



Roger Stoulenburgh D2400112

## BNL Leads Conversation on Standards For Residential Wood-Burning Boilers

By Tom Butcher, Head of the Energy Conversion Group, Sustainable Energy Technologies Department

Using wood as a fuel for residential heating is a topic of great interest in the northeastern United States. Its relatively low cost and availability make it particularly attractive for home heating. Unfortunately, it's also becoming a significant source of airborne particulates. Work to reduce particulate emissions aims to ensure that increased use of wood and solid biomass fuel occurs in as environmentally responsible a manner as possible.

In January, BNL conducted a week-long series of efficiency and emissions tests on a residential, cordwood-fired boiler with available heat storage. The emissions testing was done in connection with international discussions on standards for these heating systems. Representatives from the U.S. Environmental Protection Agency

In photo above: Tom Butcher, fourth from right, members of his staff, and representatives from the U.S. EPA and the Swedish Technical Research Institute were among those present during a weeklong series of efficiency and emissions tests on a residential, cordwood-fired boiler.

(EPA) and the Swedish Technical Research Institute observed the tests and participated in a day-long workshop on the methods and results.

Some 50 representatives of commercial and regulatory interests from around the country also attended the workshop, and others from the U.S. and several European countries participated through a webcast and Skype. The discussion centered on the status of technology practices, performance and safety, and design requirements in the U.S. and Europe, as well as the potential impact to the U.S. market of proposed revised...

See *Residential Boilers* on p. 2

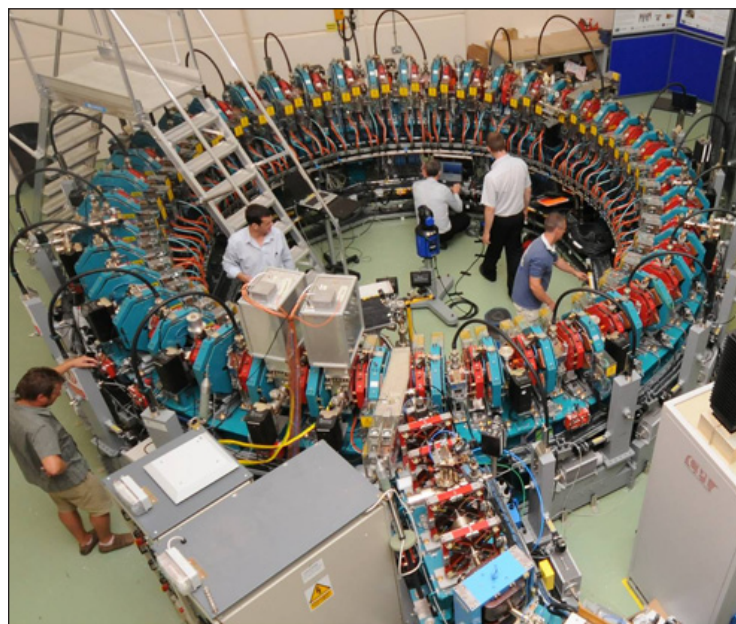
## BNL Scientists Help Develop Model for Future Accelerators

**Groundbreaking Results Promise Smaller, Cheaper Therapy Machines That Could Revolutionize Cancer Treatment and More**

Working with an international team, three physicists from BNL—Scott Berg of the Physics Department, and Dejan Trbojevic and François Méot, both of the Collider-Accelerator Department—have helped to demonstrate the feasibility of a new kind of particle accelerator that may be used in future physics research, medical applications, and power-generating reactors. The team reports the first successful acceleration of particles in a small-scale model of the accelerator in a paper published online January 8, 2012, in *Nature Physics*. BNL's role in this work is supported by the DOE Office of Science.

The device, named EMMA and constructed at the Daresbury Laboratory in the UK, is the first non-scaling fixed-field alternating gradient accelerator, or non-scaling FFAG, ever built. It combines features of several other accelerator types, but with linear and fixed magnetic fields, to achieve rapid acceleration of subatomic particles while keeping the scale—and, therefore, the cost—of the accelerator relatively low.

See *Accelerator Advances* on p. 3



UK Science and Technology Facilities Council

The EMMA accelerator's ground-breaking concept is based on a ring of magnets that use their combined magnetic field simultaneously to steer and focus the electron beam around the machine. The strength of this magnetic field increases steeply as the beam spirals outwards while it is accelerated to 20 million electron volts around the ring. Due to the strength of the magnetic focusing, the displacement of the beam as it accelerates and spirals around the ring is much smaller than in any equivalent accelerator. As a result, EMMA's ring of magnets is much more compact and it is easier to accelerate the beam.

The electron beam that is injected into EMMA is generated by another accelerator system operated by STFC at Daresbury Laboratory, known as ALICE (Accelerators and Lasers in Combined Experiments), which is also based upon a mode of operation that drastically minimizes the power needed to accelerate the beams.

## Ten Brookhaven Scientists Are Granted Tenure Meet Tenured BNLers Jason Graetz, Qiang Li, Chang-Jun Liu

Brookhaven Science Associates (BSA) granted tenure to 10 BNL scientists, effective December 1, 2011. The scientists are: James Alessi, Collider-Accelerator Department; Hooman Davoudiasl, Physics Department; Jason Graetz, Sustainable Energy Technologies

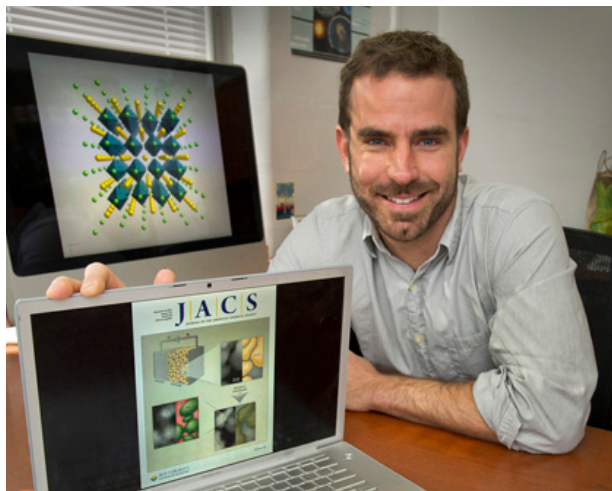
Department; Ralph James, Non-proliferation & National Security Department; Qiang Li, Condensed Matter Physics & Material Sciences Department; Chang-Jun Liu, Biology Department; Ping Liu, Chemistry Department; Allen Orville, Biology Department; Paul Sorensen,

Physics Department; and Bo Yu, Instrumentation Division.

Tenure appointments are made after a rigorous selection procedure culminating in a comprehensive review of each tenure case by the Brookhaven Council, an elected body that advises the

Director on matters of concern to the scientific staff. The BSA Science & Technology Steering Committee oversees the tenure process and makes final recommendations to the BSA board. The newly tenured scientists are featured here in alphabetical order, or as pho-

tographs or articles become available. The contributions of James Alessi and Hooman Davoudiasl appeared in the Bulletin of January 27; those of Ralph James and Ping Liu, on February 3. Jason Graetz, Qiang Li, and Chang-Jun Liu are featured below.

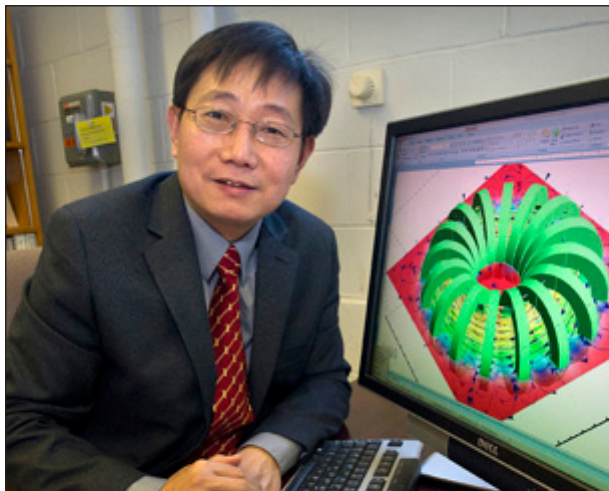


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**Materials Scientist Jason Graetz** was granted tenure for his internationally recognized studies on metal hydrides—materials used for hydrogen storage in fuel cell vehicles.

Heading the Energy Storage Group in the Sustainable Energy Technologies Department (SET), Graetz focuses his research on materials for energy storage. Graetz systematically explored the properties of aluminum-based hydrides and demonstrated that they can meet strict requirements for energy storage in future fuel-cell-powered vehicles. These compounds now attract much attention for their potential as hydrogen storage media for fuel cell applications.

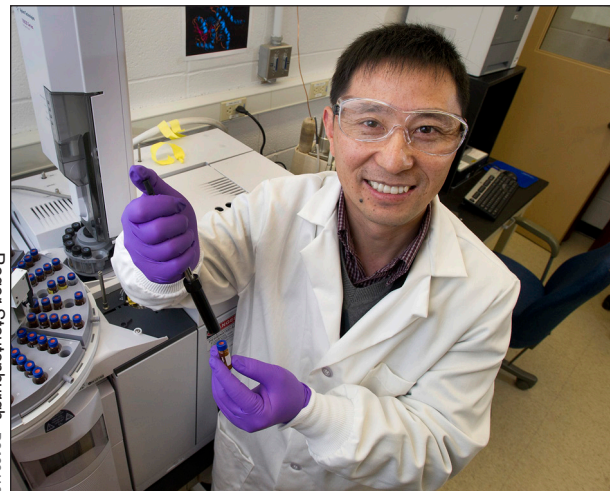
"Jason's pioneering studies of these compounds have opened a new avenue in this field and established aluminum hydride as one of the few promising materials for practical hydrogen storage—a real scientific achievement," said Pat Looney, SET Chair. "His accomplishments have contributed significantly to the Laboratory's mission." See *Jason Graetz* on p. 2



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**Scientist Qiang Li** of the Condensed Matter Physics & Materials Science (CMPMS) Department was awarded tenure for his outstanding research in basic and applied superconductivity. A leader in the applied superconductivity field, Li has conducted research ranging from basic physics and material science studies to the applications of high temperature superconductors, which has greatly impacted today's high temperature superconductor technology.

Li now leads the Advanced Energy Materials Group, which studies superconducting and thermoelectric materials. He has more than 120 peer-reviewed publications, including one *Nature*, two *Science*, and ten *Physical Review Letters* papers, and currently has four patents, provisional or pending. Among Li's fundamental research achievements, his work provided important insights into two dimensional fluctuation superconductivity, and the relationship between grain boundaries and the transport properties of high temperature superconductors. See *Qiang Li* on p. 2



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**Biochemist Chang-Jun Liu** was granted tenure for his original and creative research in the molecular characterization of the genes, enzymes and chemistry involved in plants' phenylpropanoid metabolism. Phenylpropanoids, molecules derived from the protein-building amino acid phenylalanine, play an important role in processes like cell wall synthesis and lignin formation. This research is important in the development of sustainable fuels, a major BNL science initiative.

Liu's interest in biosynthesis of plants' secondary metabolites reaches back to his M.Sc. and Ph.D. thesis projects at the Shanghai Institute of Plant Physiology of the Chinese Academy of Sciences. Since coming to BNL in 2005, his interests have included the synthesis of plant cell walls and lignin and the production of (iso)flavonoids involved in plant defenses against pathogens. His basic research on natural plant products, cell wall synthesis, and lignification is highly relevant to DOE's interest.....See *Chang-Jun Liu* on p. 2



CALENDAR

OF LABORATORY EVENTS

- The BERA Store in Berkner Hall is open weekdays from 9 a.m. to 3 p.m. For more information on BERA events, contact Andrea Dehler, Ext. 3347, or Christine Carter, Ext. 2873.
- The Recreation Building #317 (Rec. Hall) is located in the apartment area.

— REGULARLY —

Weekdays: Free English for Speakers Of Other Languages Classes

Beginner, Intermed., Adv. classes, various times. All welcome. Learn English, make friends. See <http://www.bnl.gov/esol/schedule.asp> for schedule. Jen Lynch, Ext. 4894.

Mondays: Yogalates

Noon–1 p.m. at the Rec Hall (Bldg. 317). Registration required, Ext. 2873.

Mon. & Thurs.: Kardio Kickboxing

\$5 per class. 12:15–1:15 p.m. in the gym (Bldg. 461). \$5 per class. Ext. 2873.

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

Noon–1 p.m., B’haven Cntr (Bldg. 30), N. Rm. Adam Rusek, Ext. 5830, [rusek@bnl.gov](mailto:rusek@bnl.gov).

Tuesdays: Hospitality Welcome Coffee

10:30 a.m.–noon at the Rec Hall (Bldg. 317). Meet over coffee. Children welcome. Ext. 2873.

Tuesdays: Pilates

Noon–1 p.m. at the Rec Hall (Bldg. 317). Registration required, Ext. 2873.

Tuesdays & Wednesdays: Zumba

Tuesdays: Noon–1 p.m., in gym (Bldg. 461). Wednesdays: 5:15–6:15 p.m., at the Rec Hall (Bldg. 317). Registration required, Ext. 2873.

Tuesdays: Toastmasters

Two monthly meetings: 1st & 3rd Tuesdays, 5:30 p.m., Bldg. 463, Room 160. Guests and visitors welcome. [www.bnl.gov/bera/activities/toastmasters/](http://www.bnl.gov/bera/activities/toastmasters/).

Tuesdays & Thursdays: Aerobic Fitness

5:15–6:30 p.m. in the Rec. Hall (Bldg. 317). \$5 per class, or 10 classes for \$40. Kathy Schoenig, Ext. 2818.

Tuesday & Thursday: Aqua Aerobics

5:30–6:30 p.m., Pool (Bldg. 478). Registration required, Ext. 2873.

Wednesdays: Ballroom Dance

5:30, 6:30, 7:30 p.m., Brookhaven Center (Bldg. 30). Vinita Ghosh, Ext. 6226.

Wednesdays: Play Group

10 a.m.–noon at Rec Hall (Bldg. 317). Parents meet while infants/toddlers play. For events, see <http://www.meetup.com/BNL-Playgroup>, or call Ext. 2873.

Wednesdays: Yoga

Noon–1 p.m., B’haven Center (Bldg. 30). Free. Ila Campbell, Ext. 2206, [ila@bnl.gov](mailto:ila@bnl.gov).

1st Wednesday of month: LabVIEW

1:30–3 p.m., Bldg. 515, 2nd fl. Seminar Rm. Free technical assistance from LabVIEW consultants. Ext. 5304, or Terry Stratoudakis, (347) 228-7379.

Thursdays: BNL Cycletrons Club

5 p.m., Brookhaven Center. First Thurs. of month. Andy Mingino, Ext. 5786.

Thursdays: Reiki Healing Class

Noon–1 p.m., Call for location. Nicole Bernholz, Ext. 2027.

Thursdays: Postdoc Social Night

6:30 p.m. ASAP Lounge (Bldg. 462). [www.bnl.gov/asap](http://www.bnl.gov/asap).

Thursday: Judo Class

7:30 p.m. Gym (Bldg. 461). Tom Baldwin, Ext. 4556.

Fridays: Family Swim Night

5–8 p.m. Pool (Bldg. 478). \$5/family. Ext. 2873.

Want to Learn to Knit?

No knitting classes are scheduled now, but call Ext. 5090 if interested.

*Residential Boilers from p. 1*

...rules for these heating systems. As in parts of the U.S., several European countries are particularly interested in the effects of using cordwood fuels for heating.

Brookhaven’s performance and emission testing project, sponsored by the New York State Energy Research and Development Authority (NYSERDA) in collaboration with the EPA, is a major initiative of the Energy Conversion Group, part of the Lab’s Sustainable Energy Technologies Department. Through this and other programs, the Lab seeks to continuously improve the capabilities of relevant research tools being applied in collaborative initiatives to achieve the goals of sustainable and clean energy production and delivery. Studying wood boilers and air-pollutant emissions from advanced wood combustion is an important part of the Energy Conversion Group’s mission.

Workshop sessions focused on the selected boiler’s combustion and heat exchange design, the

*Chang-Jun Liu from p. 1*

...in the efficient conversion of plant biomass into biofuels and value-added chemicals.

“Chang-Jun has established a program of original research that is internationally known to be of outstanding quality,” said Creighton Wirick, Biology Department interim chair. “He has provided substantial and pioneering insights into the biology of enzymes important in bioenergy crops. He is particularly well-qualified to tackle these difficult problems because of his ability to integrate bioinformatics, biochemical, structural biological and molecular genetic approaches, and his work leverages BNL’s synchrotron light source facilities.”

In a recent major accomplishment, Liu engaged in deciphering the molecular mechanism for lignin precursors’ transport and deposition and engineered an enzyme with lignin-altering capabilities that would facilitate biomass conversion into biofuels.

Additionally, Liu has been an adjunct professor in Stony Brook University’s Department of Biochemistry and Cell Biology since 2005.

— Natalie Crnosija

*Qiang Li from p. 1*

Qiang Li’s fundamental work has seen practical application in the superconducting wires now being developed for use in the electrical grid. More recently, he organized multi-institutional teams and developed two proposals for the Superconducting Magnet Energy Storage System for grid storage, and superconducting wires for direct-drive wind generators in response to the DOE Office of Advanced Research Project Agency calls. Both endeavors received funding. If successful, these systems could significantly impact the future of renewable energy technology and will play a significant role in BNL’s strategic energy research program.

“Qiang’s unique leadership talent and outstanding original research achievements in basic science as well as applied science and technology have made him an extremely valuable member of the department and BNL’s energy program,” said Peter Johnson, CMPMS Department Chair.

Li joined BNL in 1991 with a Ph.D. in physics from Iowa State University.

— Natalie Crnosija

project objectives and test plan, and results and observations. In the closing session, topics flagged for further study included how to handle partial wood loads and storage, hot versus cold starts, Teflon versus quartz filters, potential use of Smart Grid technology, and weather forecasting to allow households using wood-fired boilers to adjust fuel loads accordingly.

Wood is increasingly regarded as a viable alternative to oil-based heating systems, partly as a result of economic incentive — specifically, homeowners can get wood free from their own properties or buy it for less than the cost of other fuels. The efficiency and emissions tests and the workshop mark the start of this project at BNL. Future work will include studies of air pollutant emissions to help guide the development of new test standards for low emission boilers, which use a combination of gasification combustion and large thermal storage to achieve high-performance levels.

# MIT Externs Get an Internal View Of Technology Commercialization

Two weeks ago, Richard Wood and Sean Karson packed their bags and headed back to the Massachusetts Institute of Technology (MIT) after completing their four-week marketing externships in BNL’s Office of Technology Commercialization & Partnerships (TCP). Apart from managing the Lab’s intellectual property assets and supporting development projects between scientists and industrial or academic partners, the office focuses on the commercialization and deployment of BNL inventions and discoveries.

Principal Licensing Specialist and MIT alumna Kimberley Elcess made the opportunities available to qualified students of her alma mater during their January Independent Activities Period. She explained that this particular externship helps students get an understanding of how science is translated into business. Two other MIT externs participated in more traditional science projects.

“It’s a good opportunity for hands-on scientists and engineers to explore alternative careers,” Elcess said.

Wood, a junior, made the switch early, changing his focus from physics to comparative media studies with a minor in management.

“I’m still a physicist at heart,” explained Wood, who was mentored by Elcess. “I love physics but I saw myself as being better suited in the business world.”

Marketing science, he said, is like being a link between two worlds.

“You get to combine your technology knowledge with marketing so you’re able to talk with the inventors, the people who actually do this really amazing stuff, but then you turn around and make it marketable and actually sell it,” said Wood.

Wood’s externship project entailed developing and producing six eight-minute multimedia presentations for technologies created by Brookhaven scientists, like the Multi-Modal Optical Nanoprobe, a sample holder device used in an unmodified transmission electron microscope to provide light access for near-simultaneous experiments. Starting with data-sheets prepared by BNL staff, he learned about each technology and its possible role in the market from its inventors. He then created the packets, consisting of timed, narrated slideshows,

A photograph of Richard Wood, a young man with short brown hair, wearing a grey button-down shirt and a tie. He is sitting at a desk with multiple computer monitors in the background. He is looking towards the camera with a slight smile, his hands are near a keyboard.

Richard Wood works on a pitch packet.

A photograph of Sean Karson, a young man with short brown hair, wearing a green and white striped shirt. He is sitting at a desk with a computer monitor in the background. He is looking towards the camera with a smile, holding a yellow piece of paper with diagrams on it.

Sean Karson diagrams molecules.

which communicate the technology’s value to its potential private-sector licensees.

“These pitch packets will allow [potential licensees] to see in a better light what these technologies are rather than just seeing the titles on the patents,” Wood said. “They really get people interested in the technologies.”

His pitch packets will be available on the BNL TCP webpage.

Technology Commercialization and Partnerships Manager Walter Copan said the externship provides a great opportunity for young people with a bent for science, giving them a valuable experience to add to their resumes and ranges of skills.

“The externs learn much more about the interface among science, business, and market communications,” said Copan.

Through this learning experience, they have also contributed to BNL deployment initiatives by producing useful marketing materials.

“Their work can be used externally to support Brookhaven’s commercialization of technology and opening the door to research collaborations,” Copan explained.

The three-year-old MIT externship program at BNL is only one source of interns. Many come from other institutions, like Stony Brook University’s College of Business (*see SBU MBA, p. 3*).

Licensing Associate Poornima Upadhyaya is a graduate of Stony Brook’s MBA program and a former TCP intern. She said the externship program is beneficial for Laboratory and the externs.

“In our office, they get to see the science and also see what applications these inventions might have, and what it takes to take a technology from discovery to the marketplace,” explained Upadhyaya.

Upadhyaya mentored Karson, a chemistry major. For his project, Karson marketed <sup>11</sup>C-labeled formaldehyde, a precursor that may be used to create many new tracers for positron emission tomography (PET) scans. These labeled tracers could be extremely beneficial for both early detection and therapeutic intervention of various diseases.

Karson had to compose a technical brief that would be sent to companies interested in licensing the product. To complete the brief, he had to research market demand for the product and learn about the <sup>11</sup>C-labeled formaldehyde’s chemical properties and range of possible uses in labeling reactions.

Karson, who had never written a technical brief before, has already heard back from interested companies that will evaluate the BNL technology for possible commercial development.

“I’m planning on being a chemist, but I really liked having the chance to learn about the commercialization of technologies because, somewhere down the line, I’m going to have to most likely commercialize something or come up with something that I want patented,” said Karson. “So it’s really nice to have this background.”

Karson recommends the externship to other students, and said that all science students would benefit from the experience, especially if they want to go into academia.

“The skill of getting a scientific technology to market is huge when you’re a scientist because not only can you make money off of something, but you can actually take the research that you do and see that it has an impact,” Karson said. “It’s getting out to more people than just the people who read your research articles.”

— Natalie Crnosija

## Carl Dover Memorial Lecture, 3/1

Jürgen Schaffner-Bielich, Professor at the Ruprecht-Karls-University, Heidelberg, Germany, will give the Carl Dover Memorial Lecture, titled “Exploring Strange Matters,” on Thursday, March 1, at 3:30 p.m. in the Hamilton Seminar Room, Chemistry Department, Bldg. 555. The late Carl Dover was a senior physicist, Leader of the Nuclear Theory Group in the Physics Department, and an international hypernuclei authority.

Graetz earned a Ph.D. in Materials Science at the California Institute of Technology in 2003 and joined BNL in 2004. In 2008, he won the Presidential Early Career Award for Scientists and Engineers for contributions towards achieving national energy

independence through the development of hydrogen storage compounds. His publications include an invited review for Chemical Society Reviews in 2009 that became the most referenced review article in that field, and he holds three patents.

— Joe Gettler





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# Employee Lunchtime Tour, 2/24

## Visit BNL’s Center for Functional Nanomaterials

Maxi, Mini, Micro — and smaller. On Friday, February 24, join the Employee Lunchtime Tour on a visit to the minute world of the “Nano” scale. You are invited to explore this exciting frontier at BNL’s Center for Functional Nanomaterials, where you will see the machines and labs of today’s modern explorers — science researchers — and hear about their work. To join

the tour, meet the group in the upper lobby of Berkner Hall at noon. You will be taken to the CFN and return to Berkner by 1 p.m. Any questions, please call Elaine Lowenstein, Ext. 2400.

### Accelerator Advances from p. 1

The technology is of particular interest to BNL physicists who want to accelerate muons, heavier but short-lived relatives of electrons, to study the fundamental laws of physics.

“Colliding beams of muons can let us study the fundamental laws of physics at the highest energies and smallest length scales — beyond what any existing accelerators are capable of,” said Berg, who worked on the conceptual design and commissioning of the new machine, as well as tests of its performance. “Accelerating muons can also produce an intense beam of neutrinos, another type of subatomic particle, enabling detailed studies of their properties.”

But to conduct these studies, muons must be accelerated quickly before they decay into their more common cousins, the electrons, and neutrinos.

To achieve the new goal, physicists revisited an accelerator idea first proposed in the 1950s that combines the alternating magnetic gradient principle (AG) of a synchrotron — to achieve a relatively compact design — with the fixed magnetic

field (FF) of a cyclotron — to avoid the ramping up time.

Early implementations of FFAGs used a particular magnetic field shape to maintain certain properties of the circulating beams — particularly the oscillation frequency of particles within the beam as they travel around the accelerator.

The new design for the machine just tested at Daresbury, known as a non-scaling FFAG, was first introduced in 1999 independently by both Carol Johnstone of Fermi National Accelerator Laboratory and BNL’s Trbojevic.

This circular machine measures about 5 meters across and accelerates electrons. But the stable and rapid acceleration achieved in those tests indicate that the design should work at larger scale (200 meters across) for accelerating muons. The computational program used in designing the machine and analyzing its performance was the work of Méot.

The test also opens up the possibility for applying the design principles to a broad range of future accelerators, including:

- smaller-scale proton and ion accelerators that could

be used to produce cancer-killing beams that minimize damage to healthy tissue

- electron accelerators to further explore the structure of the atomic nucleus at facilities like Brookhaven’s Relativistic Heavy Ion Collider
- accelerator-driven systems that trigger power-generating nuclear fission without creating bomb-grade nuclear byproducts.

“We’re particularly interested in the medical applications and have already patented designs for carbon and proton non-scaling FFAG beam-delivery systems to be implemented in a new carbon/proton cancer therapy facility being developed under a Cooperative Research and Development Agreement (CRADA) with Best Medical International,” Trbojevic said.

For more information, see [www.bnl.gov/today/story.asp?ITEM\\_NO=2800](http://www.bnl.gov/today/story.asp?ITEM_NO=2800) and the press release issued by the Science and Technology Facilities Council of the U.K.: [www.bnl.gov/bnlweb/pubaf/pr/PR\\_display.asp?prID=1375](http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=1375).

— Karen McNulty Walsh

## BWIS Offers Chasman Scholarship For Women Science Students

Applications are being accepted for the Renate W. Chasman Scholarship for Women, offered each year by Brookhaven Women in Science (BWIS), a not-for-profit organization whose aim is to promote the advancement of women. This scholarship was established in 1986 to encourage women who have taken a break from formal education to resume their studies in natural sciences, engineering or mathematics. The winner will receive a one-time award of \$2,000 from BWIS.

Candidates for the scholarship must be U.S. citizens or resident aliens who live in Nassau or Suffolk County, or in the boroughs of Brooklyn or Queens. They must be accepted for credit in a degree-oriented program at an accredited institution. Their program of study for 2012-2013 must be either at the junior or senior undergraduate level or at the first-year graduate level, to be pursued on a half-time or greater basis. The deadline for applications is April 2, 2012. A committee of BNL scientists will choose the winner. The award will be made directly to the recipient, who will be expected to complete at least two consecutive school terms in good academic standing.

For application forms and more information, write to: Chasman Scholarship Fund, P.O. Box 183, Upton, NY 11973, or send an e-mail request to [bwisawards@bnl.gov](mailto:bwisawards@bnl.gov). Applications may also be downloaded from the BWIS website: [www.bnl.gov/bwis](http://www.bnl.gov/bwis).

Renate W. Chasman (1932-1977) was a noted BNL physicist. Her work influenced the design of particle accelerators around the world, including the National Synchrotron Light Source (NSLS) and NSLS-II, a \$912 million state-of-the-art facility due to be completed at BNL in 2015. The Renate W. Chasman Scholarship Fund is supported by fund-raising events and tax-deductible contributions from individuals and organizations, including Brookhaven Science Associates, the company that manages Brookhaven Lab.

## New Ballroom Dance Classes Start, 2/22

The BNL Ballroom Dance Club will start a new series of six lessons on Wednesday, February 22, in the North Ballroom at the Brookhaven Center.

- 5.30 p.m. Beginner American Tango
- 6.30 p.m. Intermediate Tango
- 7.30 p.m. Intermediate International Rumba

The cost is \$45/person for each 6-week series. Classes are on Feb. 22, 29, March 7, 14, 21 and April 4.

American Tango is perhaps the easiest ballroom dances to pick up and a lot of fun. International Rumba is danced to music intermediate in speed between American Rumba and Bolero with a step pattern similar to Bolero.

For registration information, contact Vinita Ghosh, Ext. 6226, [ghoshvj@bnl.gov](mailto:ghoshvj@bnl.gov); Arup Ghosh, Ext. 3974, [agghosh@bnl.gov](mailto:agghosh@bnl.gov); Mike Hanson, Ext. 2947, [hanson@bnl.gov](mailto:hanson@bnl.gov); John Millener, Ext. 3853, [millener@bnl.gov](mailto:millener@bnl.gov); or go to [www.bnl.gov/bera/activities/dance/default.asp](http://www.bnl.gov/bera/activities/dance/default.asp).

## Gorman-Metz Scholarship Alert

Application forms for the 2012 Gorman-Metz Scholarship can now be picked up at the Diversity Office, Bldg. 400B. The competitive scholarship awards a one-time sum of \$5,000 each year to a student who has a disability (as defined by the Americans with Disability Act, [www.eeoc.gov/policy/ada.html](http://www.eeoc.gov/policy/ada.html)) and is matriculating toward a graduate or professional degree. Preference will be given to studies in science, engineering, and math. Students with disabilities attending undergraduate schools may apply.

To be eligible, the applicant must be the son or daughter of a current or retired employee of BNL or the son or daughter of an employee who died while in regular service at BNL. The applicant must also be a college senior who will graduate during the current academic year and who will enter graduate school the following fall. Current enrolled graduate students are also eligible.

More information about this scholarship and how to apply for it is given on the memo mailed to all employees on January 18, 2012, or call Rosa Palmore, Ext. 2703. The closing date for receipt of applications at the Diversity Office, Bldg. 400B, is March 30, 2012. The scholarship will be awarded in May 2012.

## Arrivals & Departures

— Arrivals —

Wei An .....Chemistry  
Warren Halbig ..... Photon Scis  
Xiaojing Huang ..... Photon Scis

— Departures —

Christopher Johnson ..... F&O  
Adepu Kiran Kumar .....Biology

## In Memoriam

**Bernice Armstrong**, who joined the Medical Department on October 13, 1969, as a secretary, and rose to an administrative assistant position by 1981, died at age 88 on November 23, 2011. She had retired on April 30, 1993.

**Edwin Bailey**, who became an executive aide in the Receiving, Warehousing, and Distribution Group on May 16, 1955, joining the Physics Department in 1958 and retiring as a senior procurement specialist on September 30, 1987, died at 84 on November 25, 2011.

**Judith Otto**, who joined the Photography Division on June 15, 1959, as a tracer trainee, and retired as a Photography & Graphic Arts (P&GA) Division illustrator on May 28, 1999, died on December 13, 2011, at age 72. She had left the Lab in May 1961, returning as a P&GA specialist A-1 in July 1985.

## Interested in an SBU MBA?

Representatives from the Stony Brook University (SBU) College of Business will be at Berkner Hall lobby on Thursday, March 1, from 11:30 a.m. to 1:30 p.m. to answer questions and provide an overview of getting an MBA from SBU. The College of Business offers an Executive Program with classes given at night and on Saturdays. Students will interact with other executive level students from backgrounds such as engineering, medicine, finance, and marketing. The program combines classroom work and real life experience, including industry projects, innovation bootcamps, and other initiatives. Applications are being accepted until June 15 to start the program in the Fall 2012 semester. Learn more at [www.stonybrook.edu/business](http://www.stonybrook.edu/business) or contact Marie McCallion at [marie.mccallion@stonybrook.edu](mailto:marie.mccallion@stonybrook.edu) or 631-632-7476.

**BNL Reimbursement:** BNL employees who take college courses may apply for tuition assistance. BNL offers tuition advances or reimbursements at 100 percent for graduate courses. For more information, contact Starr Munson, [munson@bnl.gov](mailto:munson@bnl.gov) or Ext. 7631.

## CALENDAR

Today, Friday, 2/17

**\*African-American Art Display**  
11 a.m.-2 p.m. Berkner Hall lobby. See notice, p.4.

— WEEK OF 2/20 —

Monday, 2/20

**President’s Day: Lab Closed**  
No Bulletin on February 24.

Thursday, 2/23

**\*Talk by Sekazi K. Mtingwa, MIT**  
Noon-1 p.m. Berkner Hall. Talk on “Celebrating the Lives of Two Bold Afro-Russians,” one of the events celebrating African-American History month. All are welcome. See p.4.

— WEEK OF 2 /27 —

Monday, 2/27

**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, 2/28

**‘No Short Climb’**  
Noon. Berkner Hall. All are welcome to this video documentary by Robert Johnson, Jr., focusing on race, workers, and America’s defense technology. An African American History Month event sponsored by the BERA African American Affinity Club. See p.4.

Thursday, 3/1

**\*Information on MBA at SBU**  
11:30 a.m.-1:30 p.m. Stony Brook University’s College of Business will provide information on getting an MBA at SBU. See notice below.

— WEEK OF 3/5 —

Wednesday, 3/8

**BSA Noon Recital: String Quartet**  
Noon. Berkner Hall. The Linden String Quartet, a winner of the 2010 Concert Artists Guild Victor Elmaleh Competition, will perform.

## Cracked Windshields: Fix Them on Site Safely

Vendor trucks in Lab parking lots have been a source of traffic and pedestrian safety concern. The Lab’s Safety & Health Services Division recommends that employees who need windshield repair service to be done on site by outside repair services take their cars to the on-site service station M&L Auto Care, Inc., on Rochester Street. M&L offers a safe and convenient location for windshield repair service by outside vendors. You can work directly with your insurance company and windshield repair vendor to arrange service, or M&L will provide the windshield repair service for you.

M&L is open Monday-Friday, 7:30 a.m.-5:30 p.m. To make a service appointment, call Ext. 4034. This service station also performs New York State inspections and all types of vehicle repairs.



## 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/](http://www.bnl.gov/HR/careers/). To apply for a position, go to [www.bnl.gov](http://www.bnl.gov) and select "Search Job List." For more information, call Ext. 2882.

### Motor Vehicles

11 JAYCO TRAVEL TRAILER 29RLS – 1.2K mi. Tow-behind, upgraded a/c, underbody insul, Mag wheels, satellite tv,am/fm/cd/dvd, a/t awning, 7/yr transferable warr, extras. \$19,000 neg. Ext. 5684, 872-5074.

09 BUICK LACROSSE – 54K mi. blk, outstanding cond, 100k extended warr. \$14,500. 689-6933.

06 FORD MUSTANG GT – 39K mi. V8, 5spd manual, deep red, blk leather int, Bullitt rims, new Goodyear RS/A tires, meticulously maintd. \$15,800 neg. Scott, Ext. 7197, 834-3928 or ssmith@bnl.gov.

02 DODGE GRAND CARAVAN – 102.3K mi. Silver, r/rack. 3 zone heat/ac, privacy glass, PW,PL, rec. brakes & exh. syst., mechan sound, int/ext ex. v.gd, Michelins, rem. start. \$5,100. Ext. 8205 or jcitro@bnl.gov.

01 FORD FOCUS LX – 121K mi. Sedan 4dr, a/t, a/c, rem start, new timing belt, am/fm, 6-Disk CD, runs well, well maint. \$1,700. Leon, Ext. 4734, xlwang@bnl.gov.

01 MITSUBISHI GALLANT – 106K mi. recently rebuilt motor, v/clean, silver w/ grey cloth interior, runs well. \$3,250 neg. Charlie, 681-9800.

01 CHEVY BLAZER 4WD – 112 mi. 4dr, 6cyl, a/t, a/c, p/w, remote start, good cond., \$3,800 neg. Gary, 924-8805 or gpolonsk@bnl.gov.

00 CHEVY SILVERADO PICK-UP 2500-SERIES – 12.5K mi. Must Sell. \$2,500. Diana, 664-3320.

98 JEEP V8 GRAND CHEROKEE – 162K mi. runs v/well, clean, new tires,blk leather, tints, Sirius ready, , neg pics. \$3,300 neg. Brendon, Ext. 8325 or lbenish@bnl.gov.

93 FORD MUSTANG LX – 17K mi. red notch solid clean car, black int, Crate 5.0 motor GT 40P heads Tremec T5, performance suspension, \$6,000 neg. 566-2270.

### Furnishings & Appliances

BABY'S ITEMS – Safety 1st bassinet, grt cond, orig/\$90, ask/\$50, infant rocker/sleeper, grt cond, orig/\$50, ask/\$25. Sarah, Ext. 4207 or swiley@bnl.gov.

BATHROOM CABINET + MED CHEST – white space-saver cabinet+shelf/over commode, 23"wx9¼"dx62"h; \$50 oak/mirror Med Chest, 51w x 33.5hx 6.25d, surface mount/\$50/obo, photos avail. Ext. 2198, 909-7080 or lysik@bnl.gov.

BEDS & MORE – 2/twin, dressers, 6/drawer highboy, nightstand, q/mattress, excel cond, \$500, l/r tables/\$55/ea. 928-5185.

FREEZER – Kenmore upright 12 cu ft, \$225. Bert, 581-4436 or bert@bnl.gov.

FURNITURE – blue&brown plaid love-seat/\$50, dk pine china closet/\$70, rocking chair/\$60, end tables/night table/\$25/ea, oak entertainment unit/\$75. Celeste, Ext. 2551.

MOVING SALE – baby's dresser, sofas, vacuum cleaner, tables, lamps, kids' bed + mattress/more, prices vary/neg, pics avail upon request. Tomer, Ext. 4330, 398-8468 or zidkit@bnl.gov.

REFRIGERATOR, MAYTAG – white, 20.7 cu ft, 32.75w, 66h, 31 1/8d great for apt, \$200/obo. Ext. 2198, 909-7080 or lila-dy007@optonline.net.

WHIRLPOOL WASHER & DRYER – elect Dryer Model ler8857e00 in gd cond; Washer model Lsr8244eq1, upper agitator does not turn, lower agitator does, \$50, u-pic up in Stony Brook. Tsong-Lun, Ext. 2389.

### Tools, House & Garden

CHINESE FISHBOWL PLANTER – exterior is maroon w/gold etching and interior w/coy fish design, v/gd cond/25. Ann Marie, Ext. 7007 or luhrs@bnl.gov.

### Car Pool

PLAINVIEW LIBRARY – Established car-pool needs 4th, 8am- 4:30pm, leave Plainview -Old Bethpage library @7:15, Elliott Ext 2495, Pat Ext 6195. Leon, Ext. 2682.

### Audio, Video & Computers

2GB DDR3 1067MHZ LAPTOP MEMORY – 4 (2GB) modules, from Macbook Pro and iMac, \$10/ea. Achim, Ext. 4750 or afranz@bnl.gov.

CELL PHONE – Thunderbold by HTC \$300, excel cond. 464-9054 or anthony30111@gmail.com.

DESKTOP COMPUTER – Gateway,1.8ghz proc,2gb ram,80gb HD,120gb data HD,128 video ram, 2/DVD R/W, int ready, Windows 7, Flat monitor, K/B, mouse, \$100. John, Ext. 2654 or scbebs@bnl.gov.

HP INKJET CARTRIDGES – 2 black: 56 C6658A; 2/color 28 C8728A, & 57 C6657A, \$5/ea, orig, unopened pkgs. 566-8261.

MS OFFICE 2010 KEY CARD – Student and Home Ed, 1 User, it came w/a new computer, but have never been activated or installed, orig/\$119, ask/ \$60. 775-8209.

## Celebrate African American History Month

**Today, February 17**, all are invited to enjoy the display of art and artifacts gathered by members of the BERA African American Affinity Club to celebrate African American History Month. The display will be held in Berkner Hall lobby from 11 a.m.-2 p.m. The art of the late Michael Newton, Long Islander, and silk screen work of Atlanta artist Daw'u will among the exhibits.

**Thursday, February 23**, Noon – 1 p.m. Berkner Hall. Sekazi K. Mtingwa of the Massachusetts Institute of Technology will talk on "Celebrating the Lives of Two Bold Afro-Russians." Mtingwa will talk about two geniuses, Alexander Sergeyevich Pushkin (1799-1837) and Abram Petrovich Gannibal (1696?-1781), who contributed immensely to literature and civil engineering, respectively. He will explore their impact on the history and soul of Russia and assess the impact that Pushkin had directly on African-American literary figures during the Harlem Renaissance.

**Tuesday, February 28**, Noon. Berkner Hall. Video Presentation, titled *No Short Climb*. Documentary by Robert Johnson, Jr., focuses on race, workers, and America's World War II defense technology. See [www.campevans.org/\\_CE/html/rj-nosc.html](http://www.campevans.org/_CE/html/rj-nosc.html). — Liz Seubert

### Leave Your Lunch Bag Home on Tuesdays

#### Celebrate African American History Month With the BERA AAAC and Nayyarsons Cafeteria Service

Nayyarsons, in collaboration with the African American Affinity Club (AAAC), is happy to present a taste of African and African-American culture this month. On Tuesdays, enjoy African, Caribbean, French/Creole, American/Southern, and Latin cuisine offerings and celebrate the flavors these different ethnicities offer.

## BERA Trips

Purchase tickets at the BERA Store in Berkner Hall, open Monday through Friday from 9 a.m. to 3 p.m.

**Central Greenwich Village & SoHo Walking Tour:** Saturday, April 14. Depart BNL at 9:30 a.m., leave NYC at 5 p.m. \$65 per person, includes three-hour walking tour, luxury coach, tour guides, tips, food tastings, and two hours of free time.

**Historic Grand Central Terminal & Do-As-You-Please in NYC:** Saturday, April 21. Depart BNL at 8 a.m., leave NYC at 4 p.m. \$25 per person includes luxury coach, tour guides, and tips. After tour, check out the 68 shops, 35 places to eat, and everything else in the heart of NYC at Park Avenue and 42nd Street.

For more events, including trips to Mohegan Sun and the NY Auto Show, go to: <http://www.bnl.gov/bera/recreation/events.asp>.

## Swim Classes for All Ages at the Pool

To join on site swimming classes, advance registration is required. Please mail checks, payable to BERA, to the Recreation Office, Bldg. 400A.

### Adult Swimming Lessons

Those 18 and older are invited for swimming lessons on Wednesdays, 5:30-6:30 p.m., 3/7-4/25. Registration is \$80/person and includes eight lessons: no make up classes. Sign up before 2/29. Questions? Call Sue Dwyer, Ext. 3496, or the Recreation Office, Ext. 2873.

### Aqua Aerobics for Seniors

Senior members of the Lab community, including parents of employees, may join aqua aerobics classes, to be held on Wednesdays, 3/7- 6/20, 9-10 a.m. The cost of the 16 classes is \$80/person.

### Starfish Swimming Classes for Four-Year-Olds

Swim lessons for children of BNL families will be held on Saturdays, 3/31-5/19 (excepting 4/7, Easter weekend), 9-9:30 a.m. and 9:30-10 a.m. Children, who must be four years old by 12/2011, must arrive shortly before the class is scheduled and be ready to swim. Registration is \$80 per child — sign up by March 19.

WIRELESS-G USB ADAPTER – Netgear WG111, like new \$15; Linksys Wireless-G Router WRT54G (w/manual and CD), \$10. Ext. 5049 or fu@bnl.gov.

### Sports, Hobbies & Pets

2011 JAYCO 29' TRAVEL TRAILER – up-graded a/c,underbody insulation, Mag wheels, satellite tv,am/fm/cd/dvd, in/out spkrs,a/t awning, 7 yr ext transferable, warr, extras \$22K. Richard, Ext. 5684, 872-5074 or jonesr@bnl.gov.

BICYCLE – Trek Mountain Track 220, 18 gears, 24" tires, v/gd cond, bought new/\$270, pics avail upon request, \$100/ neg. Bob, Ext. 5588 or howe@bnl.gov.

HOCKEY SKATES – 3/pairs, CCM Champion 90, size 4; CCM Ultra 100, size 1, both both like new/\$15/ea; Bauer size 5, fair cond/\$5. Bob, Ext. 5588 or howe@bnl.gov.

JOHNNY WEST – Collectors 1966 Marx Johnny West Action Figure, w/accessories ask/\$30. Denise, Ext. 4289.

### Happenings

BNL CAFETERIA SPECIAL CUISINE – On Tuesdays, try African, Caribbean, French/Creole, American/Southern, and Latin cuisine specials at BNL cafeteria to celebrate African American History month. 344-3541.

SHEN YUN PERFORMING ARTS – Reviving 5,000 Years of Civilization April 18-22, Lincoln Center, Experience the world's premier classical Chinese dance and music shenyunperformingarts.org. George, georgewei@bnl.gov.

### Free

FREE 2012 SHEN YUN BOOKLET – the classical Chinese dance booklet, please contact me if you like to have one. George, georgewei@bnl.gov.

### Lost & Found

CHINESE CHANGE PURSE – found in prkg lot outside swimming pool on 2/10. Robin, 744-3902 or rappe@suffolk.lib.ny.us.

### Miscellaneous

CHICCO ADVENTURE CORTINA – Travel System, green/brown, excel cond, ask/\$200. 662-1220 or miamyamo@optonline.net.

LOOKING FOR ROOMMATE – please let me know if any male BNL employee is in need of a roommate. Relative of employee relocating to NY is interested. Thanks! Nicole, Ext. 3807.

### Wanted

BALLET SHOES FOR YOUNG CHILD – Size nine ballet slippers for 3-year-old girl, gd. cond. Ext. 2346, 286-8563.

DAY BED OR PULL OUT COUCH – for recently widowed woman w/learning disabilities from brain cancer. glitter5187@hotmail.com.

LEATHER WORKING TOOLS – any type. Bob, 603-7261.

LOCKSMITH – to open a locked gar dr, thanks! Mary, Ext. 3927 or maryc@bnl.gov.



Alex Reben DT780212

## Rosenfeld Suggests Placing Life-Saving AEDs Around Site: Contributes to Extra Lab Safety

Lab Fire Captain Marcel Rosenfeld suggested that automated external defibrillators (AEDs) be installed around the Lab site. AEDs are portable electronic devices that automatically diagnose certain potentially life-threatening cardiac arrhythmias in a patient, and can be used by trained personnel to treat the patient through defibrillation — the application of electrical therapy which stops the arrhythmia — allowing the heart to reestablish an effective rhythm.

Rosenfeld is now responsible for BNL's AEDs, ordering them, and making sure they are well placed. To learn more about AEDs, watch the video at <http://intranet.bnl.gov/safety/videos/index.php> and contact Rosenfeld at [mrosenfe@bnl.gov](mailto:mrosenfe@bnl.gov) or Ext. 5517.

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

## Sushi Lessons at BNL, 3/8

Want to wow your guests and family with a beautiful presentation of healthy food? Try sushi lessons. On Thursday, March 8, at 5 p.m., you can join Sushi Chef David for a class on basic Sushi preparation. The cost of \$25 per person (your significant other may want to learn, too) includes a one-hour course and fresh sushi dinner, as well as a sushi mat so you can practice your new skills. Please RSVP by Thursday, March 1, to the BNL Conferences Office, Ext. 3545, or [rcomas@bnl.gov](mailto:rcomas@bnl.gov) or [dbulcock@bnl.gov](mailto:dbulcock@bnl.gov). The fee is due at sign-up and is nonrefundable. Class size is limited, so other dates will be arranged if enough people want to register.

## AdoptaPlatoon Book & Bake Sale, 3/1

The Brookhaven Veterans Association's AdoptaPlatoon team will host a book and bake sale on Thursday, March 1, 11 a.m.-3 p.m. in Bldg. 400 lobby. Bakers are needed to make cookies, cupcakes, breads (sliced), etc. Contributions should be wrapped individually in cellophane. Items will be sold for one dollar each, so please size accordingly. Please bring baked items to the lobby of Bldg. 400 at 11 a.m. on the day of the sale. All proceeds will go towards AdoptaPlatoon's support of troops in Afghanistan. More information is on our website: [www.bnl.gov/bera/activities/va/Adopt-A-Platoon/](http://www.bnl.gov/bera/activities/va/Adopt-A-Platoon/).

Also, in the AdoptaPlatoon collection bins around site, please give Cup-a-Soups, freeze-dried soup, hot cocoa packets, hand and foot warmers. Or send checks made out to "BVA" with "troops" in the memo line, to P.O. Box 67, Upton, NY 11973.

MATTRESS / HEADBOARD – queen size, used but gd cond, thanks! Rick, Ext. 3005 or rbuono@bnl.gov.

USED CPAP MACHINES – I am collecting used CPAP machines which will be refurbished & sanitized to give to the needy. Nancy, Ext. 4567 or nlosinno@bnl.gov.

WATER POLO PLAYERS – male/females, any age, Sat @ Brookhaven Roe YMCA, Holtsville, 12:45-2pm. Lorraine, 475-2131 or lcol@optonline.net.

### For Rent

KISSIMMEE, FL – 1/bdrm unit, sleeps 4, avail Easter wk, Apr 8-15, Sheraton Vistana Villages. \$350/wk. Nina, Ext. 5894, 813-0497.

KISSIMMEE, FL – 2/bdrm unit, sleeps 6, avail Easter wk -Apr 8-15, Sheraton Vistana Villages. \$650/wk. Nina, Ext. 5894, 475-1297 or vbri1@aol.com.

SPRING HILL, 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, igp in lanai, fruit trees, see review.oktane.net/House-Tour. \$450/wk. 344-5537.

BROOKHAVEN HAMLET – rm in 3 bdrm hse, looking for professional, non-smkr/ non drinker, 10 easy mins from BNL, incils utils, leave a msg. \$700/mo. 294-7505.

CALVERTON – 1 bdrm bsmt w/lg glass dr entry, l/r kit w/pantry lots of cabinets, full bath, f/p, lg storage closet incl util. 764-8001. \$1,000/mo. 727-5646.

MIDDLE ISLAND – ArtistLake Dr, 7 min to BNL, 1 big bdrm, upper flr, 900sq ft, new appli, decoration, no pets., \$1,100/ mo neg. Lei, 516-225-3306.

RIVERHEAD – 3bdrm, 2 full ba Western Ranch, kit w/dw, l/r,d/r, w/d & gar, new windows & furnace, quiet, nr shops, no smkg/pets, refs & cc reqd, 1mo sec+util. \$2,250/mo. McGill, 512-6470.

SHOREHAM – 1 bdrm, furnd, new garden apt, grnd flr, indep ent/drwy/prkg, full ba, kit, l/r, cac, no smkg/pets, nr BNL, 1 mo sec, all util incl. \$1,150/mo. 566-8261.

SOUND BEACH – Apt. Unfurn; open airy - Kitch. Dining Area, L/R; 2 bdrm, Full Bath, Priv. entrance parking fenced yard, No Smkg/Pets; Quiet Area, avail April. \$1,400/mo. Ron, Ext. 7588, 838-3639.

### For Sale

SPRING HILL, FL – priv ranch on Gulf, 70m Orlando, 45m Tampa, fly Islip direct, nr beach/ tennis/park, 3/bdrm, 2/bath, d/r, f/p, 2gar, igp in lanai, fruit trees, see review.oktane.net/ HouseTour. \$125,000 neg. 344-5537.

ISLANDIA – 2 story town hse, 2 br/2.5 bath/loft/eik/dr/lr w/vaulted ceilings & fp/ att gar, gas heat, cac, new carpet, bkryd w/deck, quiet community w/pool & tennis, close to LIE/ LIIR. 20 mins to BNL. \$269,000. Sue, Ext. 7270, 582-8445.

MIDDLE ISLAND – 4 bdrm ranch, 2 bath, eik, f/p, cac, pool, deck, fin bsmt, 2 car, sprinklers, shed, 600sq ft shop. \$295,000 neg. Frank, 775-6636 or drfrank11@optonline.net.