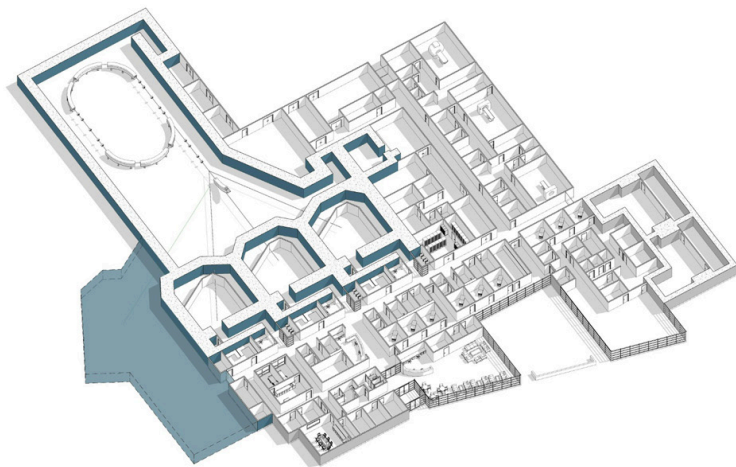




Joseph Rubino D1571106

BNL physicist Derek Lowenstein leads the collaboration between Best Medical International and the Collider-Accelerator Department.



The iRCMS sits at the top left corner of this proposed hospital layout, rapidly accelerating ions and sending them through three independent beam lines to deliver advanced cancer therapy to patients.

Physicists Team With Medical Industry For Advanced Cancer Therapy Accelerator

A new collaboration between BNL and Best Medical International (BMI) of Springfield, Virginia, aims to design one of the most dynamic and effective cancer therapy devices in the world. The ion Rapidly Cycling Medical Synchrotron (iRCMS) draws on the particle acceleration expertise of BNL physicists and the medical experience of BMI to advance cancer therapy, particularly the evolving use of carbon and other light ions.

"We believe a machine capable of delivering both protons and carbon ions will fill the gap in the particle therapy available to cancer patients in this country," said Joseph Lidestri, a chief consultant for BMI and senior scientist at the New York Structural Biology Center. "Ion therapy has proven itself as a valuable option, providing improved control with less collateral dam-

age for patients with resistant diseases. This new device will open new and potentially more effective pathways through carbon and other ions."

Synchrotrons, devices that accelerate particles along a circular path by synchronizing magnetic and electric fields, have proven useful in hospitals for their efficiency and ability to generate high quantities of finely-tuned particle beams. These energetic beams are used to bombard and destroy cancerous tumors. The iRCMS, a 64-meter particle racetrack, will be unique in the field because it rapidly cycles at 15 Hertz, allowing the ion beam to deposit energy throughout an entire longitudinal column with each cycle. This delivery method has the distinct potential to strike each layer of a cancerous tumor in a single treatment cycle.

CRADA Partnership

The partnership was formed under a Cooperative Research and Development Agreement (CRADA), designed to link the private sector with the unique capabilities of government research facilities. Ultimately, the research and development funded by BMI and conducted at Brookhaven Lab will provide the prototype for the iRCMS, which could lead to large-scale manufacturing and installation in cancer treatment facilities.

"They're depending on us for the accelerator design, and we're depending on them to tell us what the medical world needs," said Derek Lowenstein, Associate Chair for Applications & Education in the Collider-Accelerator Department and the lead coordinator of the CRADA. "This builds upon our history of...

See *Cancer Therapy* on p. 2

BNL Conducts Series of Battery Tests

BNL is leading an effort to test and confirm the reliability of batteries to provide backup electricity for nuclear power plants. With funding of \$1.6 million from the Nuclear Regulatory Commission (NRC), a team of researchers, led by Bill Gunther of the Environment & Life Sciences Directorate, will soon begin the second round of tests on three different battery banks housed in Building 526.

At the end of 2011, the team — George Greene, Nuclear Science & Technology Department (NSTD); Yusuf Celebi and Mike Villaran, Sustainable Energy Technologies Department; and Paul Gianotti, Physics Department — concluded its first series of tests and in 2012 will embark on another series seeking data on how long and under what load conditions the batteries can provide power in the event of a loss of electricity lasting more than a few hours.

"Following the disaster in Fukushima last year, there's been a lot of discussion about extended battery operation," Gunther said. "The current requirements for the majority of nuclear power plants in the U.S. are that they be able to provide backup power for four hours so that's how they're sized. Fukushima showed that it could take a lot longer to restore off-site power. So the question arose: how long could the batteries operate if they needed to?"



Bill Gunther (front right) explains how the team took specific gravity readings on the batteries to a group including representatives from the DOE and NRC.

In the first phase of testing, which began in 2010, the group conducted confirmatory tests.

"The nuclear industry has consensus standards through the Institute of Electrical and Electronics Engineers (IEEE) for improving the operation and maintenance of batteries," Gunther said. "In a 2010 update, they recommended that float current — when the recharge current for a string of batteries stabilizes — is a better overall indicator of the state of charge of a battery than specific gravity tests on individual cells. The first tests were designed to show whether the NRC should change its current requirements to endorse this industry standard."

Specific gravity, which measures the concentration of acid in each cell, has been the standard way to check the state of charge of a battery. In the case of an accident at a power plant, the batteries provide emergency power for safety-related equipment, primarily instrumentation and controls, enabling staff to monitor the state of the plant. After the battery has been discharged and power has been restored, it is returned to service by recharge or float current. Gunther said that years of experience suggested that when the float current stabilizes, the battery has reached its fully charged state. The specific gravity test requires...

See *Battery Tests* on p. 2

Triveni Rao Wins Brookhaven Town's 2012 Women's Recognition Award

Triveni Rao, a senior physicist at BNL, will be honored for her scientific accomplishments at Brookhaven Town's 26th Annual Women's Recognition Night on March 22 at 7 p.m. at Town Hall in Farmingville. She will be among the 12 women honored for their contributions to a variety of fields in a public ceremony that celebrates the significant achievements of local women during Women's History Month.

Rao, the head of the Laser Applications Group in BNL's Instrumentation Division, is developing new lasers and photocathodes for critical experimental programs in accelerator technology and materials science.

"I am honored to be recognized by the town of Brookhaven for my work," said Rao, who is internationally recognized for her research and development on photocathodes for high brightness electron beams. She has contributed significantly in the field of interaction of a high intensity short laser pulse with matter, and characterization of an ultra short laser pulse and electron beams.

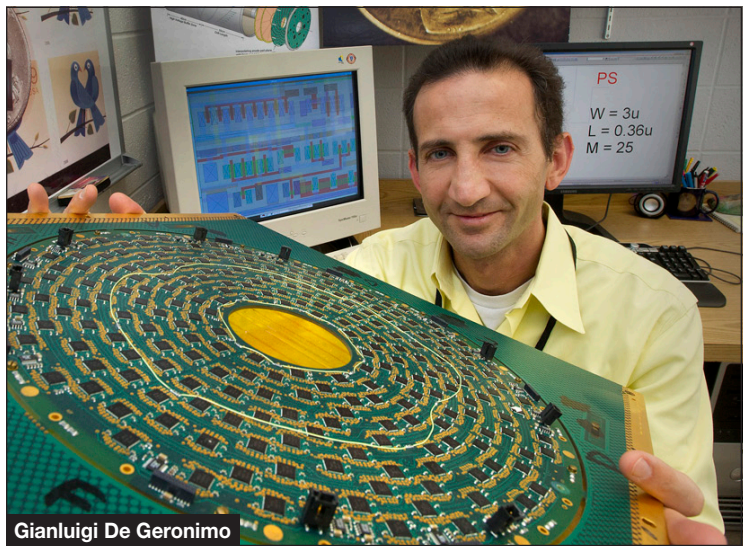
Rao is a pioneer in the subject of metal photocathodes, which



Roger Stoulenburgh D2801206

release electrons when struck by light, and are fundamental to a number of electron accelerator facilities at Brookhaven and around the world. Rao's research focuses on measuring and improving electron production, and extending the lifetime of the cathode materials. To create high brightness injectors for accelerators, Rao recommended copper and magnesium as suitable cathodes. She developed a processing technique that improves the yield of metal photocathodes by a hundred to a thousandfold. Rao is also investigating the use of diamonds to increase electron yield by a hundredfold.

See *Triveni Rao* on p. 2



Gianluigi De Geronimo

Roger Stoulenburgh D2340312

476th Brookhaven Lecture, 3/21 Microelectronics for Science — Enabling New Detectors

Think of the tiny capacitors, transistors, and other electronic components that allow us to make phone calls from the freezer section of the grocery store and provide three-dimensional images of our insides that doctors can use to diagnose health problems.

Just as the microelectronics inside these devices are shaping — and even saving — our lives, they can also be used as special sets of eyes for scientists exploring what would otherwise be invisible, from the ultra small to the ultra far away. The Instrumentation Division at Brookhaven Lab custom-builds some of the world's most advanced microelectronics for scientists investigating the unknown.

On Wednesday, June 15, join Gianluigi De Geronimo of the Instrumentation Division for the 476th Brookhaven Lecture, titled "Microelectronics for Science — Enabling New Detectors." 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 De Geronimo for lunch at an off-site restaurant following the talk, contact Barbara Gaer, Ext. 4231, gaer@bnl.gov.

During his talk, De Geronimo will discuss the basic principles of microelectronics, how they have become smaller and faster since the 1960s, and how designers may increase the speed of microelectronics after they can't be made any smaller. He will then explain how the Instrumentation Division collaborates with scientists to develop unique application-specific integrated circuits for detectors that enable discoveries, push research, and change lives.

See *Brookhaven Lecture* 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, ruseka@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. See notice, p.3. www.bnl.gov/bera/activities/toastmstrs/.

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.

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.

Thursday: Judo Class

7:30 p.m. Gym (Bldg. 461). Tom Baldwin, Ext. 4456.

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.

Cancer Therapy from p. 1

...invention and accelerator expertise, from the Cosmotron in the 1950s to the Relativistic Heavy Ion Collider.”

BNL's Synchrotron Expertise

Best Medical International, founded in 1977 in Springfield, Va., specializes in the development and manufacturing of a broad range of cancer treatment technologies. Founder Krishnan Suthanthiran’s mission is to provide the global medical community with high quality, cost-effective treatment options ranging from brachytherapy to particle therapy. There is a particular challenge in delivering affordable advanced technologies such as ion therapy, Lidestri said, which is why Suthanthiran decided to privately fund the development of iRCMS at Brookhaven.

BMI first became interested in a partnership because of

Brookhaven Lecture on p. 2

De Geronimo earned a Ph.D. in electronics and communications from Milan Polytechnic in Italy in 1997. That same year, he arrived in Brookhaven Lab’s Instrumentation Division as an assistant scientist. He was promoted to associate scientist in 1999 and to scientist, electronics engineer in 2002.

— Joe Gettler

In Memoriam

Harold Alexandersen, who joined the Alternating Gradient Synchrotron Department as a technician B on October 14, 1957, left on November 21, 1962, and returned as a senior technician on February 23, 1964, died at 83 on January 25, 2009. He retired as a technical supervisor I on August 31, 1984.

Robert Schuman, who joined the Applied Mathematics Department as a technical specialist III on February 3, 1964, and retired as a senior technical associate on March 31, 1998, died on January 6, 2012. He was 79.

Raymond Heus, who joined the Reactor Division on February 15, 1949, as an associate chemist, and retired from the Department of Applied Science on October 21, 1990, died at 89 years old on January 6, 2012.

Henry Smith, a contract laborer with the Alternating Gradient Synchrotron Department July 10, 1978, to March 28, 1980, joined Physics staff as a principal technician on March 31, 1980, and died at 90 on January 13, 2012. He had moved to the National Synchrotron Light Source in 1982, retiring as a technical specialist on August 31, 1988, and returning as a guest contractor, January to September, 1989.

Gerald Paul, who joined the Applied Mathematics Department on December 14, 1964, as a computer operator I, and retired from the Fiscal Services Division as Supervisor of User Services on September 21, 1997, died on February 17, 2012. He was 73.

Arrivals & Departures

— Arrivals —

Keith Grossman..... **Lab Protec**
Zeynep Isvan **Physics**
Jie Wu **CMP&MS**

— Departures —

Xuerong Liu..... **CMP&MS**
Adam Oberstein..... **Biology**

BNL’s demonstrated skill with synchrotrons and a history of pushing that technology into new frontiers. Physicists at the Lab made earlier breakthroughs in advancing ion therapy, including patents on highly efficient and compact particle-delivery systems).

The first phase of the CRADA generated a Conceptual Design Report, initially expected to be a proton therapy synchrotron. But BMI suggested early on that a more versatile machine, capable of firing carbon and other ions, would be most beneficial to patients.

About Ion Therapy

The efficacy of ion therapy is based upon the fact that the energy of the proton and other ion beams can be adjusted so they deposit most of their destructive energy directly on a cancerous tumor while leaving nearby healthy tissue unscathed. X-rays, on the other

Battery Tests from p. 1

...individual hydrometer checks of the amount of acid in the battery.

The team worked with one battery string at a time, testing each over 10 cycles, with each cycle taking a week. At 9 a.m. each Monday morning, they took a set of baseline readings, then put a uniform load on the battery and monitored its function and capacity during the four-hour test. Around 1 p.m., the battery would be fully discharged and the team would take another set of readings. Around 2 p.m., they would start the recharge and during this process measure the recharge current. Gunther said it typically took 24 to 30 hours to reach a stable current. Comparing these findings with the specific gravity readings confirmed a high correlation between these two parameters.

“Float current is a much easier way to determine when a battery is ready to go — looking at the whole battery string, rather than checking individual battery cells, which is very time-consuming and susceptible to human error,” Gunther said. “Thirty weeks of testing three sets of nuclear-qualified batteries showed a consistent result where the float current reached a stabilized level by the time the specific gravity had been restored to its specified value.”

In a draft report to the NRC in October, the team included recommended language for revising the regulation that reflects the results of their research.

“They now have a technical basis for changing their regulatory guidance, and that tells the industry they can request a change to their technical specifications,” Gunther said. “The NRC can use our data to approve that process.”

In the second phase, the team will work with the Electric Power Research Institute and DOE to show under what situations or conditions the life of the bat-

Triveni Rao on p. 1

Rao received her Ph.D. in physics from the University of Illinois in 1983. After working at Quantronix Corporation for a year, she joined BNL in 1985 as an assistant physicist. She rose to associate physicist and physicist positions in 1987 and 1990, respectively. She is a tenured scientist and was named a Fellow of the American Physical Society in 2009. The most recent of her pub-

hand, deposit large amounts of energy over their entire pathway through human tissue. This results in healthy tissue being damaged as the X-rays travel en route to the cancerous tissue and after they exit the tumor. Charged ions minimize this collateral damage as they can be tuned to spike at a specific depth, thus minimizing healthy cell damage on either side of the targeted tumor.

Protons were the first particles used — and remain in widespread use — but carbon offers more precise beams and reduces the scattering characteristic of protons. The heavier carbon ions will require a maximum total energy of 4,800 million-electron-volts (MeV) to penetrate to depths of 27 centimeters, making this new synchrotron larger and more demanding than the proton-only machines that typically need only 206 MeV for comparable penetration. While carbon will



Roger Stoughton/burgh 00650212

George Greene (second from right) describes the battery-testing process to a group including representatives from DOE and NRC.

teries could be extended. The researchers will study load shedding, which simulates how power plants would take off unneeded loads so the battery’s charge will last longer. They will test a number of scenarios and gauge how the batteries perform under different loads.

“Through the use of the battery banks at Brookhaven, we may be able to provide the NRC and the nuclear industry with information about how the battery systems can support the safe shutdown of the plant under conditions that are beyond the current design bases,” Gunther said.

Gunther described the testing process as “very labor-intensive,” pointing out that lead experimenter Greene and lab engineer Celebi had to reliably make it to the Lab even during last winter’s snowstorms in order to monitor the battery status and maintain the demanding test schedule.

Greene is a Fellow of the American Society of Mechanical Engineers and has been conducting experimental research at BNL since 1976, mostly in support of reactor safety issues, accelerator applications, and the behavior of materials under extreme conditions of radiation and temperature. “These battery tests have been a lot of fun,” Greene said, “and the result will provide the NRC and the nuclear industry with important data and insights into the performance of these

lications is titled *Photo-Injectors: An Engineering Guide*, which is to be published by Bentham Science as an e book.

Rao is also active in Brookhaven Women in Science, a well-known Lab institution. Currently, she is co-chairing the organizing committee for a two-day workshop: “CARE 2012, Career Advancement in Research Environments,” to be held at BNL April 16-17. The workshop is

likely be the preferred particle for the new device, it will also be capable of accelerating and aiming protons and other light ions should they prove more viable for particle therapy.

Carbon Ion Therapy

Members of both teams emphasized that carbon ion therapy, which has seen great success in Germany and Japan but needs further clinical testing, will not render other treatments useless. “This is another tool for doctors, a very advanced and complicated instrument that we believe will prove unbeatable for a range of challenges,” Lidestri said. “We’re not promising a cure-all or ‘silver bullet’ for cancer treatment, but the iRCMS does have distinguishing features that will result in the advancement of particle therapy.”

The collaboration is currently in phase two, with BNL beginning to build a series of

batteries to improve the safety of nuclear operations.”

“Greene’s a great experimentalist,” Gunther said. “He can visualize the data and his analyses can translate the data into meaningful figures and tables that clearly convey the results we have obtained in a format that is easily understandable. He’s been a great asset.”

Gunther also credits Jim Higgins, group leader for NSTD’s Systems Engineering Group, NSTD Chair Bill Horak and Global and Regional Solutions Directorate ALD Gerry Stokes for management support.

Like Brookhaven Lab, Gunther has a long history of nuclear work for the NRC. His first projects after joining the Department of Nuclear Energy in 1984 dealt with concerns about the aging of nuclear power plants.

“We tested some aged equipment here and our work was used by the NRC in what they call the maintenance rule that was established to insure that the effects of aging were incorporated into a utilities maintenance program,” Gunther said.

“As we continue to use these batteries, we can analyze another factor that the NRC is concerned about: the aging of the battery,” Gunther said. “It’s hard to know exactly how the aging effects that we see here would translate to a power plant environment, but we’ll do our best to make some sense of that.” — Kay Cordtz

offered for women and minorities working at BNL and Stony Brook University (including guests and users) who may be considering a career advancement. The primary goal of the CARE workshop is to help early career women in science, technology, engineering, and mathematics who are working in academia or government research labs to secure tenure and significant advancement in their careers. — Natalie Cmosija

magnets, radio frequency acceleration cavities, and a power supply for the rapid cycling of the synchrotron. The team expects to have a working accelerator prototype in approximately three years, with the addition of medical delivery hardware following shortly thereafter.

“We typically only build one-of-a kind machines,” said Lowenstein, who has enjoyed the challenge of applying accelerator physics to a problem immediately facing humanity. “In the end, BMI will take ownership of the technology that we invent and provide this new treatment to patients at several hospital locations.”

Added Lidestri, “The possibility to show that industries and national laboratories can successfully collaborate and combine their strengths on this scale — that will be a victory as important as completing the iRCMS.” — Justin Eure

Everyone’s Role in Sustainable Safety And Operational Excellence at BNL

Labwide focus begins with engagement, accountability, and role modeling

By Lab Director Sam Aronson

We must make significant and sustainable improvements to our safety and operational performance. Inaction can have serious consequences — more of us getting hurt, damage to our reputation, loss of program dollars, disruption of science, and the cost of investigations and corrective actions. As we approach the half-way point of fiscal year 2012, 39 of us have been injured. This includes potentially life-threatening incidents — such as the fall from a scissor lift and a severe electric shock.

We’ve also had too many first-aid cases, which are often caused by a lack of attention to task. Our colleagues have been hurt stepping off of curbs, slipping on a dropped folder, walking into a wall, pushing a wagon of bottled water — just to list a few. All of these incidents were preventable, resulted in staff being hurt, and contributed to our troubling safety performance.

Stand Downs, Next Steps

During the past few weeks, every directorate and division held safety stand downs with the



Roger Stoutenburgh DO150405

entire staff or targeted groups. During these meetings, many of you contributed thoughtful comments about safety, shared your concerns, and offered suggestions. The Policy Council members brought this feedback to my Director’s Safety Operations Council last week. We discussed actions that Policy Council members will take in their directorates and divisions to help achieve sustainable safety and operational excellence. I was greatly encouraged by common themes that emerged from the directorate stand downs. One in particular was the expressed desire on

the part of staff members and supervisors to be more involved in driving operational excellence and improved worker safety. I think we have not broadened the ownership of these issues sufficiently and I intend to incorporate more staff and supervisor participation as we go forward.

‘Accountability’ at BNL

During the past few weeks, I’ve been talking about three key steps — engagement, accountability, and role modeling — that supervisors and every employee can take right now to help us be successful. Some employees have expressed concern that “accountability” simply means a greater focus on disciplinary action. Our Laboratory Values and Behaviors state that, “We hold ourselves and each other accountable for our actions and for delivering on our expected results and commitments.” Discipline is only a small part of accountability and should only be used as a last resort. Accountability, first and foremost, is about holding ourselves and each other to high standards in performing our work in accordance with our Laboratory

Values. Read more about what we mean by accountability in the next Monday Memo.

DOE/HSS Fall Investigation

The Office of Worker Safety & Health (WS&H) Enforcement — part of the DOE’s Health, Safety, and Security (HSS) — completed the on-site portion of its investigation of the BGRR fall and injury. The WS&H team reiterated many of the conclusions identified in our own internal investigation. It will continue to evaluate information it received and share a final report within 30 to 60 days. The team is empowered to issue a monetary penalty to the Lab.

All-Employee Meeting, 4/2

Please mark your calendar now for an All-Employee Meeting Monday, April 2, from 1:30-3 p.m. in Berkner Hall. We’ll talk about sustainable safety and operational excellence, the budget, Blueprint, accomplishments from the past few months, and my stepping down as Lab Director. We’ll also have time for questions. I look forward to seeing you there.



With their coach, Charles Regulinski (far left), and assistant coach, Joe Lena (far right), are the Commack Middle School students who won the Regional Science Bowl at Brookhaven National Laboratory: (from left) Vignesh Gunasekaran, David Li, Joseph Schmitz, Mehtaab Sawhney, and Ryan von Hof.



With their coach, Kobir Gupta, are the Lawrence Middle School students who won the 2012 Electric Car Challenge at the Regional Science Bowl at Brookhaven National Laboratory: (from left) Frank Gargano, Brandon Brumm, Serge Byakov, Danielle Grushkovskiy, and Jeremy Rampersaud.

Local Middle Schools Win Science Bowl, Car Challenge

Students from Commack Middle School placed first in the Regional Science Bowl at BNL. Commack’s “team one” narrowly won out over R.C. Murphy Junior High School’s “team one” during the March 3 competition’s tense final round. Students from 11 Long Island middle schools participated in the fast-paced question-and-answer tournament designed to test students’ knowledge of mathematics, life sciences, physical sciences, earth sciences, and general science.

The competition was sponsored by Brookhaven Science Associates, the company that manages and operates BNL for DOE. Longwood Junior High School’s “team two” and Hunter College High School’s “team two” came in third and fourth place, respectively.

Electric Car Challenge

The day’s activities also included a riveting model electric car challenge, wherein students raced cars they constructed on mini raceways. Lawrence Middle

School placed first, with its car speeding down the track in 5.03 seconds. Our Lady of the Hamptons Regional Catholic School placed second, with its car completing its run in 5.25 seconds. Bellport Middle School placed third, with a time of 5.50 seconds. R.C. Murphy Junior High School “team three” was awarded for “Best Car Design.”


For the academic champions, the competition continues. As regional champions, the Commack Middle School team moves on to the National Science

Bowl™ coordinated by the U.S. Department of Energy’s Office of Science, to be held in Washington, D.C., from April 26 – 30, 2012.

Each student on the winning teams received a medal, and each winning academic team received a trophy for its school.

By taking part in the “Jeopardy”-style academic contest and model electric car challenge, students are encouraged to excel in science and math and to pursue careers in those fields.

— Natalie Crnosija



WHAT IS A FLAME?

Fired by a question from Alan Alda, Stony Brook’s Center for Communicating Science is accepting entries until April 2 for its *Flame Challenge*: Explaining what a flame is so that an 11-year-old can understand. Entries can include writing, video, or graphics, and can be playful or serious — as long as they are accurate and connect with youngsters.

More information and entry forms are available at www.FlameChallenge.org.

Reminder From the Benefits Office

Deadline to Submit 2011 Claims For Flexible Spending Account, 3/31

March 31 is the last day to submit claims for 2011 reimbursement accounts. Instructions for how to submit claims to PayFlex, the company that manages employees’ flexible spending accounts, are available online: www.bnl.gov/hr/Benefits/ReimbursementAccounts.asp.

Talk on Retirement Planning, 4/4

A talk titled, “Passport to Retirement — First Class or Coach” will be given by Craig Ferrantino of the Foundation for Personal Financial Education in Berkner Room B on Wednesday, April 4, at noon. During his talk, Ferrantino will discuss assessing your investment portfolio; measuring risk in your portfolio; developing strategies in asset allocation; take advantage of dollar cost averaging; and creating your own action plan for success.

To attend, RSVP by calling Barbara Soeyadi at Ext. 7516, or online: <https://intranet.bnl.gov/eventreg>.

CALENDAR

— WEEK OF 3/19 —

Wednesday, 3/21

***476th Brookhaven Lecture**
4 p.m. Berkner Hall. Gianluigi De Geronimo, Instrumentation Division, will talk on “Microelectronics for Science — Enabling New Detectors.” All are welcome to this free event, open to the public. Visitors to the Lab of 16 and older must carry photo I.D.

— WEEK OF 3/26 —

Monday, 3/26

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.

2012 BERA Board Voting All Week
9 a.m. Monday until 2 p.m. Friday, 3/30. Electronic voting will be available from the BERA website. Paper ballots will be available 11:30 a.m.-1 p.m. on 3/29 in Bldg. 400, and on 3/30 in Berkner Hall. Bios of the eight BERA nominees and their ideas, if elected, for the 2012 BERA Board are in last week’s Bulletin, March 9.

— WEEK OF 4/2 —

Monday, 4/2

***All-Employee Meeting**
1:30-3 p.m. Berkner Hall. Lab Director Sam Aronson will discuss safety, operational excellence, the budget, Blueprint, accomplishments, more.

Toastmasters Invitation, 3/20

Would you like to improve your public speaking skills? And would you like to do it in an informal, supportive environment, among friends?

Come and visit the BNL Toastmasters Club on open membership night on Tuesday, March 20, at 5:30 p.m. in Room 160, Biology Building 463. You will meet with the Toastmasters members and experience first hand the fun of spending time with friendly people, and improving your speaking skills at the same time. You are invited! Come and see us, we would love to have you. See also www.bnl.gov/bera/activities/toastmstrs.

Free AARP Membership

Through BNL’s Employee Assistance Program (EAP) and EAP vendor Magellan Behavioral Health, all benefits-eligible employees of BSA can, depending on their age, receive a free AARP membership or refer a friend to redeem it.

If you are 50 or older, you can access this benefit for yourself right now. If you already have a membership, you can extend it for an additional year. If you are not yet 50, you can pass this benefit to anyone of 50 or older, (a parent, in-law, sibling, or friend).

AARP is the nation’s leading organization for people age 50 and older, with many benefits for members, such as discounts on travel, vision care, information on finances, healthy living, volunteer opportunities in the community, and many more.

To join, visit www.magellanassist.com/default.aspx or call Magellan Behavior Health at 1-800-327-2182. For more information, see the article by EAP Manager Nancy Losinno in Monday Memo, March 12, 2012.

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

02 FORD EXPLORER XLT – 120K mi. blk, 4.0V6,15/20mpg, 4wd, leather, 3rd row seat, alloy wheels. \$4,000 neg. Ext. 2017 or bkosciuk@bnl.gov.
01 MITSUBISHI GALANT ES – 180K mi. gold w/tan int., p/w, p/l, c/c am/fm/cd, m/ roof, rebuilt eng w/new shocks/struts in great cond. \$3,500 neg. 681-9800.
65 CHEVY NOVA PROJECT CAR – 327 ci, muscie 4 spd, ford 4:11 posi rear, solid body, call for more info. \$2,100 neg. 978-6008.
RIMS W/TIRES – 4 18" RT6 Enkei 360 perfect Rims; 6 Lug; used on '99 Dodge Durango for 1/summer, excel, less than 1/yr old, ask/\$700, pd/\$1,800, pics avail. 813-6583.
WHEELS & TIRES – 5 wheels, 4 w/mounted tire & center caps for '07 and newer Jeep Wrangler. all for \$200. Al, 987-7870 or f1501979@yahoo.com.

Boats

19' 2005 SEARAY BOW RIDER SPORT – 3.0L TKS MerCruiser, 135 HP, I/O, 33.8hrs, Cust.Trailer, Bimini Top, Bow & Moorg Covers, AM/FM CD, full gauges. \$10,995 neg. Nick, 738-5345.
BOAT SLIPS AVAILABLE – 5 boat slips for rent behind private home on Shore Lane, Bay Shore, nr Ferry, \$60 a ft, water, elect, prkg. 872-7298 or mike@bnl.gov.

Furnishings & Appliances

BABY FURNITURE – Graco pack-n-play, almost new, w/sheets, etc, \$40. Ext. 5080, 766-7701.
BED – q/mattress/boxspring, v/gd cond, still under warr, new mattress cover, \$400. 344-7808 or jpereiro@bnl.gov.
BOY'S BEDROOM SET – Gray fomica, like new: platfrm bed w/drawer, mattress, hd board, 6 drwr dresser, desk top, & hutch w/3 drwrs & book case. \$450. 728-0992.
CLOTHES DRYER – GE/\$100. Marilyn, Ext. 5075, 516-319-1504 or zane@bnl.gov.
DISHWASHER – Whirlpool, excel cond/\$100; Kenmore upright freezer/\$25. Karen, Ext. 4432.
DRYER, GE GAS – white GE Gas dryer, Model # dbxr453gv0ww, 22000 Btu, works fine, selling because I bought a new matched set. ask/\$50. wfelitz@bnl.gov.
MOVING SALE – Whirlpool w/d, book-shelf, lamps, spkrs, Yoga DVDs, BBQ grill, photo, price, descrip at <http://tinyurl.com/7ffo3jf>. 995-0816, 10am-7pm.
OAK KITCHEN/DINING SET – round table w/leaf, 6 chrs, real oak, v/gd quality, some water stains on table, pics avail, ask/\$100. Scott, sbronson@bnl.gov.
SOFA-BED – q/size futon, gd cond, contact for pics, \$150. Juan, 344-7808 or jpereiro@bnl.gov.
TWIN BUNK BEDS – great cond, maple light wood, mattress' not incld, \$70/obo. Denise, Ext. 4289 or hanley@bnl.gov.
WASHER & DRYER – Whirlpool v/gd cond, gas dryer, call for info, \$200. Ext. 3849.
WHIRLPOOL GAS STOVE – white, 4 burner top, oven and broiler below, elect igniter/\$100. Matthew, mvescovi@bnl.gov.

Audio, Video & Computers

APPLE IPOD TOUCH – 2nd Gen, 8GB, restored to factory settings. \$125. Gary, Ext. 7779 or gstevens@bnl.gov.
COMPAQ LAPTOP – Presario F572US laptop,1.7GHz dual core AMD x64 CPU, w/2GB RAM, 12 cell batt, Windows Vista, gd condi/\$90. Shigeki, Ext. 2635.
IPAD 16GB WIFI – 1st generation iPad, excel cond, comes w/black case, charging accessories/\$225/neg. smameris@bnl.gov.
MONITORS – 2/17" identical Acer LCD, Model AL1716, excel cond ask/\$45/ea. Rob, Ext. 8147, 805-6176.
TOSHIBA LAPTOP – Satellite A135-4527 – Intel T2080 (1.73GHz) CPU, w/2GB RAM, Windows Vista, gd cond, \$90, 2nd A135 avail, w/dead batt, no a/c adapter, \$40. misawa@bnl.gov.
XBOX – 250gig slim version, Kinect ready w/built-in WiFi, controller, in orig box w/ cables, \$300. Renee, Ext. 8278.

Sports, Hobbies & Pets

BERA SOFTBALL – Male/Female players wanted for BERA Slow Pitch Softball: Mixed and Competitive leagues. BNL/ LAB employees and families welcome to participate. Come join the fun! Paul, Ext. 7178 or sampson@bnl.gov.
BOWFLEX – Motivator w/lat pulldown & leg extension, \$325. Dave, 878-1303.
BUESCHER SAXOPHONE – Tenor, '65, great cond w/hard case, ask/\$400. Denise, Ext. 4289.
CAMPER – '02 Viking Pop-Up. v/clean, trunk storage, canopy, new tires, elect brakes, slps 6-8, 2/dinettes, in/outdr stove, heat, h/c water, outdr shower, \$3,200. Ext. 5640.
CAMPER – '03 Kodiak Skamper, excl cond, 23'L, slide out, dinette, couch, 2 q/beds, m/ wave, oven, stove, full ba, heat, a/c, awning, antenna, cable, sleeps 6+, \$8500. Ext. 7978.

COLLECTIBLES – "JUST THE RIGHT SHOE" by Raine, Blush #25020; Rising Star #25043 w/cert, both retired styles; like new, in box, \$8/ea. hughes@bnl.gov.
DECORATIVE PAINTING – wood bowls, boxes, sleds, benches, etc. for painting, have pic. Ext. 7013, derocher@bnl.gov.
ELECTRIC GUITAR – Epiphone Special II, Ebony, New-Never used, autographed by Joe Bonamassa/\$250. Dave, 878-1303.
PAINTBALL GUN & ACCESSORIES – lon gun w/Halo hopper, gloves, stock barrel, nitrous tank/cover, CO2 tank, sm barrel, bag, & batt, used once, pic, \$170. 445-2868.
PUPPIES – 8 wk old Lab puppies, 8/male, 8/female, 2/are brown, for more info call Vicky @ 455-6007. Brian, Ext. 8489 or bmcclafferty@bnl.gov.
SURFBOARD – roxy, 7.5', light blue w/ pink detail, cushion non-slip surface, leash incld, excel cond, \$400. 588-7196.
WEIGHT BENCH – ProForm fusion 1.3x weight bench, perfect cond, \$75, will deliver to BNL. Artie, Ext. 5937.
WET SUIT – Men's, size sm-med, barely used, never in saltwater, 7mm, incl 2-pc suit, mask, boots, fins, photo avail, \$100. hughes@bnl.gov.

Tools, House & Garden

GARDEN SHED – Rubbermaid slide-lid shed, grt for bikes, mowers, 5'x6'x4'6", assembled, v/gd cond, \$275 neg, Wayne, Ext. 5936 or wlewis@bnl.gov.
OPEN TRAILER – 4x8, red w/sides if wanted, about 4/ysr old, \$200. Rich, 835-8309 or rmoretto@bnl.gov.
PORTABLE GENERATOR – Powerhorse 7000w purchased Sept 2011 from Northern Tool for \$700, brand new, never used, sell/\$500/firm u-pick-up. Artie, Ext. 5937.
SEARS GARDEN TILLER – 24", '06, gd cond, starts well, \$100. John, Ext. 5930.
SNOWBLOWER – Craftsman, 9HP 28" path, two stage, elect/pull start, headlight, 6 spd fwd/2 rev, p/steering, 3-4 yrs old, orig/\$1500, ask/\$600. 756-6636.

Miscellaneous

BABY BATH TUB AND CRADLE SWING – bought 3-mos ago as new, rarely used, cradle swing/\$60; bath tub/\$20. wang.mf@hotmail.com.
BRIDAL SET – 3-stone diamond ring .66 ctr stone & two .30 side stones set in 10k wht gld t.c.w 1.26 & two ¾ c.w anniv bands, sz6 neg/\$3500 pic avail. Jenn, Ext. 3438.

Community Involvement

EASTER BUNNY BREAKFAST – April 1st 8a-12p \$8/pp under 3 free, Pancakes/ sausage/bacon/coffee/juice and picture w/the Easter bunny incld, 780 Horseblock Rd Farmingville FD Engine Co#2. William, Ext. 7627 or wreahl@bnl.gov.

Happenings

SHEN YUN PERFORMING ARTS – Reviving 5,000 Years of Civilization 4/18-22, Lincoln Center, experience world's premier classical Chinese dance & music shenyun-performingarts.org. georgewei@bnl.gov.
SPRING FLING, APRIL 20 – Join in at The Flaming Hearth, 756 Horseblock Rd., Farmingville, 6pm. DJ Alex Petway, appetizers, 50/50 raffle, cash bar, \$10/advance, \$15/door. Charles Gardner, 219-2884.

Free

2012 SHEN YUN BOOKLET – the classical Chinese dance booklet, pls contact me if you like to have one. George, georgewei@bnl.gov.
FOOT MASSAGE – Homedics, see: tinyurl.com/6wmadno, Ext 4360. Wei-Fu, wfchen@bnl.gov.
TREADMILL – gd cond, not motorized, u-pic-up. Robin, 744-3902.

Wanted

DOG PEN – for sm dog, want Rockie to enjoy the outdrs. Nina, Ext. 5894 or vbri1@aol.com.
PIANO – Upright Yamaha or better in gd cond. Thomas, Ext. 2225 or tsang@bnl.gov.
BERA SOFTBALL PLAYERS – Male/Female wanted for BERA Slow Pitch Softball. See ad under Sports, Hobbies above.

Lost & Found

SCANDISK – A 8gb scandisk was found today outside of Berkner Hall, color to be identified by owner, please contact me. Eugene, Ext. 8326.

For Rent

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.
MASTIC BEACH – 4 bdrm ranch, fenced yd, full bsmt, close to high school, newly renov, pets ok, sec. \$1,600/mo. Daniel, Ext. 7658 or ahearnrd@bnl.gov.
MASTIC BEACH – 4 bdrm ranch, full bath, newly renov, quiet st, pets ok. \$1,500/mo. Daniel, Ext. 7658 or ahearnrd@bnl.gov.
MIDDLE ISLAND – "NEW" bsmt apt, 4 mi to Lab, 1 bdrm, kit/lr, cac, priv ent, off-st prkg, no smkg/pets, 1/mo sec req'd, inclcs all util, phone, cable, use of w/d. \$925/mo. 205-9252.
MIDDLE ISLAND – ArtistLake Dr, 1/lg bdrm, upper flr, 900sq ft, 7 min to BNL, new appli, decor, no pets. \$1,100/mo neg. 516-225-3306.



Brookhaven Expands Its Facebook Presence

By Pete Genzer, Manager of Media & Communications and Production Services, and Gary Schroeder, Manager of Web Services

Social media services like Facebook, Twitter, and YouTube have experienced tremendous growth in recent years and have become go-to information distribution and sharing sources for millions of people and institutions. As a result, social media is a fast-growing component of Brookhaven Lab's comprehensive communications strategy. It allows us to share news and information quickly with the public, the media, our employees, elected officials, retirees, users, collaborators, prospective job candidates, and other key audiences — and see what others are saying about the Lab.

Social media also allows us to "join the conversation" about science and provides opportunities for online discussions with people interested in our work. Brookhaven Lab is well represented on these social networks via our institutional accounts, and we continue to look for new ways to share information about the Lab's discoveries, milestones, and people.

Since 2010, the Lab has maintained a Facebook page for our popular Summer Sundays program. Building on that effort, we recently launched an institutional Facebook page for the Lab as a whole. This page features Lab news, feature stories, videos, and photographs. It also allows us to promote Lab employment opportunities and connect with potential job candidates.

The Lab Facebook page is easy to find at <http://www.facebook.com/brookhavenlab>. If you have a personal Facebook account, feel free to "like" us and share our content on your own page.

In addition to our Facebook presence, Brookhaven Lab currently participates in these other online communities:

- **Twitter:** Twitter is a free social networking and micro-blogging site that allows users to share short messages called "tweets" with the people who "follow" their feed. In 2009, Brookhaven established a twitter profile (@BrookhavenLab) to

drive traffic to our website and blogs, trigger articles in the media, and share information with interested audiences. We now have approximately 6,500 followers and are adding more than 150 per month. Find our feed at www.twitter.com/brookhavenlab.

- **YouTube:** Brookhaven established its YouTube channel in 2008. To date, our videos have been viewed nearly 500,000 times, and the channel has nearly 700 subscribers. We use the site to post videos that accompany news releases and feature stories, Lab overviews, and background footage for TV and documentary crews. Viewers can also comment on the videos. Find us at <http://www.youtube.com/user/BrookhavenLab/featured>.

- **ScienceBlogs:** Managed by National Geographic, ScienceBlogs is the largest online community dedicated to science. It hosts more than 80 blogs on a wide variety of scientific disciplines for the "science-interested" and general reader. The Lab is among a select group of the world's top research institutions invited to host a blog on the site. Our blog, "Brookhaven Bits & Bytes," highlights interesting stories about the Lab's research, its people, and its history in a less-formal style than the typical news release. Find us at <http://scienceblogs.com/brookhaven>.

- **Quantum Diaries:** Brookhaven also maintains a blog on the Quantum Diaries site, which focuses on nuclear and particle physics developments. The main audience for this blog is the physics community, so our strategy is primarily to have researchers author pieces on their work and experiences for posting on the site. Find us at <http://www.quantumdiaries.org/author/brookhaven>.

- **LinkedIn:** LinkedIn is a business-related site mainly used for professional networking. Users can create profiles and connect and collaborate with other professionals. The site is a growing tool for the Lab's HR/recruitment efforts. Find us at <http://www.linkedin.com/company/brookhaven-national-laboratory>.



MIDDLE ISLAND – 4 bdrm ranch, 2 bath, eik, f/p, cac, pool, deck, fin bsmt, 2 car, sprinklers, shed, 600sq ft shop. \$279,900 neg. 775-6636 or drfrank11@optonline.net.

SAYVILLE – Co-op upstairs unit, 1 bdrm, 1 renov bath, spacious l/r, d/r, kitch, bike to downtown/FI Ferries, tons of storage. \$109,000 neg. Rob, 750-6082.

In Appreciation

A heartfelt thanks to the many friends who came through for me after my auto accident.
– Stephen Springston

Services

Services offered by BNL employees are listed at the end of "See all ads" on the intranet homepage. Or, from off site, call Ext. 2346 or email bulletin@bnl.gov.