# the Bulletin

BROOKHAVEN NATIONAL LABORATORY

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Roger Stoutenburgh D4081010

From left, Sung Won Kim, Anat Biegon, Joanna Fowler, and Jean Logan — all from Brookhaven Lab's Medical Department

## PET Scans Reveal Estrogen-Producing Hotspots in Human Brain

***New radiotracer application reveals features unique to humans; may advance understanding of estrogen-related diseases***

A study at BNL has demonstrated that a molecule "tagged" with a radioactive form of carbon can be used to image aromatase, an enzyme responsible for the production of estrogen, in the human brain. The research, published in the November issue of *Synapse*, also uncovered that the regions of the brain where aromatase is concentrated may be unique to humans.

"The original purpose of the study was to expand our use of this radiotracer, N-methyl-11C vorozole," said Anat Biegon, a neurobiologist in the Medical Department. "Proving that a radiotracer like vorozole can be used for brain-imaging studies in humans would be a gateway to new research on estrogen in the brain. You cannot look at these brain pathways in living humans in any other way."

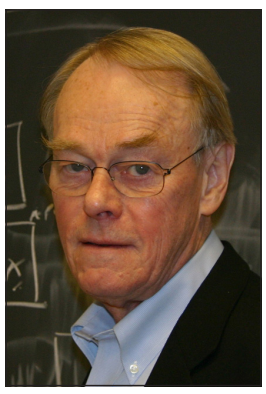
Vorozole binds to aromatase, an essential catalyst in the biosynthesis of estrogen. Since estrogen is implicated in a range of conditions and pathologies, from breast cancer to Alzheimer's disease, studying its production in the human body using non-invasive imaging techniques like positron emission tomography (PET) can be a useful diagnostic and investigative tool. This is the first study to demonstrate that vorozole is a useful radiotracer for studying estrogen-producing hotspots in the human brain.

The scientists found a surprise in the "geographical" (anatomical) distribution of aromatase in the brain. The highest levels of aromatase appeared in the thalamus and then the medulla, in a pattern that was consistent across all six subjects. This…

*See* ***New Radiotracer*** *on p. 2*

## Protein Shows How Plants Keep Their Mouths Shut

***Findings could help researchers devise solutions to plant shutdown in face of rising carbon dioxide, ozone***



Wayne Hendrickson

Using intense beams of x-rays at BNL, researchers have uncovered the atomic structure of a protein responsible for closing the "mouths," or stomata, of plants. These molecular photographs could help scientists understand how plants will respond to environmental changes facing our planet, such as drought and escalating levels of carbon dioxide and ozone. The study, led by researchers at Columbia University and the New York Structural Biology Center, was published in the October 28, 2010, issue of the journal *Nature*.

Plants "eat" and "breathe" through their stomata — tiny pores that pattern their leaves. When the sun is out, these small holes pull in carbon dioxide for energy generation through photosynthesis, and expel oxygen and water vapor. At night, to conserve moisture, the stomata are closed by a pair of kidney-shaped guard cells.

Stomata also will seal up in response to high carbon dioxide levels, ozone, low humidity, and drought. In this study, researchers searched for details about the protein that starts the molecular chain reaction leading to stomata closure.

"Our work falls in the middle of an important discussion about how plants respond to environmental factors caused by global warming," said Columbia University scientist Wayne Hendrickson, who also is the Chief Life Scientist in Brookhaven's Photon Sciences Directorate. "Once we know this molecule intimately, we have a better chance of engineering solutions to help plants cope with pressures from environmental problems."

The protein in question is an anion channel, which moves negatively charged atoms (in this case, chloride) across the cell membrane to reduce the plant's water pressure. Low pressure causes the guard cells to go limp, and subsequently, the stomata to close.

Coincidentally, around the same time that this protein was discovered in plants, the Columbia-led team solved the structure of one of its close bacterial family members at BNL's National Synchrotron Light Source (NSLS).

Using the bacterial protein as a model for the plant version, and doing experiments on the plant protein itself,…

*See* ***Plants' Mouths*** *on p. 2*

# IN HIS WORDS: Samuel Stanley

***SBU President, BSA Board Chair, on BNL & SBU***

Samuel L. Stanley Jr., M.D., has been President of Stony Brook University (SBU) since July 2009 and is the Chair of the Board of Brookhaven Science Associates LLC (BSA), which manages and operates BNL for DOE's Office of Science. Stanley received his M.D. from Harvard Medical School and became one of the nation's highest recipients of support from the National Institutes of Health for his research focusing on enhanced defense against emerging infectious diseases. The author and co-author of many peer-reviewed articles and scholarly publications, he holds several patents and is credited with substantially advancing the research enterprise of Washington University, where he was Vice Chancellor prior to joining SBU.

SBU is the largest academic user of BNL's facilities, with 600 faculty and staff who hold guest appointments at the Lab. In addition, 60 SBU graduate students are working on their thesis research at BNL, more than 100 BNL staff have adjunct appointments at SBU, and 10 percent of BNL staff are SBU alumni.

After more than a year of working closely with BNL, Stanley is enthusiastic about developing the SBU/BNL relationship further. In a telephone conversation with The Bulletin he shared some of his thoughts on this topic.

"We're very interested in continuing to collaborate with Brookhaven in every way we can," Stanley said. "The Lab is an extraordinary resource for Stony Brook and, of course, for the nation, but to have it in our backyard is amazing. As you know, we have the opportunity to help manage it with Battelle through BSA, which I think has strengthened our relationship."

**On building on already strong links between SBU and BNL staff, including sharing outstanding research and teaching talent to benefit both institutions:**

"As we develop our strategic academic plan for Stony Brook, we are thinking about ways in which to expand our partnership with BNL. We have made a commitment to energy as a main focus, where BNL is obviously key in a number of areas. Another major focus for both of us is in biological imaging. With NSLS-II coming on board and exciting neuroimaging at BNL right now as well, we see tremendous opportunities. I am asking people on our staff, when searching for faculty, to involve BNL staff on search committees, which is an important way to get input. We should be thinking about getting people who complement existing expertise at both SBU and BNL, so we can grow without risking duplication.

"I think there are tremendous opportunities for further growth. Funding has been scarce here for two years and the same may hold true all over the country soon, so sharing talent could be a critical part of what we do moving forward."

**On potential collaboration in the field of medical imaging:**

"We're working very hard at the highest levels to help support in any way we can what's been and is now an outstanding imaging group at BNL. We are looking to provide more of those services. We have a new Dean of our School of Medicine, Ken Kaushansky, and one of his goals is to build collaborations with BNL and Cold Spring Harbor, looking to find ways to provide clinical and translational research outlets for a lot of the things you're interested in doing. We see this as important for the future. The outstanding work done at BNL in studies of the physiologic basis for addiction ties in well with the interest we have in neurosciences in general and particularly in neuroimaging, so I think there'll be a lot of synergy there.

*(Editor's Note: Stony Brook University Medical Center received the Consumer Choice Award from the National Research Corporation for the third consecutive year, honored as the highest rated hospital in the New York, Newark, NJ, and Edison, PA, metropolitan statistical areas in the areas for Best Doctors, Best Nurses, Best Overall Quality, and Best Overall Image/Reputation. The center also was recognized with the Breast Imaging Center of Excellence designation by the American College of Radiology.*

*Kenneth Kaushansky, Senior Vice President of the Health Sciences, is a Master of the American College of Physicians, and a member of the Institute of Medicine of…*

*Continues on p. 2*

Science Café at Borders in Stony Brook, 1/30

## *Book Talks, Discussion on Large Hadron Collider*

> "Each pop-out [book] genuinely illuminates the workings of the detector and the interactions of the particles it hopes to find."
> — *Nature*

During a free book talk and discussion, three physicists associated with BNL will take their audience, figuratively, to CERN, the European physics lab in Switzerland.

At 3 p.m. on Sunday, January 30, at Borders in Stony Brook, (2130 Nesconset Highway), the scientists will lead the audience through 17 miles of underground tunnels making up the world's newest, largest, and highest-energy particle accelerator — the Large Hadron Collider (LHC) at CERN — and into a seven-story particle detector called ATLAS. Researchers from BNL, Stony Brook University, and institutions from 38 countries around the globe use ATLAS to explore the deepest secrets of the universe.

Producing particle collisions with three-and-a-half times more energy than has ever been achieved, the LHC will allow scientists to search for answers to fundamental questions about the origin of mass, the nature of dark matter, and the earliest moments of the universe. ATLAS is being used, in particular, to search for proof of a particle called the Higgs boson, which is thought to be responsible for the mass of all particles — and us. Scientists also will look for evidence of other conjectured but never-seen particles and phenomena.

The three speakers will focus on various aspects of this massive scientific undertaking:

- "A Pop-Up Book Tour of the ATLAS Particle Physics Detector" — Brookhaven physicist and U.S. ATLAS Deputy Operations Program Manager Howard Gordon. Related book: *Voyage to the Heart of Matter: The ATLAS Experiment at CERN*
- "The Search for the Higgs Boson at CERN's Large Hadron Collider" — Brookhaven physicist Thomas Gadfort. Related books: *Massive: The Missing Particle that Sparked the Greatest Hunt in Science*, and *The God Particle: If the Universe is the Answer, What is the Question?*
- "If the Answer is 'Hypothetical, Exotic and Massive Color-Triplet Boson' Then What is the Question? Leptoquark Importance Explained!" — Stony Brook University physics graduate student Regina Caputo. Related book: *The Quantum Frontier: The Large Hadron Collider*

A Q-and-A session will follow the talks. — Marsha Belford

## 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.*
- *Additional information for Hospitality may be found at www.bnl.gov/hospitality/calendar.asp.*
- *The Recreation Building #317 (Rec. Hall) is located in the apartment area.*
- *Events flagged with an asterisk (*) have an accompanying story in this week's Bulletin.*

### — 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 & Thursdays: Kickboxing**
$5 per class. Noon–1 p.m. in the gym. Pay as you go. 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*.

**Tues.: Hospitality Welcome Coffee**
10:30 a.m.–noon. Rec Hall (Bldg. 317). Meet over coffee. Children welcome. Ext. 2873.

**Tuesdays: Zumba**
Noon–1 p.m., in the gym (Bldg. 461). Registration required, Ext. 2873.

**Tuesdays: Knitting Class**
2–4 p.m. Rec Hall (Bldg. 317). Learn to knit/crochet — all skill levels. Free. Ext. 2873.

**Tuesdays: Toastmasters**
Two monthly meetings: 1st & 3rd Tuesdays, 5:30 p.m., Bldg. 463, Room 160. Guests and visitors welcome. *http://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. Pat Flood, Ext. 7886 or *flood@bnl.gov*.

**Tues., Wed., & Thurs.: Rec Hall Activities**
5:30–9:30 p.m. in Bldg. 317. General activities, TV, ping pong, chess, games, socializing. Christine Carter, Ext. 5090.

**Tuesday & Thursday: Aqua Aerobics**
5:30–6:30 p.m., Pool (Bldg. 478). Registration required, Ext. 2873.

**Wednesdays: Ballroom Dance**
5:15 p.m., 6:15 p.m., and 7:15 p.m. N. Ballroom, Brookhaven Center (Bldg. 30). *http://www.bnl.gov/bera/activities/dance/default.asp*.

**Wednesdays: Pilates**
5:30–6:30 p.m. at the Rec Hall (Bldg. 317). Registration required, Ext. 2873.

**Wednesdays: Play Group**
10 a.m.–noon. Meet 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. Tim Devine, Ext. 2350.

**Thursdays: Reiki Healing Class**
Noon–1 p.m., Call for location. Nicole Bernholc, Ext. 2027.

**Thursdays: Postdoc Social Night**
6:30 p.m. ASAP Lounge (Bldg. 462). *www.bnl.gov/asap*.

**Fridays: Family Swim Night**
5–8 p.m. Pool (Bldg. 478). $5/family. Ext. 2873.

***Plants' Mouths** from p. 1*
…the scientists discovered the anion channel's "on" switch.

"If we didn't have such high-resolution data, we wouldn't be able to tell if this was a mistake or part of the real structure," said Hendrickson. He added that this type of research will be even further advanced at BNL's National Synchrotron Light Source II (NSLS-II), a facility currently under construction that will produce x-ray beams 10,000 times brighter and with much higher resolution than those at NSLS.

This study was supported in part by the National Institute of General Medical Sciences Protein Structure Initiative within the National Institutes of Health and by the Howard Hughes Medical Institute. Data were collected from NSLS beamline X4A, which is funded by the New York Structural Biology Center. NSLS is supported by the DOE Office of Science. — Kendra Snyder

For more information, go to *www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=1191*.

***New Radiotracer** from p. 1*
…differs from what researchers have observed previously in animal studies, where aromatase is concentrated in smaller regions, principally the amygdala and preoptic areas.

"This started as a simple tool development study and now it's turned out to be much more interesting than that," Biegon said. "The question that's raised is what is aromatase doing in these particular brain regions?"

To answer this, Biegon and her colleagues have already begun another study, examining differences in brain aromatase related to a range of factors including age, sex, personality, and memory. Beginning with healthy subjects and advancing to patients with specific conditions and diseases, they intend to study the role of estrogen in the brain with respect to disorders and diseases such as unusual aggression, breast cancer, and Alzheimer's disease.

Funding and support for this research came from the National Institutes of Health. The DOE Office of Science provided infrastructure support. In addition to Biegon, co-authors included: David L. Alexoff, Millard Jayne, Pauline Carter, Barbara Hubbard, Payton King, Jean Logan, David Schlyer, Colleen Shea, Frank Telang, and Youwen Xu of the BNL Medical Department; Sung Won Kim and Lisa Muench of the National Institute on Alcohol Abuse and Alcoholism (NIAAA); Deborah Pareto of the *Institut Alta Tecnologia*, CIBER BBN; Gene-Jack Wang of BNL's Medical and the Mount Sinai School of Medicine; and Joanna S. Fowler of BNL's Medical Department, the Mount Sinai School of Medicine, and Stony Brook University. — Daisy Yuhas

For more details on this study, see *http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=1188*.

***Calling all Stony Brook University Alumni at BNL!***

## Event: Reception, Cirque Eloize, 2/13

All Stony Brook University (SBU) alumni at BNL are invited to a mid-winter event hosted by the Stony Brook Alumni Association, on Sunday, February 13. The event includes a 2 p.m. reception with SBU President Samuel Stanley and BNL Director Sam Aronson at the Wang Center and a 4 p.m. performance of the Cirque Eloize at the Staller Center. The special discount price is $10 per ticket, with a two-ticket maximum per alumnus. Please RSVP by January 19 by contacting Janet Masini, Alumni Relations Coordinator, 1-877-SEA-WOLF or *janet.masini@stonybrook.edu*.

# IN HIS WORDS: Samuel Stanley

*Continued from p. 1*
*…the National Academies of Science and the American Academy of Arts and Sciences.)*

**On cooperative efforts between SBU and BNL:**

"Again, as you look at what's happening in science nowadays — it's been in big science in physics for a long time, where multiple teams working together is the order of the day — I think it's happening more throughout all science, things that were done by single scientists are becoming multidisciplinary. In the biological sciences and imaging, more and more you need informatics or computing power to make studies in a number of areas. One thing we're excited about is being able to partner with BNL and apply for large awards, particularly large infrastructure awards having a critical mass of users and expertise so that people know that this community will get the most out of this piece of equipment or whatever center is created. So, to the extent that we can build on these complementary areas of expertise, I think that we will be more competitive for funding in the future. As we work together and expand the world of funding available to us, we're going to be in better shape and that's part of what's providing the kind of infrastructure like New York Blue and also the human capital needed. Being able to recruit the people who are going to be competitive for these kinds of grants is part and parcel of the same thing."

*(Editor's Note: SBU and BNL collaborate in the New York Center for Computational Sciences, with its centerpiece of the IBM BlueGene/L supercomputer funded by New York State and located at BNL; SBU recently assisted with funding to upgrade the state-of-the-art Transmission Electron Microscope located within BNL's Condensed Matter Physics & Materials Sciences Department.)*

**On science communication, education:**

"Our whole agenda of science communication is very exciting. BNL has been involved in a number of the innovative programs we have developed with Dean of Journalism Howie Schneider and the well-known actor Alan Alda. It's something I've been talking about, because the funding challenges that we face are continually on my mind. I think that more than ever, it's going to be critically important to be able to communicate science to people and really capture the excitement of the kinds of things we're doing, and how much it matters to them in their lives. It's a challenge and I think that the kinds of things we've been doing together will help push that forward."

*(Editor's Note: Dean Schneider has established a unique Center for Communicating Science that has initiated a program to communicate science and will start a new Master of Science journalism program this year. SBU also initiated an effort to provide matching scholarships for BSA Scholarship winners who go to SBU, and helps fund scholarships awarded by BNL for women in science.)*

**On Stanley's being invited to become a member of Governor Cuomo's New York State Health & Education planning team:**

"It certainly was an honor to be asked to be part of this team and we are working to review candidates for some of the leading positions in the cabinet. We've had the chance to nominate as well as review and I think we're getting a pretty good view of some of the things that may drive policy in the administration. It's still early, but the way in which they have reached out to a pretty broad constituency suggests that they're listening to some of the needs. Clearly, there's a major focus on economic development. That's where I think that SBU and BNL can play an absolutely key role for this region and for the state. As for the areas in which we're partnering, well, for example, with BNL's Global & Regional Solutions Directorate headed by Gerry Stokes, we really have more opportunities than ever to work together on intellectual property developed through our researchers, whatever the area, from the Smart Grid to materials — I think that's going to be critically important for economic development."

**On inventions and patents:**

"This is another area of opportunity for more links between SBU and BNL. Stony Brook has a strong tradition, particularly in the biomedical area where we've had a couple of big successes, but this field is dependent on a couple of things — to some degree, the level of research funding, because the more research dollars you have, basically, the more innovations are going to come out of your laboratory — but it's also cultural, getting the staff to be engaged in this and understand the potential benefits from trying to bring things to the market. One of the reasons that we do research, ultimately, is to lead to innovation that will make a difference. There's some research where it would be very difficult to make a definite connection to the everyday world, yet it's still absolutely important. We need to answer the big questions and that's something that SBU likes to do in a broad number of fields, and BNL does too. But where we can find applications, I think we really need to get them out. I think it's what the government expects of us when they provide funding, so I'm excited about those opportunities."

*(Editor's Note: BNL and SBU are working closely together on innovation, technology commercialization, economic development, and preparing new technology ventures for the commercial marketplace. SBU owns and operates the Calverton Business Incubator to help local entrepreneurs create new businesses, with active involvement from BNL. BNL, SBU, and the New York State Small Business Development Center (NYSSBDC) at Stony Brook developed the Entrepreneurs' Foundation Workshop Series to help those interested in starting up technology companies. The latest networking event in this series on January 24 focused on "Protecting Intellectual Property." The next event, which is also co-hosted by BNL, SBU, NYSSBDC and the U.S. Small Business Administration, will be held on Monday, April 25, 5-7:30 p.m., at BNL's Brookhaven Center. It will include a panel discussion on "Funding Startups" — see http://www.bnl.gov/efw/.)*

**End note:**

"I want to say also how much I enjoy working with BNL's leadership — they are outstanding scientists as well as administrators. Sam Aronson is someone I've grown to value tremendously as a colleague. We are probably in communication weekly, and his vision, I think, has been key in helping propel the Laboratory forward. I have tremendous respect for Sam and his team." — Liz Seubert

## In Memoriam

**George C. Warner**, who joined the Alternating Gradient Synchrotron Department on August 12, 1963, as an intermediate technician, and retired as a technical associate I on May 14, 1993, died on January 4, 2010. He was 80.

Remember your neighbors in need — please donate canned goods to the BNL Food Drive.

## *Warner Family Endows Memorial Scholarship*

In honor of the late BNL retiree George C. Warner's life, work, passion for higher education, and interest in science and technology, his family has endowed a scholarship, the George C. Warner Endowed Memorial Scholarship, at Stony Brook University (SBU). The scholarship is to be awarded annually to an SBU freshman who is pursuing an undergraduate degree in science, technology, engineering, or mathematics, and who is in need of financial assistance. The scholarship may be extended for good performance through the four years of a degree course.

George Warner enlisted in the U.S. Navy when he was 17 years old and served for eight years as a diesel mechanic, an engineer, and a submariner. He worked in industry for five years and was formally educated in physics, engineering drawing, and materials science at New York City Community College. Throughout his life he continued his education by both correspondence and self-taught courses. He joined BNL in 1963 at the Alternating Gradient Synchrotron, where he contributed to several areas of research, including the design and construction of specialized particle detectors. He relocated to Florida when he retired in 1993 and traveled extensively. On his death at age 80 on January 4, 2010, in Boca Raton, he was survived by his wife of 53 years, Jean; three children Linda, Steve, and Joyce; and five grandchildren, Michele, Jeff, Tom, Emily, and Ben.

For information on applying for the scholarship, see *www.stonybrook.edu/finaid/programs/science&mathematicsscholarships.shtml*.

# On Tour With BNL

## *Tour escort team looking for new members*

From the inside of a gigantic garage housing a large detector — to a maze of foil-covered pipes where intense beams of infrared, ultraviolet, and x-ray lights are used for basic and applied research — to greenhouses where plants are studied — to state-of-the-art nanoscience labs: These are just a few of the stops on the tour circuit where Elaine Lowenstein of the Lab's Community Relations Office and her BNL volunteer tour escorts share science with visitors and employees.

"We have so many people interested in seeing the nitty-gritty of how science works and how discoveries are made," said Lowenstein. "Last year we had more than 2,500 visitors participating in our tour program from organizations like West Point Military Academy, City College of New York, and even a English boarding school. I could never accommodate these visitors without the Lab's tour escort volunteers, and I am very grateful for their commitment and enthusiasm."

Lisa Willi, who works as a staff specialist in the Information Technology Division, became a tour escort about two years ago.

"As someone who typically spends the workday in an office setting, I have thoroughly enjoyed visiting the facilities and watching the awed expression on people's faces as scientists explain their research," said Willi.

"Recently, I escorted a group of prospective Stony Brook University students and their parents around the Lab site. They seemed intrigued and fascinated by the Lab's science programs. It was truly wonderful to see these young people excited about embarking on a science career."

BNL Police Group Captain David Peter enjoys a slightly different benefit.

"It's great being part of a team that shares our extraordinary science with the world," said Peter. "Being a tour escort has also given me the opportunity to meet and build relationships with employees from around the site as well as interact with visitors. I learn something new on every tour, and I eagerly share that knowledge with my coworkers."

Vincent LoDestro, an engineer in the Collider Accelerator Department (C-AD) and the longest-serving tour escort, said he enjoys visiting other research areas outside C-AD.

"Every group is unique, and I have met many interesting people while giving on-site tours," said LoDestro. "It also gives me the opportunity to share updates and research ideas with colleagues while sharing the Lab's scientific accomplishments with visitors. I get to see science at its best — researchers and visitors coming together to talk about BNL's past discoveries while anticipating those new ideas that are lurking around the corner."

Roger Stoutenburgh D0510111

**Among the tour escorts are: (sitting, from left) Lisa Willi, Frank Dusek, John Dabrowski, and Edward Richards; (standing, from left) Eileen Morello, Hue-Anh Pham, Elaine Lowenstein, Francine Militscher, and Terry Maugeri. Not present are tour escorts Jill Clough-Johnston, Ruth Comas, John Escallier, Patricia Flood, Lawrence Hoff, Peter Kohut, Vincent LoDestro, Ali Lopez, Corinne Messana, Swapna Mukherji, Stephen Musolino, David Peter, Debra Pettit, Brenda Riddle, Frances Scheffel, Graham Smith, and David Troyan.**

The BNL tour program began 63 years ago and has played an important role in sharing the Lab's scientific accomplishments with employees, users, guests, and community audiences. Lowenstein explained that the diversity among the tour escort volunteers further enhances the experience for visitors.

"The tour escorts talk about their own work experiences, which stimulates questions and generates interesting conversation," she said.

Lowenstein is hoping to get more volunteer tour escorts. Typically, volunteers work two or three times a year for two hours. They will receive appropriate training, but must obtain approval from their supervisor. Contact Elaine Lowenstein at Ext. 2400 or *elowenst@bnl.gov* for more information.

— Jane Koropsak

## Calendar

### — THIS WEEKEND —

**Sunday, 1/30**

***Science Café Book Talk on LHC**

3 p.m. Borders, 2130 Nesconset Highway, Stony Brook. Howard Gordon, Thomas Gadfort, Regina Caputo will talk on pop-out books explaining particles and detectors at the Large Hadron Collider, CERN, Switzerland. All are welcome to this free event. See p.1.

### — WEEK OF 1/31 —

**Tuesday, 2/1**

***BrookhavenSphere Brainstorming on Superconductivity**

Noon. Berkner Hall, Room C. Join Lev Naymotin, Qiang Li, others to discuss ideas on superconductivity and thermoelectricity. All are welcome. See p.4.

### — WEEK OF 2/14 —

**Wednesday, 2/16**

**466th Brookhaven Lecture**

4 p.m. Berkner Hall. Ramesh Gupta, Superconducting Magnet Division, will talk on "High Temperature Superconducting Magnets: Revolutionizing Next Generation Accelerators and Other Applications." All are welcome to this free event, open to the public. Visitors to the Lab of 16 and older must carry a photo ID.

### — WEEK OF 2/21 —

**Monday, 2/21**

**President's Day, Lab Closed.**

The Lab will be closed for the President's Day holiday. No Bulletin will be issued on Friday, 2/25.

## *Update on Energy Employees Occupational Illness Compensation Program*

Last February, the U.S. Department of Labor (DOL) established a "special exposure cohort" for current and former BNL workers under the Energy Employees Occupational Illness Compensation Program. Through this program, employees of DOE contractors and subcontractors can receive compensation and payment of medical expenses if they develop a cancer or other illness after working at selected DOE facilities nationwide. A survivor's benefit is also available to relatives of deceased workers.

The Lab has participated in and supported the DOL program since its inception in 2000. The BNL special exposure cohort was established by DOL for anyone employed at BNL before 1980 in order to make up for gaps in Lab radiation exposure records.

"Because the Lab had a decentralized record-keeping system prior to 1980, we could not in all cases find all the information needed to do a complete dose reconstruction for an individual," said Deputy Director for Operations Mike Bebon. "The special cohort is important because it makes it much easier for those individuals to receive compensation."

The special cohort covers all BNL employees, contractors, and subcontractors who worked at the Lab 250 days or more between 1947 and 1979 and subsequently developed one of 22 different types of radiation-related cancers. These workers can receive compensation for those illnesses without having to prove exposure to radiation.

"Over the years, we have had workers who were exposed to radiation and other hazardous materials as part of their jobs, and we've always had exposure limits in place designed to be protective of worker health based on the best available knowledge at the time," said Bebon. "It's virtually impossible to determine a direct causal link between someone working at Brookhaven Lab and their developing cancer at some later date, particularly in the case of workers who may have been employed at many other locations over the course of their careers. Despite this uncertainty, the special cohort is designed to ensure that workers are given the benefit of the doubt and are covered."

The special cohort has been successful in its goals — since its inception last year, DOL has approved 233 BNL-related claims and paid out a total of $34.9 million in compensation and medical bills. Under the special cohort and the general program combined, DOL has approved 593 BNL-related claims for a total of about $67.5 million. BNL claims represent about one percent of the $6.6 billion the program has paid out across the DOE complex.

Current and former BNL workers who are not covered by the special cohort can still apply for compensation under the general program.

Through the course of the program, the Lab has publicized it and the special cohort to current and former employees through the Monday Memo, Bulletin, and direct mailings.

To apply for compensation, workers can contact the program's New York resource center through David San Lorenzo, Resource Center, 6000 North Bailey Avenue, Suite 2A, Box #2, Amherst, New York 14226; Telephone: (716) 832-6200, Fax: (716) 832-6638, Toll Free: (800) 941-3943; e-mail: *newyork.center@rrohio.com*.

## *Prepare for Summer: Pick a Student!*

*Message from Ken White, Office of Educational Programs Manager:*

As snow falls, BNL's Office of Educational Programs (OEP) is preparing for summer. Starting February 1, 2011, mentors will be able to start requesting undergraduate students and faculty collaborators for the summer. Soon to follow will be the high school student and teacher programs. As in past years, the funding and departmental capacity to host students is expected to go fast, so get your request in early. If you are interested in mentoring a summer participant, visit *www.bnl.gov/education* and follow the links for mentors.

Summer intern programs include:

**Science Undergraduate Laboratory Internship Program, Community College Institute**, **Pre-Service Teacher** ***(future science and math teachers)*:** Ten-week programs for university students, June 6 to August 12. Students work side-by-side on projects with Lab scientific and engineering staff.

**Faculty and Student Teams**: A team consisting of a university faculty member and two or three undergraduate students work with a Lab researcher on long-term research initiatives that ideally lead to collaborative relationships.

**High School Research Program**: High school students work side-by-side with a researcher for six weeks in the summer. Often, these students will continue their work with a mentor into the academic year. Many researchers have had excellent results from these highly talented students.

**Academies Creating Teacher Scientists**: Science and mathematics teachers work with Lab researchers for six weeks each summer for three summers. The teachers are enthusiastic about sharing the research with their students and often help to advance projects. Most have developed strong, lasting relationships with the Lab and their mentors.

Hosting a student or teacher can be a very enriching experience. Participants appreciate the relationship with their mentor, are enthusiastic about the chance to participate in research, and the experience is transformational for their careers, whether in science or in science and math teaching. I hope that many at the Lab will consider becoming a mentor and bring some new energy and thinking to the summer. A recent DOE survey of BNL mentors indicated that more than 85 percent thought that their summer intern was a good investment of their time.

Finally, I will use this opportunity to thank our past mentors. DOE has recognized BNL's program as being best-in-class. This is a reflection of the experience students have with their mentors and the administrative process in getting them here and home safely. For that, I extend my gratitude to our many mentors, scientific lecturers, and others who make the science experience exceptional; and I thank the staff at OEP who are so passionate about their work, and the many support services that are required to give the students a great personal experience during their stay.

Bring some extra energy and enthusiasm to your summer — visit *www.bnl.gov/education/* or call Ext. 4000 to learn more.

## *Buy Daffodils to Benefit Cancer Research*

BERA will again sell daffodils to benefit the American Cancer Society. Make a $10 donation and receive a bouquet of 10 fresh cut daffodils. Prepay at the BERA Store, weekdays 9 a.m. – 3 p.m. Collect the flowers during the week of March 14.

## *Weight Room Dues Due*

Joining the weight room?

New or renewing members can just mail a $25 check made payable to BERA BBC to the Recreation Office, Bldg 400. Be sure to include your life number and email address. Or, sign up in person at the gym from noon-to 1 p.m. on Monday, January 31.

## *BERA Volleyball League*

Standings, as of January 21, 2011:

| | W | L |
|---|---|---|
| ***Open League A*** | | |
| Empire | 46 | 19 |
| Edge of Chaos | 46 | 19 |
| Volley Llama | 23 | 42 |
| EZ Pass | 15 | 50 |
| ***Open League B*** | | |
| Quantum of Shank | 29 | 7 |
| The Wall | 25 | 11 |
| Bikers and Spikers | 18 | 18 |
| Dodging Bullets | 16 | 20 |
| Setting Ducks | 11 | 25 |
| Late Entry | 9 | 27 |
| ***Mixed League 2*** | | |
| Team Bad Pass | 31 | 8 |
| Another Round | 31 | 8 |
| New Blood | 23 | 16 |
| Bumpin Uglies | 22 | 17 |
| Court Jesters | 19 | 20 |
| Set It First | 14 | 25 |
| Ball Hogs | 8 | 31 |
| One Hit Wonders | 8 | 31 |
| ***Mixed League 3*** | | |
| Volley of the Dolls | 26 | 10 |
| Cobbled Together | 24 | 12 |
| Upton Ups | 15 | 21 |
| Newbies | 7 | 29 |

# Classified Advertisements

Current job openings and a statement of job placement policy at Brookhaven National Laboratory 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

06 CHRYSLER 300C – 27K mi. loaded, excel cond in/ot, new tires excel warr, ask/. $16,000. Billy, 926-1767.

02 SUBARU IMPREZA OUTBACK – 34K mi. 5 dr, 4 cyl, 2.5 L, 168 hp, orig owner, a/t, awd, abs, all pwr, c/c, a/c, alarm, am/fm/cd, gd cond, $9,000 neg. Lee, Ext. 2676.

02 TOYOTA HIGHLANDER – 56K mi. green, SUV, 4cyl, 2wd, new tires, orig owner. $8,400 neg. Pavel, Ext. 2814 or oblozinsky@bnl.gov.

01 VW JETTA TDI – 180K mi. DIESEL, a/t, leather, heated seats, many new parts, Ipod/MP3 hook up, pics. $5,800 neg. Ext. 7354, 300-5694 or onlyn8v@gmail.com.

99 HONDA CIVIC EX – 143K mi. blk, new tires, abs. $2,800 neg. 706-248-1346.

96 TOYOTA COROLLA – 152K mi. red, solid and reliable, new tires. $1,200 neg. Pavel, Ext. 2814 or oblozinsky@bnl.gov.

RIMS W/TIRES – 4 18" RT6 Enkei 360 Perfect Rims; 6 Lug; Used on '99 Dodge Durango one summer, excel cond – less than yr old. Ask $700. Pd $1,800. 813-6583.

TRUCK CAP – 8' fiberglass silver, excel cond ask/ $300. BOB, 767-1944.

## Furnishings & Appliances

3 PCE COUCH SET – 3 yrs old, blk love seat & chair, gd cond, pics upon request, $200/neg. Ext. 5392, scbell@bnl.gov.

BLENDER JARS – 2/for Bosch MMB2000UC blender, perfect, w/tops & cutter blades, make nice spares. Stephen, Ext. 4475 or plate@bnl.gov.

BROTHER SEWING MACHINE – LS-2125i, new, used once, exel cond, basic, lightwt, portable; 10 blt-in stitches, a/t 4-Step buttonholer, more. Ext. 5664, bauer@bnl.gov.

BUNK BED W/COMPUTER DESK – Wooden twin loft bed w/desk/dresser, lots of storage behind unit, $500. Ext. 7101.

BUNK BEDS – white metal frame bunk beds w/bunkie boards, gd shape, $60/neg. Ext. 5753.

FREEZER CHEST – lg Kenmore/$150; Glider Rocker maple chair/$200, Laurie, 516-740-8418 or lcade@uspsports.com.

GOMRESSOR – for home cac, hardly used, $150/obo. 878-9020, sivertz@bnl.gov.

KENMORE ELITE WASHER/DRYER – elect w/touchpad control panels, heavy duty, king sz capac, w/Ultra Quiet Pac.5 yo, ask/$300. Ext. 2268, lroupe@bnl.gov.

KITCHEN CHAIRS – 4 wooden, $10/ea. Katherine, Ext. 5765.

PEDESTAL BASE – Fits front loader Whirlpool Duet washing machine, gray, 23 5/8 DPx 27Wx 15.5H, 4 yrs old, $50/obo. Sue, Ext. 3492 or sduffin@bnl.gov.

REFRIGERATOR – white Kenmore side by side 2.5 cu ft, water/ice disp, energy star, 1 yr old, $800/neg, orig/$1,499. 624-1277.

TALL PICTURE FRAME – Light oak 68" high x 11.5" wide. Opens to 3 doors. Pics avail, paid $125, ask $50. Cindi, Ext. 4000 or biancarosa@bnl.gov.

## Audio, Video & Computers

COMPAQ SR1110NX COMPUTER – 40GBHD, CDRW/DVD, 2.53GHz, RAM: 768MB, 2 Spkrs w/subwoofer/$50; Acer AL1916 19'LCD Monitor, $40; Ext. 5049.

IPOD TOUCH - 2ND GEN 8GB – excel used cond, built in wi-fi, web & email access, holds up to 1,750 songs, incl protective case, no headphones, $100. Ext. 4585.

MONITORS – BenQ FP202Wv2 20"LCD widescrn DVI-D/VGA inputs, w/pwr+DVI cables, used cond/$80; Acer V173b 17"LCD VGA input, /$40, $100/both. acerbo@bnl.gov.

TOSHIBA 27 – Name your price, working component input, take ASAP before end of wk, or it goes to trash. Murali, Ext. 3546.

TV – color, 27" Sony Bravia flat screen ask/$110, email for photos. Bob, magnum2@optonline.net.

WEBCAM – Microsoft LifeCam VX5000, Red, brand new, $15. Ext. 3485.

## Sports, Hobbies & Pets

CHILDREN'S SKI BOOTS – Lange Comp70, technical, sizes 8, 10, 12, $25/ea, almost new. Eli, Ext. 7179.

SKATEBOARD – complete MiniLogo deck, 8.5" w, blk deck, Indy trucks, great wheels and bearings, like new, ask/$40. Scott, sbronson@bnl.gov.

TRIATHLON COACHING – training for a sprint or Ironman distance? USAT Triathlon Coach Robert McKeown will help reach your goal! www.southshoretricoach.com. 252-5659 or southshoretri@aol.com.

WETSUIT – Quicksilver Spring Suit, lg, Model-Syncro, 2mm, hyperstretch, worn a couple of times, like new, ask/$50. Scott, sbronson@bnl.gov.

## Tools, House & Garden

ELECTRIC SNOW BLOWER – Toro 1800 18" 12 amp elec Curve Snow blower, Model #38025, used 1 season, new/$393, sell/$275, v/gd cond. Ext. 5263, 375-7959.

KEROSENE HEATER - 10,500 BTU, Good cond, $25, Walter, 631 567 9025.

PLUMBING ITEMS – box of assorted plumbing parts for a handyman, $5; 949-4046 or susiec@centermorictheslibrary.org.

VARIOUS TOOLS ASSORTMENT – incl table saw and some hand tools. Mary, 205-0127 or MerryMaryToo@msn.com.

## Miscellaneous

CELL PHONE – Blackberry Curve 8520, used for only 4 mos, excel cond, $85. Indhira, Ext. 3232.

ELIZABETH ARDEN TIME CAPSULES – advanced time complex capsules, for face & neck, 60 capsules, totally new, $20, Limin, liminwang@bnl.gov.

GRACO BABY SWING – $25 pic available. Rachel, Ext. 3500 or irachel@bnl.gov.

HARRY POTTER BOOK No. 5 - gd cond, $8. 949-4046 or susiec@centermoricheslibrary.org.

KID CLOTHES & BABY/KID TOYS – girls & boys, sizes 12 mos-6yrs, clothes $1 ea. mb@bnl.gov.

MAPLE SYRUP – from my family's farm in Vt. Peter, Ext. 7687, 744-1112.

TWO INFRARED PORTABLE HEATERS – by EdenPURE, heats 1,000 sq ft, in Oak cabinets, like new, used one season, $175/ea. Jill, Ext. 3173 or clough@bnl.gov.

VW AND AUDI REPAIR – Certified VW tech w/7 yrs dealer experience. All types of repairs, maintenance to eng diag. Also repair other makes. 484-9888.

## Free

CD JUKEBOX – JVC 5/CD changer, am/fm radio, have booklet, has problems. 949-4046, susiec@centermoricheslibrary.org.

COMPUTER MONITORS – 5-CRT monitors; CTX VL700 15"; EMachine 14", Dell E772 15" blk, Komodo 15", and a View Sonic GS773 15", all works, no screen defects, rickj@bnl.gov. Rick, Ext. 7444.

SONY BATTERIES – G Type, size NP BG-1. Linda, Ext. 7187 or niksa@bnl.gov.

## Wanted

BNL FAMILY MEMBER IN MILITARY – If you have a family member that has been deployed overseas, please contact Adopt-a-Platoon so we may send them a goodie package. Joanne, jrula@bnl.gov.

BOXTOPS & CAMPBELL'S UPCS – needed for Kindergarten & 4th Grade class, daughters are competing for most in class. Thanks, Bldg 911A. Nina, Ext. 5894.

BVA-ADOPT A PLATOON – Monetary donations gratefully accepted towards mailing shipments to military overseas and to send packages to our adopted platoon and BNL family members. Thank you. Joanne, jrula@bnl.gov.

DONATIONS OF DOG/CAT FOOD – for pets of struggling families. Collection bins are in Bldgs. 134, 400, 725, 510 (x5864) 901, 902. Donations to be given to local food pantries and Kent Animal Shelter. Kathleen, Ext. 3161 or kratto@bnl.gov.

FURNITURE UPHOLSTERY – wanted person to cover couch, love seat and chair, please call anytime. Judy, Ext. 5263, 375-7959.

MICROWAVE OVEN – needed for my apt. Liu, 609-7175.

PAMPERED CHEF CARAFE – mine broke and I loved it. If you have one that you are not using and want to sell please email me, thanks. Mary, mmccabe@bnl.gov.

RELIABLE CAR – needed for new driver, in gd running cond w/low mi, no work needed, $3,000/max. Thanks. Nan, nanxu@bnl.gov.

## Lost & Found

FOUND – scarf in prkg lot of Brookhaven Ave & Center St on 1/20. Jeanne, madaia@bnl.gov.

FOUND KEYS – w/2 bright pink & blue nylon tags. The Lost & Found office is @ BERA/Recreation in Bldg. 400. Ext. 5090.

GOLD PARKER INSIGNIA PEN – in brown leather case, high sentimental value, reward if found. Alexa, Ext. 5555.

## For Rent

BELLPORT – 2nd flr studio apt, perfect for 1/ person, priv ent, no smkg/pets, close to Sunrise Hwy, avail 2/14, incl all. $800/mo. 678-5023.

FARMINGVILLE – furn bdrm in shared house, incl wifi/cable tv/phone/elec, larger rm $645/mo, avail now. $525/mo. Ben, 513-8275 or benonium@gmail.com.

MANORVILLE – Huge 1/bdrm apt, 10 min from BNL, bed 15x15, kit, huge d/r/l/r, plenty of closets, pics avail. $1,200/mo. Matthew, 255-6364 or magpainting@optonline.net.

MASTIC BEACH – 4 bedroom ranch, full bath, 100 x 100 Lot, freshly painted, quiet street, Sec. $1,600/mo. Daniel, Ext. 7658 or ahearnd@bnl.gov.

MEDFORD – furn 1 bdrm apt, l/r, kit, full bath, prkg, sep ent, 10 min from Lab, utils/cable incl, no smkg/pets. $1,050/mo. Peter, 924-7304.

RIDGE – spacious 1 bdrm/1bath apt, bright l/r, eik, priv ent/drway, 5-10 mins to BNL, incl util & w/d, no smkg. $1,100/mo. Mary, 236-9114 or mcjrbj@yahoo.com.

RIDGE – 1 bdrm apt on horse property, l/r, full bath, kitnette, priv ent and yd, incls all, non-smkr, mins from Lab. $975/mo. 924-0002.

ROCKY POINT – 1 bdrm, sep ent. $950/mo neg. Nelly, Ext. 8104 or nellyklein@bnl.gov.

SHOREHAM – share a house, spacious & furn. bdrm, cable TV, intnet, no smkg/pets, 7 min to Lab, avail. $650/mo. 516-380-2650 or gg19582003@gmail.com.

SHOREHAM – nr beach, 1 lg bdrm apt w/office area, kit/lr combo, lg closets, pvt ent w/French drs, drway prkg, incls cac/heat/elec/cable/int, min to BNL. $950/mo. 413-8475.

## For Sale

SHOREHAM NORTH – 5 bdrm 3 bath hse, ranch, wd flrs, bsmt apt w/2 bdrm, 1 bath, full windows, pos M/D, pool, priv beach. $350,000. 679-6162, li08house@gmail.com.

SMITHTOWN – immac newly renov home, chef's kit, cac, 3 bdrm, 2.5 bath, great rm w/wdburning stove, .5 acre, 2.5 gar, walk to parks, RR, town. $550,000 neg. 516-582-3684.

## On-Site Services

CAFETERIA

Special Raffle! Win Super Bowl Party pkge for 15! Buffalo Chicken Wings, heros, 2 salads, chips, sodas, cookies & all paper goods. Play as many times as you like, receive a raffle ticket per visit to cafeteria, no purchase necessary. Two winners to be drawn Feb. 3: winners pick up your party pkge food Feb. 4.

ON-SITE SERVICE STATION

Is your battery weak? Get a new one, or get oil changes, all sorts of vehicle maintenance and repairs, and New York State inspections, all conveniently while you are at work. Gas and specialty services such as windshields and collector car service also available. Call for an appointment, Ext. 4034.

*Services provided by BNL employees are listed on the intranet homepage at "See all ads" at bottom right, or call Ext. 2346.*

# BWIS Holds High School Career Day at BNL

About 50 female students from three local high schools — Bayport-Bluepoint, Comsewogue and Connetquot — learned first-hand about careers in science from female researchers at BNL at the annual Brookhaven Women in Science (BWIS) High School Career Day. Funded by Brookhaven Science Associates and members' dues and contributions, the not-for-profit BWIS promotes the advancement of women in science.

Roger Stoutenburgh D2081110

**Elizabeth Scott-Lavino, a postdoctoral research associate in BNL's Biology Department (seated), explains her research on a protein called penton base peptide to BNL physicist Michiko Minty and several students who attended Brookhaven Women in Science Career Day: (from left) Emily Sarich of Bayport-Bluepoint High School; Victoria Argyros, Comsewogue High School; and Christine Donovan, Connetquot High School.**

The students learned about BWIS, the Women in Science and Engineering Program at Stony Brook University, and the forefront science at BNL. Four female scientists gave presentations on their research, spiked with career advice and personal perspectives on women in science, and responded to the students' numerous questions.

Physicist Michiko Minty explained how she measures and controls particle beams in BNL's accelerators, a crucial task in enabling the success of physics experiments exploring matter as it existed at the birth of the universe. Cecilia Sanchez-Hanke said she wanted to be a dentist, but later changed her career goals, eventually becoming a physicist at the Lab's National Synchrotron Light Source (NSLS), where she uses powerful x-rays to study the basics of magnetism. Elizabeth Scotto-Lavino, a postdoctoral research associate in the Biology Department, explained her research on a protein called penton base peptide, a component of the adenovirus, which causes the common cold and other ailments. During lunch, biophysicist Lisa Miller described her basic research on Alzheimer's disease, which she performs at the NSLS.

The students toured the NSLS, where researchers use x-rays, ultraviolet light and infrared light to probe all kinds of materials, from computer chips to viruses, and the control room of the Relativistic Heavy Ion Collider, a world-class accelerator where physicists study the type of matter that existed at the beginning of the universe. They also enjoyed hands-on exhibits at the Science Learning Center, where more than 20,000 elementary school students visit annually to learn basic scientific principles. — Diane Greenberg

## *Superconductivity Brainstorming Get-together, 2/1*

Brainstorm on superconductivity and thermoelectricity beyond conventional applications with Lev Neymotin and other BrookhavenSphere and Lab community members on Tuesday, February 1, at noon in Berkner Hall, Room C. The meeting will be mediated by Qiang Li, Condensed Matter Physics & Materials Science Department.

Says Neymotin, "At the brainstorming session, we will try to come up with unconventional applications of superconductivity, perhaps focusing on small-scale electronic/electro-mechanical devices; however, new ideas in the area of electrical energy transmission and storage, magnets, etc. can be suggested and discussed. The ideas suggested during the session are expected to become the base for LDRD (Lab Directed Research & Development) proposals by interdisciplinary project teams. The event is open to all, no matter whether you will be coming to just listen or, if you already have some ideas on this topic ready for sharing and discussion — even better!" Learn more at *https://brookhavensphere.bnl.gov/wiki/index.php/Brainstorm:_Superconductivity_Applications*.

# BNLer Phil Harrington Publishes *Cosmic Challenge*

Joseph Rubino D4570709

Phil Harrington, familiar to the Lab as a member of BNL's Training & Qualifications Program Office, and to many amateur astronomers from books he has authored, has his tenth book out, entitled *Cosmic Challenge*. Published by Cambridge University Press, the book is an observational guide to some of the sky's more difficult-to-see objects, both near and far. Observers can use it to hunt for the Apollo lunar landing sites and satellites orbiting the outermost planets, and explore star clusters, nebulae, distant galaxies, and quasars. Harrington's other popular books include *Touring the Universe Through Binoculars*, *Star Ware*, and *Star Watch*. A contributing editor for *Astronomy* magazine, he also has a column on *www.cloudynights.com*. More information on *Cosmic Challenge* and Harrington's other work is available at *www.philharrington.net/*.

# BERA Ski Trips

- **Belleayre:** Wednesday, February 2. Transportation and a lift ticket cost $45 per person. The rental fee is $25, and lessons are free.
- **Windham:** Wednesday, February 16. Transportation and a lift ticket cost $60 per person. Beginners can rent equipment and get a lower-mountain ticket and lesson for $80. An all-mountain lift ticket and equipment rental is $80 per person.

These trips depart from the Brookhaven Center at 5 a.m. and will leave the mountain at 4:30 p.m. The bus cannot pick up participants at Exit 63. Fees include the luxury coach bus and tip for the driver. These trips are on regular working days, so anyone attending must use an approved vacation day. A BNL employee must accompany any children under the age of 21.

Purchase tickets at the BERA Store in Berkner Hall, Monday through Friday, from 9 a.m. until 3 p.m. No cancellations or refunds.


the Bulletin

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**Liz Seubert**, editor
**Joe Gettler**, assistant editor
**Roger Stoutenburgh**, photographer

On the Web, the Bulletin is located at *www.bnl.gov/bnlweb/pubaf/bulletin.asp*. A calendar listing scientific and technical seminars and lectures is found at *www.bnl.gov/bnlweb/pubaf/calendar.asp*.

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