

BIG MILESTONES AT BNL'S BIG MACHINES

Update From RHIC Run 12: One World Record, Three World Firsts



Roger Stoutenburgh 02800512

Run 12 at RHIC provides world's highest beam energy for polarized protons, uranium-uranium collisions, increasing luminosity for colliding uranium beams, and copper-gold collisions

BNL's Relativistic Heavy Ion Collider (RHIC), the only collider in the world that can collide polarized protons, and the only collider in the world that can offer any particle combination from protons to uranium, again showed its versatility and strength this year.

RHIC was not only colliding polarized protons at two different energies, including the world's highest at 510 billion electron volts (GeV), but also two new combinations of heavy ion collisions: uranium on uranium and copper on gold with new records in luminosity, polarization, and the time-in-store-ratio.

Luminosity, polarization, and the time-in-store (see sidebar) are attributes that are among the most vital for successful experiments using colliding beams. Using these beams are the RHIC scientists who probe the mysteries of the strong force (one of the four natural forces that act on matter), and the quark-gluon plasma that existed at the dawn of the universe, as revealed in the detectors at RHIC.

Steven Vigdor, Associate Laboratory Director for Nuclear & Particle Physics, said, "Summarizing the entire 2012 run, RHIC is not only the sole operating collider facility in the U.S. at this point, but is also the most versatile collider ever operated. Its versatility will be one of the key arguments we make to ensure that RHIC funding remains healthy, even in a very tight budget climate going forward. The 2012 run will make a very strong case for this argument, as we've added new energies and new colliding beam species that bring new dimensions of control to our experiments studying early-universe matter. This run has seen a beautiful confluence of many efforts on R&D and improving machine and detector reliability over many years. It has met or exceeded all the goals of the experimental collaborations, and at the same time, provided sufficient time to carry out accelerator physics experiments that inform our plans for future improvements."

Record Polarized Proton Luminosity, Polarization

This year's operation started with polarized protons slamming into each other with a total energy of 200 GeV. Said Thomas Roser, Collider-Accelerator Department Chair, "The 200-GeV portion of the RHIC polarized proton Run 12 ended very successfully on March 12. The number of collision events was very close to the maximum we had projected, and the polarization was a little higher than in 2009, which was the last time that we ran at this energy. In addition, all

"RHIC is not only the sole operating collider facility in the U.S. at this point, but is also the most versatile collider ever operated."

— Steven Vigdor,
Associate Laboratory
Director for Nuclear &
Particle Physics at BNL

Photo above: Some of the Collider-Accelerator Department team who worked on Run 12 at the Relativistic Heavy Ion Collider are: (front, from left) Mei Bai, Michiko Minty, Ernest Courant, Vincent Schoeffer (Polarized Proton Run Coordinator), Yun Luo (Heavy Ion Run Coordinator), Christoph Montag, Chuyu Liu, Kevin Mernick (stochastic cooling), Mike Blaskiewicz (stochastic cooling, sitting), and Mike Brennan (stochastic cooling, sitting); (second row, from left) Wolfram Fischer, Francois Meot, Tasha Summers, Vahid Ranjbar, Brian Van Kuik, Gregory Marr, Will Jackson, Angela Drees, Travis Shrey, Jordan Ziegler, Guillaume Robert-Demolaize, Yue Hao, and Xiaofeng Gu.

Luminosity, Polarization, Time-in-store Ratio... *What do they mean?*

The **"luminosity"** is a measure of the number of particle collisions that a collider generates. To increase luminosity, or number of collisions, the colliding beams must contain more particles, be more densely packed, or collide more often.

"Polarization" indicates how well the tiny magnets that all protons carry inside are lined up relative to each other. A polarization of 100 percent means that all the tiny magnets point in the same direction.

The **"time-in-store-ratio"** gives the fraction of calendar time that beams are colliding. Time is also needed for set-up and development, maintenance, and accelerator physics experiments. The time-in-store-ratio can also be reduced if equipment fails. Typically RHIC has a time-in-store-ratio of 55 percent. It reached 65.5 percent with 200 GeV polarized protons this year, and even 70 percent with uranium-uranium collisions.

the accelerator systems ran so reliably that the time-in-store ratio was at an all-time high." See *RHIC Run 12* on p. 2



Roger Stoutenburgh 02760412

Commissioning the Linac at NSLS-II

Commissioning the National Synchrotron Light Source II's (NSLS-II) linear accelerator, or Linac, which began in March, is a major milestone in the completion of NSLS-II — a multi-year, multi-million dollar project that will yield the most sophisticated and powerful synchrotron light source in the world. NSLS-II will provide both hard and soft x-ray light, so scientists may image, probe, and analyze complex biological systems and the properties of materials. The 200 million electron volt (MeV) Linac will be the facility's electron source.

Commissioning is the final test "with beam" after the Linac and the beam transfer line that connects the Linac with the booster synchrotron was assembled, installed, and tested. This task is being performed at NSLS-II by engineers from the Linac's German manufacturer, Research Instruments, with help from BNL staff.

"The significance of the Linac's being commissioned is that this is the first part

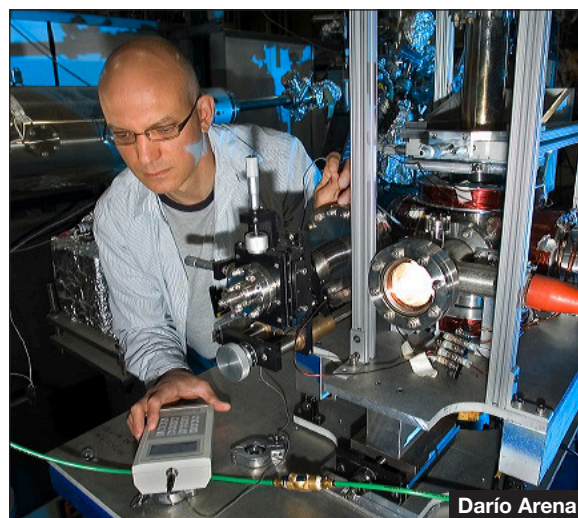
Some of the people involved in commissioning the NSLS-II Linac: (from left) Raymond Fliller, Feng Gao, Michael Davidsaver (seated), Johannes Hottenbacher of linac vendor Research Instruments GmbH, Alexei Blednykh, Christopher Sorrentino, Keith McDonald, Joseph Delong, Sergei Seletskiy, Emil Zitvogel, Xi Yang, and Brian Holob. Not in the photo are Jim Rose, Timur Shaftan and Ferdinand Willeke, and others.

of NSLS-II to come to life," explained Raymond Fliller of the Photon Sciences Directorate, the Linac Commissioning Coordinator. "So, during commissioning, we are getting the Linac functioning for the first time, making sure that it meets all of our specifications. And then, once it's commissioned, it will be used as the injector to the booster accelerator, which is the next piece of the machine to be installed. The booster accelerator takes electrons from the Linac and gives them their full energy, accelerating them further and putting them into the storage ring."

See *NSLS-II Linac* on p. 2

478th Brookhaven
Lecture, 5/24

'A New Spin On Magnets: Using X-Rays To Explore Novel Magnetic Materials'



Roger Stoutenburgh 00060707

Magnets are essential components for industries and applications that include electricity generation and advanced electronics. Magnetic materials are found in the electricity-generating dynamos that provide power to computer hard drives where life-depending results from magnetic-resonance imaging (MRI) devices are stored. At BNL, researchers are exploring magnetic materials made of elements across the periodic table to understand more about how magnetic materials behave and how to improve their performance for applications to come.

On Thursday, May 24, join Dario Arena of the Photon Sciences Directorate for the 478th Brookhaven Lecture, titled "A New Spin on Magnets: Using X-Rays to Explore Novel Magnetic Materials." All are invited to attend this free talk, which is open to the public and will be held in Berkner Hall at 4 p.m. Refreshments will be offered before and after the lecture. Visitors to the Lab ages 16 and older must carry a photo ID while on site.

To join Arena for dinner at a restaurant off-site following the talk, contact Angela Bowden at Ext. 5169 or bowden@bnl.gov.

During his talk, Arena will explain the fundamentals of magnetic materials as well as researchers' tools and techniques for investigating these materials at BNL's National Synchrotron Light Source (NSLS). One method Arena will discuss includes using pulses of x-rays from the NSLS as a "strobe light" to examine the dynamics, or motion, of magnetism for different elements in complicated alloys and structures containing multiple layers. This approach allows researchers to resolve dynamics on the timescale of picoseconds, which are measured in trillionths of a second.

Arena earned a Ph.D. in physics from Rutgers, the State University of New Jersey, in 2000. He was a postdoc at Lawrence Livermore National Laboratory in California and a National Research Council Research Associate at the Naval Research Laboratory in Washington, D.C., before officially joining BNL's NSLS as a postdoctoral research associate in 2003. At Brookhaven, he became an assistant physicist and spokesperson for the Magnetic Materials Characterization Beam Line at NSLS in 2006, associate physicist in 2008, and physicist in 2010.

— Joe Gettler

NSLS/CFN Users' Meeting, Starts Monday, 5/21

The National Synchrotron Light Source (NSLS) and Center for Functional Nanomaterials (CFN) 2012 Joint Users' Meeting will be held May 21-23. This year's theme, "Expanding the Toolbox for 21st Century Science," will showcase the vital roles served by DOE's NSLS, NSLS-II, and CFN, with an emphasis on new tools that have been developed recently for current facilities and planning for the upcoming transition to NSLS-II. The program includes updates from DOE's Basic Energy Sciences and BNL management, talks, workshops, a poster session, and exhibits that showcase new technology and instrumentation.

Plenary Sessions Free, Open to Public

Monday and Tuesday morning plenary sessions, as well as the Monday afternoon transition discussion, are open to the public and free of charge. Keynote speaker Gina Kolata of *The New York Times*, bestselling author and award-winning senior writer for science and medicine, will speak on Monday at 9:40 a.m.

For more information, go to <http://usersmeeting.ps.bnl.gov/default.aspx?year=2012>.

NSLS-II Linac from p. 1

Once the facility is complete, the storage ring will circulate the electrons, and scientists will be able to use the light that is released from the ring.

None of this can happen, however, without a fully functioning linac that can produce a well-tailored amount of electrical charge matching precisely the needs of the storage ring for injected beam intensity. One of the objects of commissioning is to achieve a very high total charge of 15 nanocoulombs of charge per electron bunch train (corresponding to about 10 billion electrons), which make up the beam, said James Rose, the Radio Frequency Group Leader.

"The goal of commissioning is to meet these beam parameters, which are extremely stringent," said Rose.

The impact of the successful commissioning of the Linac has a broader impact than just the completion of one step and the advance to the next, which is the booster commissioning to be completed in December of this year.

"The Linac is a necessary part of the accelerator chain and much of the quality of the beam that we can provide to our users depends on the quality of the beam that you can produce in the Linac," said Ferdinand Willeke, Photon Sciences Accelerator Division Director.

Beam performance is of paramount importance to NSLS-II's success and is what distinguishes



This Linac will be the electron source for NSLS-II: a new state-of-the-art, medium-energy electron storage ring (3 billion electron-volts) designed to deliver world-leading intensity and brightness, and produce x-rays more than 10,000 times brighter than the current NSLS. NSLS-II is on track to begin operations in 2015.

the forthcoming resource from the Lab's first generation light source, the NSLS. NSLS-II will produce brightness of four orders of magnitude greater than the NSLS, added Willeke.

Brightness is related to what makes up the beam: electron bunches. The beam itself is not a continuous stream of electrons, but a train of short beam pulses called electron bunches. The smaller the bunch cross-section for the maximum bunch intensity, the better the brightness and beam quality. To achieve this optimum, the Linac has to inject a beam often and maintain consistent performance.

"The intensity and the uniformity of the intensity over the train of bunches of the Linac are both important in establishing a uniform train of bunches in the storage ring," said Willeke. "That's why the Linac contributes a lot to the quality of the service that we can provide."

The Linac's ability to perform

is linked to its power source. Feng Gao, a Linac project engineer, said that the solid state modulator, which generates the radio frequency power that feeds the accelerating structures that transfer the energy to the beam, is a fairly recent development that has several advantages.

"This is the first Linac on site with solid-state modulators," said Gao. "They are easier and safer to operate. They operate with 30 to 40 times less voltage and still get the same performance."

The NSLS-II Linac commissioning is led by the Injector and Radiofrequency Groups but incorporates all of the groups of NSLS-II, including the Mechanical and Utilities Groups, the Diagnostics Group, the Controls Group, and the Vacuum Group.

"We are currently in the middle of the Linac commissioning," said Timur Shaftan, who leads the Injector Group. "The bunch trains produced by

the Linac are being tested by the diagnostic transport lines that we developed at BNL for the machine commissioning." Tests have been running in two shifts per day, for at least eight hours each shift, five days per week. The testing frequency has increased near the end of the commissioning process.

"Our Linac is a high performance machine as compared with existing linacs for synchrotron light sources," commented Shaftan. "Our next step is booster commissioning and we are looking forward to successful completion of the injector project next year."

There are currently 18 beamlines, with 21 independent endstations, planned for the first few years of NSLS-II's operation, which is set to begin, at latest, in 2015. Also, a number of proposed beamlines may be installed after NSLS-II begins its regular function, increasing the variety of the experiments that can be performed at the new light source.

"NSLS-II will actually open the door to a completely new class of experiments, which are the next logical step in photon sciences. With NSLS-II and the unique properties of its photon beams, the Laboratory will remain a very attractive place to carry out research and perform experiments," said Willeke. "It is an important factor in maintaining Brookhaven as a first-class science facility."

— Natalie Crnosija

RHIC Run 12 from p. 1

510 GeV : World Record

On March 12 the collision energy was changed to 510 GeV, the highest energy ever reached with polarized protons. It took only 3.5 days until going into physics mode, which is when experimentalists can take data.

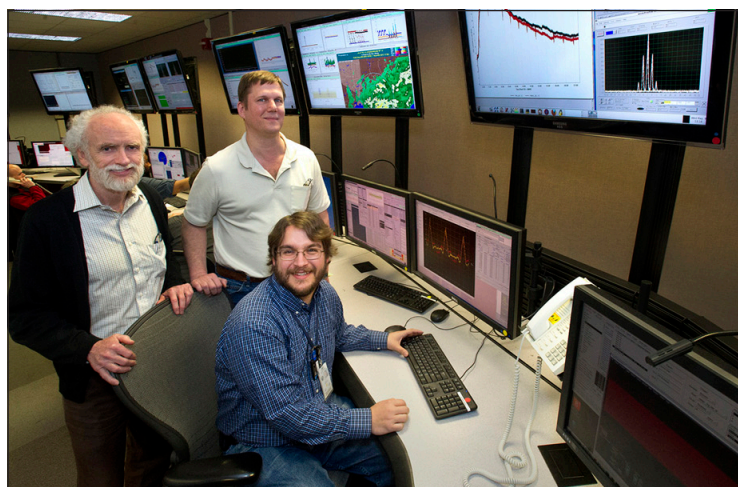
Said Wolfram Fischer, who heads the Accelerator Division in the Collider-Accelerator Department, "Last year we faced a number of unusual failures and the many improvements we put in place did not result in the performance we wanted to see — we did not quite reach our goals at 500 GeV. This year we had to prove ourselves."

And indeed, this year RHIC produced 40 percent more collision events in only five weeks than were produced last year in ten weeks. The higher event number also came with higher polarization.

Fischer continued, "Vincent Schoefer, the Run Coordinator, and the whole team really did an outstanding job."

Schoefer explained, "This year we are seeing the results of all the development efforts during last year's polarized proton run. We have developed many new tools that allow for fast start-up and efficient development, and we have taken full advantage of them."

"Not only did the RHIC collider perform exceptionally well this year, but the STAR detector also performed very well, with record values for the detector uptime and efficiency for sampling the luminosity delivered by RHIC," said Bill Christie, the STAR Operations Coordinator. "The combination of the record luminosity delivered by RHIC, and the high opera-



The RHIC stochastic cooling team: (from left) Mike Brennan, Mike Blaskiewicz, and Kevin Mernick (seated)

tional efficiency for the STAR detector allowed us to exceed our physics data set goals by about 40 percent for the 200 GeV proton proton run, and by a factor of two for the 510 GeV proton proton run."

"Our next task will be to prepare for next year, when we plan to commission a new polarized proton source and the electron lenses," said Schoefer. "Both devices will allow for higher beam intensity and therefore higher luminosity."

Because the experimentalists at RHIC's two detectors, STAR and PHENIX, obtained enough polarized proton data quickly, the data taking period could be shorter than planned. Also, the Lab was granted a significant rebate on the electric power bill, saving enough time and funds to allow two more particle combinations to follow before the collider takes its summer break. Neither of these combinations of particle collisions — uranium on uranium, and copper on gold — ever ran before in a collider.

Uranium on Uranium

After this successful 510 GeV

polarized proton run, Yun Luo of C-AD took over as Run Coordinator on April 19 for another world first. Two uranium beams were collided — the first time that uranium ions have been used in a collider. Because uranium nuclei are so heavy, that is, they contain so many nucleons (protons and neutrons), and have a football-like shape, they can create a denser quark-gluon plasma than any other species. This gives the experimenters a new tool.

The uranium beams are only now available because a new Electron Beam Ion Source (EBIS) was commissioned. (See article on EBIS in the Bulletin, 10/29/10, and www.bnl.gov/cad/ebis/.)

Increasing Luminosity With U-U

In addition, during the uranium run, full three-dimensional stochastic cooling was implemented for the first time. This sophisticated technique shrinks the colliding beams, resulting in a collision rate that progressively increases. This too is a world first for

Polarized proton beams run at RHIC, 2003-2012

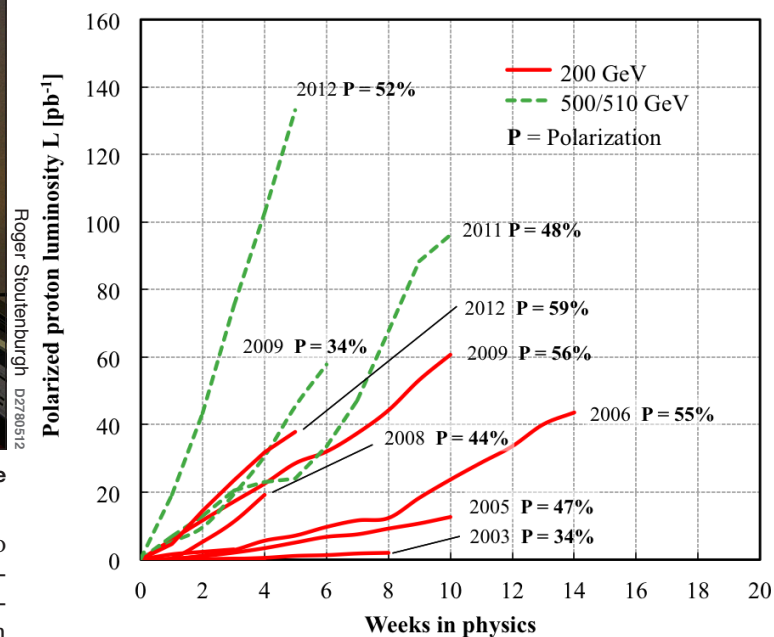


Figure showing the percentage of polarization and the amount of luminosity achieved in polarized proton running at two collision energies: 200 and 500 billion electron volts (GeV), at the Relativistic Heavy Ion Collider in the years 2003-2012. In 2012, the proton beam polarization at 250 GeV reached 52 percent. (Luminosity is measured in units of an inverse picobarn, scientifically noted as pb⁻¹, which is a billion times a billion times a billion times a billion per square centimeter.)

colliders like RHIC — thanks to the work of Mike Brennan, Kevin Mernick and their team, and the theoretical work of Mike Blaskiewicz. Stochastic cooling combined with a special RHIC configuration developed by Luo prevents the loss of any uranium particles stored in the beam until they collide with the uranium particles in the other beam.

Said Luo, "We are running the ultimate collider — we are only 'losing' particles in collisions."

"The unique collision geometries that we get for the first time ever with uranium on uranium collisions allow us to perform a careful systematic study of a signature observed in gold on gold collisions interpreted as being related to

parity violation," explained Christie. "We wouldn't have been able to reach our goal for this important data set if not for the success of the RHIC stochastic cooling system."

Copper on Gold

Said Roser, "In addition, because we finished the polarized proton part of Run 12 early and we had the electric power rebate, three more weeks of running time could be fitted in than was initially planned. This is for copper on gold collisions, also a combination that has never run in a collider. With each new type of collision, we can further explore the mysterious world of the strong force and the quark-gluon plasma."

— Liz Seubert

The 2012 RHIC/AGS Users' Meeting, 6/12 – 15 'Frontiers of RHIC Physics,' RSVP by 6/8

The 2012 Relativistic Heavy Ion Collider (RHIC)/Alternating Gradient Synchrotron (AGS) Users' Meeting will be held at BNL from Tuesday to Friday, June 12 to 15. The theme of this year's meeting is "The Frontiers of RHIC Physics," a topic of great importance to the RHIC community. The meeting will be focused on the latest results from a variety of running conditions that have been explored in recent years, as well as the possibility of extending RHIC physics to uncharted territories. All are encouraged to attend the workshops on Tuesday and Wednesday to learn and share different points of view on the future of RHIC.

Day One: Physics workshops on heavy ion and spin physics. These two workshops will run in parallel.

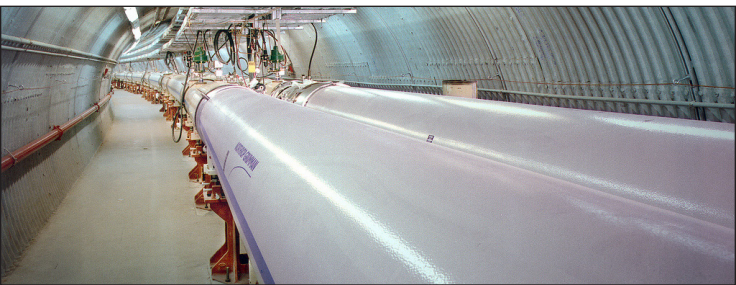
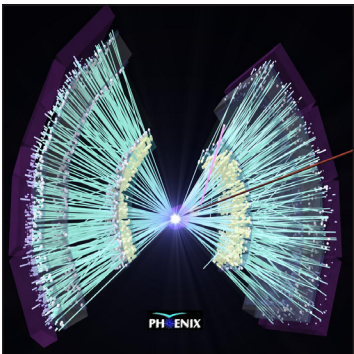
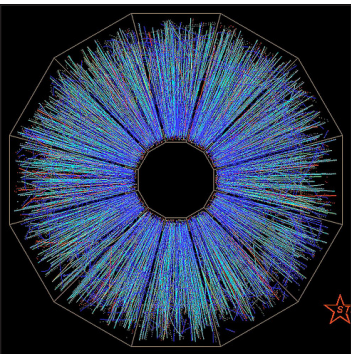
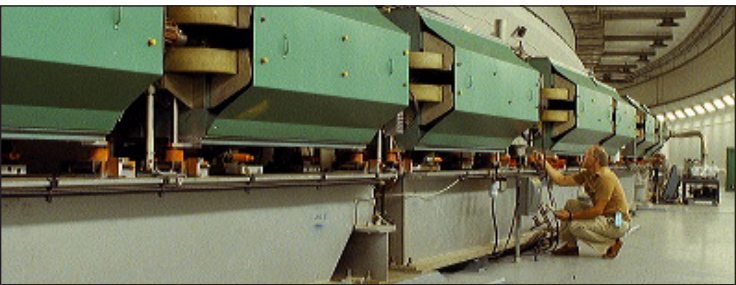
Day Two: Workshop on both machine and detector upgrades and a workshop on eRHIC. Topics will include overviews of current machine and detector plans, discussion of the long-term future of heavy ion physics at RHIC, the decadal plans of the existing experiments, and discussions of machine and detector options for eRHIC.

5-6 p.m. Distinguished Lecture. The day will conclude with a one-hour distinguished lecture on "The Future of Nuclear Physics in the U.S." from DOE's Timothy Hallman, Associate Director of Science for Nuclear Physics.

Day Three: The Plenary Session will consist of presentations from all RHIC experiments, BNL management, and funding agencies. It will also include talks on machine operations, thesis awards, and the accomplishments of the National User Facility Organization (NUFO).

Day Four: The last day of the Plenary Session will focus on the outlook of RHIC physics and machine upgrade plans towards the future physics at RHIC and eRHIC. It will also include a summary of UEC activities, UEC election results, and poster awards.

To register and obtain more information, please go to: www.bnl.gov/aum.



'Go Figure!'

William Meehan, a 10th grader from East Islip High School, has a real passion for numbers. Meehan, a participant in the Lab's middle and high school math scholar program (administered by the Museum of Mathematics of New York City) for the past few years, said his love for figures and equations really paid off when he recently made the list of semifinalists in the American Mathematical Competition. Meehan was among 400,000 students who participated in the competition. The next hurdle, the American Invitational Math Exam, trimmed the number of students from 12,000 to 500.

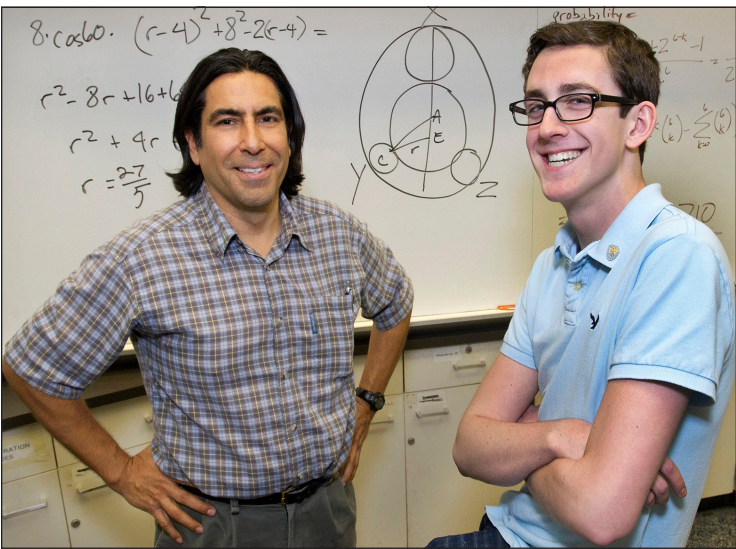
"So far, so good," says Meehan, who recently came to BNL for this latest round of testing.

Louis Peña, a radiation biology researcher in the Medical Department and the director of the Lab's Nuclear Chemistry Summer School, is a co-director of the math scholar program. He proctored this Junior Math Olympiad qualifier for Meehan at BNL. "I am always amazed at the intelligence and motivation of some of these young students," he said.

But the exam isn't for the faint-hearted. Each exam takes a total of nine hours over a two-day period. If Meehan passes this round of the Junior Math Olympiad testing and finishes among the top 30 students, he will have the opportunity to attend "Math Camp" at the University of Nebraska this summer. A team of six will then be selected to travel to Argentina to represent the United States in the International Math Olympiad.

The Institute for Creative Problem-Solving for Gifted and Talented Students, founded by the late Professor Jong Pil Lee of the SUNY College at Old Westbury (SUNY-Westbury), was a building block for Meehan's adventure.

"Being admitted to the SUNY-Westbury program when I was in seventh grade really helped me focus on my math skills," said Meehan. "I am



William Meehan (right) with Louis Peña, a radiation biology researcher in BNL's Medical Department and co-director of the math scholar program.

Two participants in the Lab's math scholar program — Luran He of Ward Melville High School and William Meehan of East Islip High School — are among the 500 semifinalists from the 400,000 in the American Mathematical Competition.

very grateful to have had that opportunity."

"Professor Lee was an advocate for programs that target students of exceptional ability while a critical cognitive window remains open," said Peña. "If you wait too long, you lose these students to boredom and the window closes. The nation's homegrown scientific and academic manpower suffers as a result."

It was Lee's motivation that inspired math and education enthusiasts Glen Whitney and Cindy Lawrence to open the Museum of Mathematics to support mathematics learning locally and nationally. "Sponsoring the continuation of opportunities for these students gifted in math after being identified by Lee is consistent with our DOEmission and Lab philosophy of supporting the next generation of scientists and engineers," said Ken White, manager of BNL's Office of Educational Programs. "Math is an underpinning for most of what we do here at BNL, and mentors like Louis bring it alive for our students."

When Meehan isn't challenging his skills with math problems, he spends his time playing cello and piano in a local youth orchestra. He has also appeared on News 12 Long Island's "The Challenge," an academic TV quiz show for local high school students. He hopes to attend the Massachusetts Institute of Technology to study physics after he graduates high school in 2014.

In addition to Meehan, Luran He of Ward Melville High School, also a participant in the Lab's math scholar program, qualified for this round of testing and took the exam at his home high school.

"As a group, the students in the math scholar program did very well in these competitions. Now we are all thrilled to be part of this exciting phase and we wish William and Luran good luck," said White.

For more information about the math scholar program, contact Louis Peña, Ext. 8041, lpena@bnl.gov or Ken White, Ext. 7171, kwwhite@bnl.gov. — Jane Koropsak

Memorial Day Ceremony, 5/25

The Brookhaven Veterans Association invites all the Lab community to attend a Memorial Day ceremony on Friday, May 25, at noon. Meet at the flagpole in front of the Brookhaven Center for a ceremony to recognize the sacrifices of servicemen and women. For more information, contact Scott Bradley, Ext. 5745, bradley@bnl.gov.

Arrivals & Departures

— Arrivals —

Robert Condon..... Site Resources
Ignace Jarrige..... Photon Scis
Hideki Okawa Physics
Alexandr Zaytsev..... Physics

— Departures —

David Petry Photon Scis

New Vytra ID Cards for BSA Participants

Employees who are currently enrolled in the Vytra medical plan will be receiving new, updated ID cards in the next several weeks. Your new cards may come in an envelope with an Emblem Health logo, and your cards should also include an Emblem Health logo. This does not affect your coverage under the Vytra plan. When you receive your card, please confirm that all information is correct (i.e., name, member number, co-payment information) and that you have received a replacement card for each member on your coverage. Please replace your former card with the new card. You will not be receiving new Cigna prescription drug ID cards, so continue to use the CIGNA card you have. Questions? Call the Benefits Office, Ext. 5126 or Ext. 2877.

May Is Asian Pacific American Heritage Month BNL's Asian Pacific American Association Events

Today, Friday, 5/28. Noon, Berkner Hall. Tour Vietnam on film.

Friday, 5/25: China Showcase Event

4:30–5:30 p.m., Berkner Hall. A program of music, dance, and oratory performances by professionals and local artists will be dedicated to the culture of China. All are invited to this free event, open to the public. Visitors to the Lab of 16 and older must carry identification with a photo (passport, driver's license). See www.bnl.gov/bera/activities/apaa/.

Retirees' Annual Luncheon, 6/7

The Brookhaven Retired Employees Association (BREA) will hold the BNL retiree luncheon on Thursday, June 7, at the Bellport Country Club. Appetizers and a four-course meal with starter, salad, choice of entrée, dessert, coffee or tea, and unlimited wine, beer, and soda comes for \$40. Send reservations to BREA, BNL, Bldg. 421, Upton, NY 11973-5000, with a check made out to BREA for \$40 per person. Please include your name and the name of your spouse or guest(s), and your address, telephone number, and e-mail address (if applicable). For more information, contact Ken Mohring at 631-929-6744 or kenwadingriver@gmail.com.

CALENDAR

Today, Friday, 5/18

Film on Vietnam: Country, Culture
Noon. Berkner Hall. To celebrate Asian Pacific American Heritage Month, BERA's Asian Pacific American Association will show a film on Vietnam.

'Webinar' on Quitting Smoking

1-2 p.m. At your computer. "Are You Prepared to Quit Smoking?" Register at nlosinno@bnl.gov, see www.bnl.gov/HR/

— WEEK OF 5/21 —

Monday, 5/21

***Joint NSLS/CFN Users' Meeting**

All day. Berkner Hall. All welcome. See p.2.

IBEW Meeting

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

Tuesday, 5/22

***Joint NSLS/CFN Users' Meeting**

Berkner Hall. All welcome to morning plenary session. Afternoon workshops. See p.2.

Wednesday, 5/23

***Joint NSLS/CFN Users' Meeting**

Workshops. See p.2.

Thursday, 5/24

***478th Brookhaven Lecture**

4 p.m. Berkner Hall. Dario Arena, Photon Sciences Directorate, on "A New Spin on Magnets: Using X-Rays to Explore Novel Magnetic Materials." All are welcome to this free event. Visitors to the Lab of 16 and older must carry photo ID. To join the speaker for supper at an off-site restaurant after the talk, contact Angela Bowden, bowden@bnl.gov, Ext. 5169. See p.1.

NOTE: Thursday: unusual day.

Friday, 5/25

***Memorial Day Ceremony**

Noon. At the flagpole. See left.

***China Showcase Event**

4:30–5:30 p.m. Berkner Hall. To celebrate Asian Pacific American Heritage Month, BERA's Asian Pacific American Association will organize a program on the culture of China. All are invited to this free event, open to the public. Visitors to the Lab of 16 and older must carry photo ID. See below.

Classified Advertisements

Current job openings and a statement of job placement policy at BNL are available on the homepage at www.bnl.gov/HR/careers/. To apply for a position, go to www.bnl.gov and select "Search Job List." For more information, call Ext. 2882.

Motor Vehicles & Supplies

08 JEEP GRAND CHEROKEE LAREDO – 40K mi. green, V6, excel, maint at dealer incl 30K srvc, orig owner, avail mid-June. \$17,500 neg. 995-0816 10a-7p.

98 DODGE DAKOTA – 0 mi. 2wd, new short block, water pump, starter, clutch, tires, recent front end work, std trans. \$3,900. Vic, 375-6520.

98 FORD MUSTANG GT – 106K mi. blk, lthr, 4.6 L V8 eng, 2dr, 5spd stick shft, c/c, ABS, 17" whl, cd, 400W amplifs, gd cond, damage in body. \$3,000 neg. Tanaka, Ext. 3542.

98 NISSAN MAXIMA – 137K mi. blk, new a/c, p/w, p/l, stick shift, 4/dr, no alarm. \$2,600 neg. Warren, Ext. 2080.

91 HARLEY D. SOFTAIL SPRINGER – 11K mi. FXSTS excel, chrm & blk w/5 gal tanks, Drag bars, upswept drag pipes, new H-D sealed batt/Metzler tires, \$7,900. 661-4892.

83 HONDA GL650 SILVERWING INTER-STATE – 54K mi. gd cond, runs well, new batt/windshield/radio w/MP3, extras. \$1,100 neg. Don, Ext. 2253, 821-3320.

JEEP WRANGER SOFT TOP – Bestop Spice std 2dr shld fit 97-06, Top, left, Rt & rear window gd shape. No hardware, will bring in to check/\$250/neg. 516-924-4299.

Boats & Marine Supplies

23' O'DAY 23 O'DAY CONVERTIBLE-CENTERBOARD – Shoal Keel/C/B 2'5/Draft, 9.9 Evinrude O/B,VHF,OB,Roller Furling, much more. \$2,300 neg. Sal, Ext. 5055.

18' REGAL CUDDY-CABIN – full red canvas, 4 cyl, Iron Duke I/O, runs well. \$1,500. Mike, 516-993-4313.

14' MAD RIVER CANOE – Fibergls camoufge, nds rebuilt, have all new ash parts, 2 cane seats, gunwales, carry handles, decks, yoke, \$250+ in new parts. \$450. Bill, Ext. 2377.

4 HP JOHNSON OUTBOARD – short shaft w/enclosed fuel tank on top, '99, but has less than 10 hrs on it, v/clean, \$400/firm. Louis, Ext. 4417 or levers@bnl.gov.

BIMINI TOP FOR BOAT – orig from '09 Carolina Skiff 218dlv, excel sun-shade, \$225; boot & mounting hardware incld, 96" w x 68" h. Alexandra, Ext. 7246.

BOAT SLIP – avail in Moriches area w/ pwr/water, up to 26'. Ext. 4718.

WATER SKIS – Obrien, for Youth/\$30. Mark, Ext. 2599.

Furnishings & Appliances

60" BIG SCREEN TV – Mitsubishi 1080HD Model# VS-60111 Black 61" h x 51" w x 29" d, excel cond, ask/\$250. 516-220-5865.

BLACK & DECKER BLENDER BASE – like new, for Mdl# BL1900 blender, brushed stainless, w/rubber Gasket & nut/\$40. Brendon, Ext. 8325.

GARAGE DOOR – 8x8, iv/gd shape, white insulated steel dr w/rails/glass pattern on top, pd/\$2000 sell/\$200. John, Ext. 7939.

GE SIDE-BY-SIDE REFRIGERATOR – great, white, \$450, water/ice incld, water filtration sys. Alexandra, Ext. 7246.

LAMPS – 1/table lamp; 1/free standing w/ bronz finish/white shades, in perfect cond, \$30/both, pics on request. 901-4302.

MOVING – Whirlpool drier, Haier washer, mattresses K & Qu, bed frame, desk, dresser, toaster, baby stuff, kitchenware, more, <http://tinyurl.com/7fco3jf>. 995-0816, 10a-7p.

PLAYPEN – w/pad, wooden, excel cond, \$20. Nancy, 821-2652.

TABLE & VACUUM – all in v/gd cond, <http://tinyurl.com/bnccg5bo> <http://tinyurl.com/77ys3xo>. Jayesh, Ext. 3612.

Audio, Video & Computers

CANON 40D CAMERA KIT – DSLR kit, camera/lens/etc, mint, low shutter counts, <4K, kit lens 28-135mm IS, w/HOYA HMC UV, protector, more/\$750. 995-0816 10a-7p.

HONDA OIL FILTER – NAPA ProSelect 21334 orig for civic/\$3. Robin, 744-3902.

INFINITI CAR AMP – 7520a - 97 RMS x 2 @ 4ohm. \$40. Mark, Ext. 3970.

KICKER AMP AND SUB – new in boxes, Kicker ZX700.5 w/remote level control & 10DC122, 2/12" Subs in enclosure, \$600/ all. Mark, Ext. 3970 or mwahlert@bnl.gov.

MEMORY CARD – brand new, 32GB, Class 10 SD HC (SDHC) high spd SCT Flash, unused, \$22. Vicki, Ext. 4271, 473-7849.

Sports, Hobbies & Pets

CONTINENTAL CARGO TRAILER – encl. 10'x6'6" h, hvy duty, int. lights, spr tire, h duty ladder racks, diamnd plate protect, int w/mountg racks, \$2,400, pics. 922-1664.

DIAMONDBACK VIPER – '99 BMX bike, like new, used maybe 10/times, \$75. Mark, Ext. 3970 or mwahlert@bnl.gov.

DIGITAL SLR CAMERA AND LENS – Nikon D100 camera with Tamron lens: 28-300mm F/3.5-5.6. Ask \$400. 929-4326.

FISH TANK – 20 gal, cover, light, etc, \$35. Nancy, 821-2652.

Safety Day 2012, 6/6

BNL Children's Poster Contest

Entries must be postmarked by 5/21

The Safety Day Children's Poster contest is for BNL employees' children and grandchildren between the ages of 4 and 14. All poster contest entrants and their families are invited to attend the BNL Safety Day on Wednesday, June 6, at Berkner Hall. Posters will be displayed along with all other Safety Day 2012 activities.

Entries must be postmarked by May 21. All entries become the property of BNL once submitted.

Read the contest rules and download an entry form online: <http://bit.ly/IGipa0>.

Safety

makes science possible
at Brookhaven National Laboratory
<http://intranet.bnl.gov/safety>

Know Someone Who Needs a Job?

BNL to Participate in Job Fair

For Town of Brookhaven, 6/5

BNL's Human Resources & Occupational Medicine Division will be among the businesses and institutions with recruitment tables at the Town of Brookhaven Job Fair on Tuesday, June 5, from 4 to 7 p.m. at Brookhaven Town Hall, 1 Independence Hill, Farmingville. The event is free, and all are welcome. Free 15-minute workshops will be also be presented on topics that include Personal Image Development, Interview Skills, Negotiating Compensation, Starting a Business, Resume Writing, and LinkedIn 101.

For more information, call the Town's Office of Economic Development, (631) 451-6563.

FLY ROD – 9' 5wt 4 pc Ross Essence FW, like new, v/high qual fast action for trout, sunfish, sm bass, comes w/codura travel tube, ask/\$80. Scott, sbrnson@bnl.gov.

JETS TICKETS – 3/seats plus prkg pass/\$340/reg season/face value, \$170/season, 1/2 price, 1st come 1st pick of games! Ed, 626-3724.

ROAD BIKE – Dawes Atlantis, 23" frame/\$100. Mark, Ext. 2599.

SKATEBOARDS/PAINTBALL GUNS – 3 sktbrds; 1 ZooYork/Deck only, 1 Enjoi & 1 Plan B full brds/\$125/all, Tippman Gryphon & Tippman 98 Cust, \$150/both. 344-2269.

STALLS FOR RENT IN RIDGE – lit ring, plenty of trails, TLC for your horse, sep turnouts, clean, near Lab! \$525/mo. Lynne, 924-0002.

SURFBOARD – Roxy, 7.5', light blue w/ pink details, cushion, non-slip surface, leash incl, excel cond, \$400. 219-7196.

WETSUIT – youth size 12, excel cond, pd/\$110, ask/\$50. Lynda, Ext. 7235.

WOOD SHAVINGS – 60-lb bags, \$6 per bag, sold in bulk, local delivery and pick-up, Ridge area. Wayne, 516-818-4295.

Tools, House & Garden

DOG PEN – 10'x 10'x 6' outdr chainlink dog pen, walk through gate, old but functional, \$125. 208-0309.

POWER WASHER – elect, in great cond, used v/short time, \$35. Joe, Ext. 3783, 487-1479 or cracco@bnl.gov.

Miscellaneous

BABY GRACO SWING-GIRLS – used lightly, in v/gd cond/\$70, pics avail upon request. Erika, ereyes@bnl.gov.

BIRD CAGE – \$5; GE window a/c unit, 120v, about 12K Btu, gd cond/\$60; GE m/wave, 13.5" d, 12" h, 16" l int dimen, gd cond/\$50; 751-7250.

CHRISTMAS TREE – 7.5ft Martha Stewart Pre-Lit tree, ask/\$30. Stacey, 806-9962.

PHISH TICKETS – \$10 below face, 2 tickets GA Atlantic City, June 16, \$50/ea, 4 tickets ea night GA SPAC Saratoga, July 6 & 7 \$35/ea, kfort@bnl.gov. 917-620-6808.

TRAMPOLINE PAD – new 15', blue, never used/\$60/neg. Charlie, ccardone@bnl.gov.

Community Involvement

CRAFT FAIR & FLEA MARKET – Vendors Wanted- Craft Fair/Flea Market at The Big Duck. 9 to 4 Sat, 5/19 rain date 5/20. 10x10' spot \$50. Info: 727-0593 or visit bigduck.org. Ext. 8962.

Happenings

AUTHOR TALK & BOOK SIGNING – On Thurs, May 17, Dr. Harris Cohen will introduce his new book, "Lessons Learned: How to Negotiate the Life You Want to Live," at Mastic Beach Hebrew Center, 218 Neighborhood Rd, 5:30 – 8pm. Light Refreshments. Free. 284-3737.

DINNER/SHOW OUTING – to see Jonah at Sight n Sound Theatre in PA on Sat, Oct 13, 2012. Deposits by May 30, call for details. Kim, Ext. 2896, 399-3098 or khayes@bnl.gov.

KARA'S HOPE 5K RUN/WALK – for Scholarships, will be at Southaven Park on Sat, May 19. To register to run or walk visit www.karashopefoundation.org. Jeff, Ext. 5587 or jwilliams@bnl.gov.

MATH/SCIENCE CAMP – Quinipet Camp & Retreat Cntr, www.quinipet.org/, Shelter I., for children ages 11-14, Aug/25-31. \$800 (sibling discounts avail.) Registration: <http://sigmacamp.com/registration/>. Contact: 371-3271, info@sigmacamp.com.

THE KING AND I – will open on Thurs 5/17 at North Fork Community Theatre in Mattituck. Runs thru 6/2, \$20, <http://www.nfct.com>. Laura, Ext. 2520.

TUNNEL TO TOWERS RUN – Stephen Siller Tunnel To Towers Run. Sun., Sept. 30, 2012. To participate with the BNL Fire & Police please email me. <http://www.t2trun.org>. Marcel, Ext. 5517 or mrosenfe@bnl.gov.

WOUNDED WARRIOR BIKE TOUR – July 21- Amagansett to Sag Harbor and return, 30 mi., or to Montauk, 60 mi. Looking for people to support this effort and ride/fund raise. Michael, Ext. 5891 or mpaquette@bnl.gov.

YARD SALE – To benefit Peconic Bay Zonta scholarships, 5 Emerson Court, Hampton Bays, May 26, 8:30a-3p, multi-family, Rain date: May 27. mrowe@bnl.gov.

Free

COCKATIEL – v/friendly, hand trained male, 5 yrs old w/cage/all supplies, moving, can't take him w/me, pls contact Brittany, 790-5592 or Christine, Ext. 7101.

PLANTS – Honeysuckle vine, chives, prickly cactus. 404-8109.

TV – 24"tubed CRT Sharp flr model TV. 751-7250.

Lost & Found

KINSTONE USB DATATRAVELER 8GB – lost, green body/black head, my phone number is list on the USB sticker, pls call me if you find it. Thanks. Ext. 7298.

Wanted

ADOPT-A-PLATOON – Monetary donations gratefully accepted towards mailing shipments to our platoon stationed overseas and to send goodie packages to BNL family members. Thank you. Joanne, Ext. 8481.

BNL FAMILY MEMBERS IN MILITARY – If you have a family member that has been deployed overseas, please contact Adopt-a-Platoon so we may send them a goodie package. Joanne, Ext. 8481.

BRICKS – looking for 20-30 bricks for a DIY project, preferably free, will pic-up. Christopher, Ext. 5038 or cpontieri@bnl.gov.

FIREARMS – new or old, fair \$\$\$ pd, if they are sitting around and not getting use, call me. (Note: no firearms are brought on BNL site.) Joe, 487-1479.

GOLD FISH – accepting unwanted goldfish to be placed in lg priv pond. Glenn, Ext. 7320.

KILN SUPPLIES – looking for reasonably priced kiln supplies (kiln shelves, molds, furn, glass, frit, clays) for glass fusing and ceramics. mimi@corwincorner.com.

LCD FLAT SCREEN MONITOR – 17" or higher, Ext 7603. Lokesh, lokesh@bnl.gov.

MATTRESS – QUEEN – Box Spring, & rails, also head/foot boards, thank you! Rick, Ext. 3005 or rbuono@bnl.gov.

POP TOPS FROM SODA/BEER CANS – Collecting for Shriner's Children's Hospital. Please send or drop off @ Bldg 400A, Transportation Office. Paula, Ext. 2535.

Upcoming BERA Trips

Purchase tickets at the BERA Store in Berkner Hall, Monday through Friday, 9 a.m.-3 p.m. BERA trips are a BNL benefit and tickets are for BNL employees and retirees, those with guest appointments, and their families. Buses leave from the Brookhaven Center. For more information, see www.bnl.gov/bera/recreation/events.asp or call Ext. 2873.

Long Island Ducks. BERA has purchased 4 great seats for each Ducks Home Game (70 total home games) at the \$10 per seat, Section 205, Row J, seats 7, 8, 9, 10 at the 3rd base line. VIP Pass is included for access to the exclusive Duck Club Bar & Restaurant! Many food options at the park, but no outside food or beverage permitted. 14 post-game Grucci Fireworks will explode the skies. Bonus: Buy 1 ticket get 1 free for any game in the May. See www.liducks.com/index.cfm.

Racing @ NHRA Toyota Supnationals, NJ: Friday, June 1. Races at Englishtown, NJ. Depart BNL at 11 a.m., leave track at 9 p.m. \$55/person, includes reserved seat in Section 3 at starting line/pit side, coach bus, driver tip. Must use an approved vacation day. Trip is not suggested for young children.

Belmont Stakes: Sat., June 9. Depart BNL at 11 a.m., leave Belmont at approximately 7:30 p.m. or 30 minutes after last race. Dress code: shirts with collar, no jeans. \$60/person includes ticket, grandstand reserved seating in Section 2AA group area (under overhang), admission to the Clubhouse, and coach bus, driver tip.

Yankees vs. White Sox: Fri., June 29. Limit of 4 tickets per person, per game. 7 p.m. game, seats in Section 307. \$35/person, includes luxury bus, ticket, driver tip. 50 tickets/game available.

Mets vs. L. A. Dodgers: Fri., July 20. Limit of 4 tickets per person, per game. 7 p.m. game, seats in the Pepsi Porch section. \$46/person, includes luxury bus, ticket, driver tip. 50 tickets/game.

Yankee vs. Seattle Mariners: Fri., August 3. Limit of 4 tickets per person, per game. 7 p.m. game, seats in Section 233A. \$37/person, includes luxury bus, ticket, driver tip. 50 tickets/game.

Mets vs. Houston Astros: Fri., August 24. Limit of 4 tickets per person, per game. 7 p.m. game, seats in the Pepsi Porch section. \$46/person, includes luxury bus, ticket, driver tip. 50 tickets/game.

Yankees vs. Toronto Blue Jays: Fri., August 31. Limit of 4 tickets per person, per game. 7 p.m. game, seats in Section 434B. \$20/person, includes luxury bus, ticket, driver tip. 50 tickets per game.

Mets vs. Miami Florida Marlins: Fri, September 21. Limit of 4 tickets per person, per game. 7 p.m. game, seats in the Pepsi Porch section. \$37/person, includes luxury bus, ticket, driver tip. 50 tickets per game.

NASCAR Race: Sun., September 30. Depart BNL at 5 a.m., leave Dover, Delaware, at 6 p.m. Only 40 tickets. \$200/person, includes party chalet, catered food and beverages, great seats, program, as well as souvenir, coach bus, driver tip.

Note: Once seats are sold out for a game or trip, there will be a wait list at the BERA Store.

SD CARDS (NOT SDHC) – 256MB, 512MB or 1GB SD cards for some older equipment. Gary, Ext. 7779 or gstevens@bnl.gov.

TURNING / MILLING SERVICES – HELP! I need to make a dime-sized cylindrical alum. part for a model airplane. Mostly turning operations, but some milling helpful. I will pay \$/hr. Richard, Ext. 7443.

WOOD CHIPPER – gas powered, minimum 3" capacity, gd cond. 345-0063.

YARD-SALE ITEMS – for Peconic Bay Zonta yard sale, May 26 to raise scholarship money for young women. Do a spring cleaning and consider donating items to the sale. mrowe@bnl.gov.

Yard & Garage Sales

BROOKHAVEN HAMLET – Moving Sale! One day: Sat, 5/19, 9a-4p, No early birds. collectibles, furn, linens, games, tools, kitchenware, art. 5 Beaver Crt, N. of S. Country, 2 mi E of Bellport Village Rain or Shine. 917-846-0229.

HOLTSVILLE – 6-Family Sale, 33 Washington Ave, off Portion Rd. 9a-5p 5/18 & 5/19 Baby, household, electronics, furn, toys, clothes and much more! 793-7080.

MILLER PL COMMUNITY SALE – May 19 & 20, many homes participating; take Lower Rocky Pt Rd by the pond to Grandview Blvd, Central Ave, Seaclyff Ave, Fair View, Northampton. Ext. 5090.

For Rent

CENTER MORICHES – 1 bdrm apt, full bath, eik, sep ent, all util incl, nice area, close to Lab. \$925/mo. 878-1178.

CENTER MORICHES – 3 bdrm hse, 2 bath, new kitch, cac, w/d, woodded bckyd w/deck, priv beach & boating rights, no smkg/pets, 9 mi to BNL. \$1,900/mo. Ext. 3116.

CORAM – priv rm, share lg home w/2 males, off st prkg, quiet, safe, 25 mins to Lab, fumrd/unfumrd, need backgrd/credit check, 1st rent/1 sec to move in. \$550/mo. 848-4381.

MANORVILLE – 1 bdrm duplex hse, eik, entry foyer, light and airy, new appls, w/d, located on priv horse farm, 10 min from BNL, pets ok. \$1,200/mo. 516-375-1373.

MILLER PLACE – 3 bdrm bsmt apt, own a/c unit & thermostat, walk in closet, big pantry plus utl, apt will split cost of heating hse, avail 7/1-12. \$1,350/mo. 917-716-8706.

RIDGE – 1 bdrm, kitchenette, full bath, mins to Lab, incls all, sep ent/prkg. \$975/mo. Lynne, 924-0002.

RIVERHEAD – 3bdrm, 2 full ba, Ranch, kit, dw, l/r, d/r, gar, new wndws, furnace; quiet, lg prpty on c-d-sac, nr shops, no smkg/pets, refs & cc req, 1/ mo sec+util. \$2,250/mo. 512-6470.

SHIRLEY – 4/bdrm hse, 1/mo rent, 1/mo sec, call for info. \$1,500/mo neg. Mark, 516-351-1791.

SHOREHAM – share a hse w/professional, lg, furnrd bdrm, cable/TV/int, no smkg/pets, 7 mi to BNL, avail now. \$650/mo. 464-8134 or gg19582003@gmail.com.

WADING RIVER – 4/bdrm cape, full eik, lg l/r, full bsmt, oil heat, new syst, Landlord takes care of landscaping. \$1,775/mo neg. Joe, Ext. 3783, 487-1479 or cracco@bnl.gov.

For Rent or Sale

WEEKI WACHEE, FL – priv ranch on Gulf, 70m Orlando, 45m Tampa, fly Islip direct, near beach/tennis/park, SW architecture, 3/bdrm, 2/bath, d/r, f/p, 2gar, ipp in lanai, fruit trees, see review.oktane.net/House-Tour. \$450/wk, \$120,000 neg. 344-5537.

CALVERTON – Move right in: renov 2bdrm cape, 2ba, kitch w/dw, s/r, lrg l/r w/vaulted ceilings, w/d & shed on prop, no smkg/pets, refs & cc reqd, 2mos + util. \$1,750/mo neg. Or Sale, \$259,900 neg. 860-591-2772.

For Sale

PORT JEFF STATION – lg upper 1 bdrm, 1 bath Co-op, eik, new appls/windows, a/c, d/w, Indry/pool on site, pet friendly. \$98,000. Megan, 828-2743.

SAYVILLE – Sayville Co-op, upstairs unit, 1 bdrm, 1 reno'd ba, lg l/r, d/r, kitch, bike to downtown/FI Ferries, tons of storage. \$99,000. 750-6082 or rob@wlxradio.com.

Services

A list of services performed by BNL employees and their immediate family members is available on the intranet homepage under "See all ads." These services are neither screened nor recommended by the Bulletin. They cannot be accessed from off-site. To get them emailed or a paper copy sent, call Ext. 2346 and leave an address or contact lseubert@bnl.gov.