1 lg. loft bdrm. apt., lr, kit, priv. ent., no smkg/pets, \$1,250/mo., 1 mos. sec. David, 929-6555.

WADING RIVER - 1 bdrm. cottage, clean, w/d incl., unfurnished, walk to beach & Wildwood Pk., single, no smkg/pets, util. not incl., 1st/last rent + ref., \$850/mo. Mike, Ext. 4202. YAPHANK - studio in priv. home, cozy, clean, fully furn., internet, no smkg. avail. immed., \$600/all incl. Camelia, 924-3049. COROLLA, NC - Outer Banks oceanside vacation home on quiet cul-de-sac, 5 brs., 3 baths, priv. pool & hot tub, billiard rm. & much more, \$795 - \$2,795/wk. Carrie, 878-6968.

FORT LAUDERDALE, FLA. - Gold Crown Re-

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.

NS2737. MANAGER, OFFICE OF EDUCA-TIONAL PROGRAMS (M-2) - Position reports to the Assistant Laboratory Director for Community Involvement, Education, Government and Public Affairs (CEGPA). Will manage the science education programs including elementary and pre-college student programs, elementary, pre-college and graduate teacher enhancement programs, and undergraduate semester and summer research internship programs. Primary responsibilities include oversight, direction and budget administration for the full range of science education programs, management of the professional and administrative staff, and the development and implementation of strategic plans to increase the funding level for the Lab's science education programs. Will

MK2593. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in theoretical condensed matter physics, knowledge of non-perturbative techniques and a broad knowledge of condensed matter physics. The research program will involve nanoscale and low-dimensional physics. The Group intends to continue studies in frustrated magnetism, in particular concerning avoided first order phase transitions and such nanoscale systems as charge and spin pumps. Under the direction of A. Tsvelik, Physics Department.

#### **Motor Vehicles & Supplies**

95 FORD TAURUS - 3.0, V6, a/t, full power am/fm/cd, new tires, excel. cond., \$1,500. Michael, 888-0574 eves. after 5.

95 VW JETTA GL - 5 spd. a/c, p/s, p/b, gd. cond., runs well, dealer maint., 136K mi., \$3,500. James, 917-304-8268.

LAWN & GARDEN TRACTOR - '82 Cub Cadet, 17 hp, new twin Kohler eng., hydromatic w/hydraulic lift, 54" deck. \$1,800. Brian, Ext. 4297.

WINDOW - Certainteed dbl. hung replacement, white, Thermopane, full scr., 32wx38h, brand new, Richard, Ext. 3239 or 472-9034.

#### Sports, Hobbies & Pets

BICYCLE - 12 spd. men's, rarely used, you pick up, \$150. Judith, 924-2012, lve. msg.

FISH TANK - 150 gal., incl. stand, filter & lights, ask. \$300. Debbie, 513-5924.

PIANO - Wurlitzer spinet, 25 yrs. old, gd. cond., \$500. Keiko, 474-9753.

PIANO - Wurlitzer spinet, maple wood, 40 yrs. old, excel. cond., \$1,500. 369-3721.

TREADMILL - PRO-FORM Model 365-SI, comput. controls, folds up, adj. incline, ready for pick-up locally, \$225. Camelia, 924-3049.

#### Audio, Video & Computers

DVD/CD/MP3 PLAYER - brand new Samsung, model DVD-S221, box unopened, \$75. Maryann, Ext. 4705 or 929-4978. 2 bdrm, new bath, new windows, eik, sunporch, garage, close to club house. Caroline, 744-8632.

SOUND BEACH - new 3 bdrm. Colonial, 2.5 bath, Ir, dr, eik, Andersen windows, level .25 acres, 1 mi. to beach, Miller PI. School Dist., \$335,000. LA, 516-635-0225 or 209-0225.

YAPHANK - 3 bdrm. townhouse, Ir, w/fp, dr, full kit., 1 full + .5 bath, full fin. bsmt. w/w/d, att. gar., semi priv. yd. w/patio facing woods, clubhouse w/outdr. pools. James, 345-0040.

ST. MARTINS - Time Share Atrium Resorts, 5th flr. ocean view, sleeps 4, ask. \$9,000 or rent/wk. Conrad, Ext. 3082 or 325-9093.

#### For Rent

BELLPORT - 1-bdrm. apt., no smokg/pets, \$800/all incl. 871-4946.

BELLPORT VILLAGE - 1-bdrm. apt., kitchenette, full bath, central air, sep. ent., suitable for single, no smokg/pets, \$850/mo. Khem, 286-8740.

CENTER MORICHES - 2 br, eik, Ir, full bath, bsmt., priv. ent., use of yd., 1/2 gar., no smokg/ pets, pay heat, elec., avail. 2/1, \$1,100/mo. + 2 mos. sec. Lois, Ext. 8600 or 929-4753. sort t/share, world class golf/fitness center, 3 bdrm. lockout unit, sleeps 8, trades for 2/wks., Chrtms. wk./51, \$6.500. Ken, 281-5565.

FORT PIERCE, FLA.- spacious, 1-bdrm. condo across from ocean, great location, wkly. or wkend. rates, Ken, 334-4194.

KEY WEST, FL. - BNL discount by the day/ wk., located in old town near boating & night spots, see www.cypresskw.com. Dave, 800-525-2488.

#### In Appreciation

Thanks to all who attended my retirement party. It was special. Special thanks to those who made the arrangements. I shall never forget it. — Renee Flack

Dear Friends at BNL - My sincere thanks for your caring and thoughtfulness following my recent diagnosis and surgeries. For the beautiful flowers, gifts, and cards, the phone calls, thoughts, and prayers, I thank you from the bottom of my heart. My chemo treatment begins soon, and, God willing, with the support of my family and friends, I will win this battle. May you all have a happy, healthy New Year. — Jackie Klemm

# Bulletin

Published weekly by the Media & Communications Office for the employees, facilityusers, and retirees of Brookhaven National Laboratory. LIZ SEUBERT, editor JOHN GALVIN, reporter ROGER STOUTENBURGH, photographer On the World Wide Web, the Bulletin is located at www.bnl.gov/bnlweb/pubaf/ bulletin.html. A Weekly Calendar listing scientific and technical seminars and lectures is found at www.bnl.gov/bnlweb/pubaf/calendar.asp. Bldg, 134, P.O. Box 5000 Upton NY 11973-5000 phone (631) 344-2345, fax (631) 344-3368 e-mail: bulletim@hnl.gov INFOLine: (631) 344-INFO (4636)