

## New Findings From Neutrino Experiments in Japan, Fermilab...And BNL's Contribution



The MINOS far detector is located in a cavern half a mile underground in the Soudan Underground Laboratory, MN.

### MINOS Experiment At Fermilab Weighs in On Neutrino Mystery

The following article is taken from a news release by Fermi National Accelerator Laboratory (Fermilab) on June 24 about evidence from the MINOS experiment for a rare transformation between two types of neutrinos, uncharged elementary particles created by the sun, cosmic rays, nuclear reactors and accelerators. Scientists from BNL have played a leading role in the evolution of the U.S. accelerator neutrino program since the early 1990s and are heavily involved in the MINOS experiment.

The BNL research group working on MINOS includes Mary Bishai, Milind Diwan (PI), David Jaffe, Jiajie Ling, Brett Viren, and Lisa Whitehead. In addition to participating in the conceptual development of MINOS, BNL scientists conduct data analysis and assist with daily operation and monitoring. Mary Bishai leads the effort for monitoring the instrumentation that guides the 450-mile-long neutrino beam and coordinates the team charged with making precision measurements of the muon neutrino beam — an important requirement needed to search for transformations of muon neutrinos. BNL physicists Milind Diwan and Brett Viren were early proponents of the physics of the rare transformations of muon to electron neutrinos and the difficult data analysis behind MINOS's search for this physics. The results detailed below were presented by BNL physicist Lisa Whitehead, who is one of the analysis coordinators for this measurement.

— Kendra Snyder

Scientists of the Main Injector Neutrino Oscillation Search (MINOS) experiment at Fermilab announced on June 24 the results from a search for the transformation of muon neutrinos into electron neutrinos. The result is consistent with and significantly constrains a measurement reported 10 days ago by the Japanese T2K experiment (see accompanying story at right)...

See *MINOS Experiment* on p. 2

### Indications of a New Type Of Neutrino Oscillation At T2K Experiment, Japan

The following article is taken from a news release issued by the U.S. T2K collaboration at the Japan Proton Accelerator Research Complex (J-PARC) on June 14. The experiment has found evidence for a new type of transformation between neutrinos, ghostlike elementary particles that zip through the Earth at a rate of 400

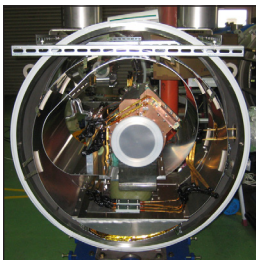
billion per second. Scientists at BNL built a key part of the T2K experiment: five dipole (two-pole) "corrector" magnets. Made with a special 3-D winding machine — technology that allowed BNL engineers to use smaller and more efficient cable — these superconducting magnets are sandwiched between 28 "bending" magnets that drive an intense beam of protons into a stationary target. This high-speed impact creates a shower of particles, some of which decay to neutrinos. Together, the two types of magnets keep the protons tightly packed as they speed toward the target. Weighing about 500 pounds each, the meter-long corrector magnets were shipped to Japan from BNL in 2008.

— Kendra Snyder

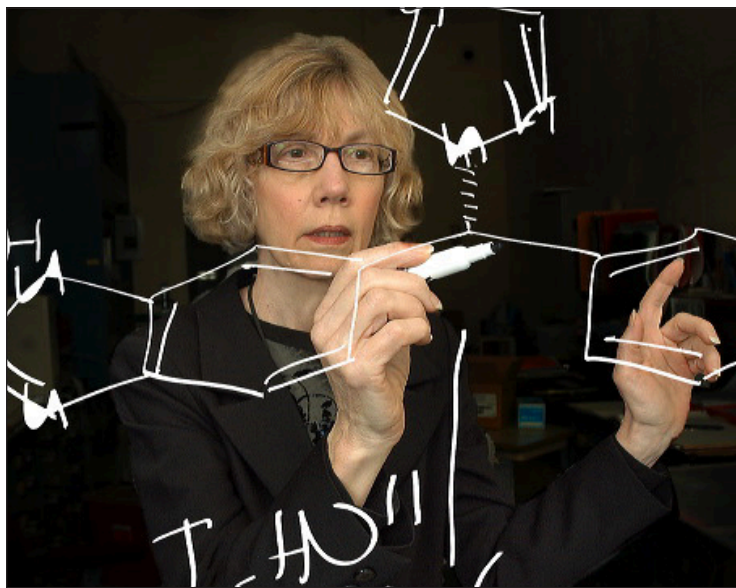
The international T2K collaboration announced on June 14 that they have observed an indication of a new type of neutrino transformation or oscillation from a muon neutrino to an electron neutrino.

Neutrinos come in three types, or "flavors": electron, muon, and tau. In the T2K experiment in Japan, a muon neutrino beam was produced in the Japan Proton Accelerator Research Complex (J-PARC), in Tokai, and was aimed at the gigantic Super-Kamiokande underground detector in Kamioka, 295 km (185 miles) away. Analysis indicates that a very small number of muon neutrinos traveling...

See *T2K Experiment* on p. 2



A corrector magnet installed in a piece of the T2K beamline



Joseph Rubino 12480409

DOE's Office of Science and the National Institutes of Health fund Joanna Fowler's research.

## Joanna Fowler Honored With ACS's Distinguished Women in Chemistry/Chemical Engineering Award

Senior Chemist Joanna Fowler, BNL's Director of Radiotracer Chemistry, Instrumentation, and Biological Imaging, is one of 23 women from around the world who has been chosen to receive a Distinguished Women in Chemistry/Chemical Engineering Award, sponsored by the American Chemical Society (ACS).

The awards will be given as part of the United Nations' International Year of Chemistry 2011, which marks the 100th anniversary of the Nobel Prize in Chemistry awarded to Marie Curie. The honorees were chosen based on their exceptional accomplishments in basic or applied research, teaching or education, or demonstrated leadership/managerial excellence in an organization within the chemical sciences.

Brookhaven Women in Science nominated Fowler for the award, with supporting documents from her peers. The award recipients will be honored with plaques during the International Union of Pure and Applied Chemistry's World Chemistry Congress in San Juan, Puerto Rico, on August 2.

"I am honored to receive this award, particularly since it recognizes the central role that chemistry plays in health and well-being," Fowler said. "I am also grateful to my colleagues for their stimulation and support, and to the Department of Energy and Brookhaven National Laboratory for their stewardship of our research, which is at the interface of chemistry, biology, and medicine."

Fowler has made significant contributions to brain research and to understanding diseases such as addiction, which she studies using an imaging technique called positron emission tomography (PET). In 1976, Fowler and colleagues synthesized 18F-fluorodeoxyglucose (FDG), a PET radiotracer. Today, FDG is widely used in hospitals

and research centers throughout the world to diagnose and study neurological and psychiatric diseases and to diagnose cancer.

Fowler's research has focused on developing radiotracers to measure the changes in the brain circuits that are disrupted by drug addiction and other brain diseases. She has measured the uptake and movement of such drugs as cocaine and methamphetamine in the human brain. This research has provided insight into why these drugs are so powerfully addictive. Fowler also performs PET studies to understand the action of therapeutic drugs and facilitate the introduction of new drugs into the practice of medicine.

She has conducted studies centered on monoamine oxidase (MAO) genes and how they affect personality and vulnerability to psychiatric disorders. In earlier research, she discovered that cigarette smokers have reduced levels of MAO, an enzyme that breaks down dopamine, the neurotransmitter that mediates reward, motivation and movement. This finding may help explain the high rate of smoking among individuals who are depressed or addicted to drugs.

After earning a B.A. in chemistry from the University of South Florida in 1964 and a Ph.D. in chemistry from the University of Colorado in 1967, Fowler did postdoctoral research at the University of East Anglia, in Norwich, England, and at Brookhaven Lab. She joined BNL in 1969, where she has spent her entire career.

A member of the National Academy of Sciences (NAS), Fowler was awarded the National Medal of Science in 2009. In that year, she also received the NAS Award in Chemical Sciences, the New York State Distinguished Woman Award, and she was inducted into the Long Island Technology Hall of Fame. Among...

See *Joanna Fowler* on p. 3

## Global Innovation in Clean Energy Technologies Seminar by Konstantinos Karachalios, European Patent Office, 7/7

In a special seminar on Thursday, July 7, 2-3:30 p.m. in Berkner Hall, Room B, Konstantinos Karachalios will talk on "Global Innovation in Clean Energy Technologies," the key findings of the *Scenarios for the Future*, a study led by the European Patent Office (EPO) and international partners. The talk will include views on the future of clean energy and climate change mitigation technologies, and the role of patents and innovation in their global deployment. Karachalios will also share findings of the recently published report *Patents and Clean Energy: Bridging the Gap between Evidence and Policy*, an international project between EPO, the United Nations Environment Programme (UNEP) and the Inter-

national Centre for Trade & Sustainable Development (ICTSD). This project included a study on licensing and technology transfer contributed by a task force of the Licensing Executives Society International led by BNL's Walter Copan. This seminar is open to all the BNL community.

Karachalios joined the EPO in 1987, headed the International Academy 1999-2000 and served as project manager for Africa and the Middle East in the Directorate for International Technical Cooperation, 2000-2004. Since then, he has been active in external



relations, focusing on challenges that may impact the patent system: governance of knowledge, accessibility and transparency issues related to climate change technologies, essential drugs, and food security; as well as emergence of new technologies such as biotechnology, nanotechnology, and clean energy. He co-edited the book *Scenarios for the Future: How might IP regimes evolve by 2025? What global legitimacy might such regimes have?* Also, as initiator and coordinator of the EPO, UNEP and ICTSD international project on IP and climate change, he is EPO's contact person and Head of Delegation in the UN Framework Convention on Climate Change. Karachalios holds a Ph.D. in nuclear reactor safety.



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2011  
PLATINUM  
ACHIEVEMENT

This workplace has been recognized by the American Heart Association for meeting criteria for employee fitness.

American Heart Association Honors BNL as a 'Fit-Friendly Company' Six Years in a Row...see p. 3

Upcoming Talk, 7/11

**Musolino to Discuss Experiences Assisting In Radiation Monitoring Efforts in Japan...** See inside



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.

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

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

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

Tues.: Hospitality Welcome Coffee

On hold until September.

Tuesdays: Zumba

On hold until September.

Tuesdays: Knitting Class

On hold until September.

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

On hold until September.

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

On hold until September.

Wednesdays: Ballroom Dance

On hold until September.

Wednesdays: Pilates

On hold until September.

Wednesdays: Play Group

On hold until September.

Wednesdays: Yoga

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

1st Wednesday of month: LabVIEW

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

Thursdays: BNL Cycletrons Club

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

Thursdays: Reiki Healing Class

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

Thursdays: Postdoc Social Night

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

Thursday: Judo Class

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

Fridays: Family Swim Night

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

# BNLers Musolino and Cacace Assist In Monitoring Radiation in Japan

Musolino will discuss his experiences in Japan at a talk in Berkner Hall on Monday, July 11, at 3:30 p.m. The Lab community is invited to attend.

While the BNL Nuclear Science and Technology Department’s team modeled potential outcomes for the nuclear facilities at Fukushima from afar, two Brookhaven employees actually traveled to Japan to assist with radiation monitoring efforts to protect U.S. citizens living and working there.

Steve Musolino from the Non-proliferation and National Security Department’s Nonproliferation and Safeguards group went to Japan April 11 for a three-week shift with a Department of Energy (DOE) consequence management team at Yokota Air Base, some 20 miles northwest of Tokyo and 150 miles from the reactors. Chris Cacace of the department’s Nonproliferation and Homeland Security Field Support Division joined the team several weeks later, taking samples of soil and air in the field, sometimes at farms as close as 11 miles from the damaged power plant.

Before traveling to Japan, Musolino spent five days as part of the Consequence Management Home Team (CMHT) at the Remote Sensing Laboratory at Nellis Air Force Base in Nevada. While only a small group of 33 people was sent to Japan, a large scientific support infrastructure was organized. Additional scientific support came from a larger “virtual” team of analysts from Lawrence Livermore, Los Alamos, and Sandia national laboratories. The CMHT provided assessment products for the Nuclear Incident Team at DOE Headquarters. Both teams operated 24/7 beginning March 12, analyzing a wide range of environmental monitoring data taken from aircraft and field teams. Musolino, serving as an assessment scientist, was with them on the 3 a.m. to 3 p.m. shift.

“It was quite a hectic life for a few days,” he said. “The initial group deployed to Japan had

been there for three weeks and there was no end in sight, so they started to rotate new people in. I and others relieved people in Japan who had been in the field for a month.”

In Japan, Musolino lived on the base for three weeks, as did all of the DOE staff, working at least 12-hour days, seven days a week. He was among those assessing field measurements of radiation levels.

When Musolino arrived in Japan, the Air Force was providing the DOE team aircraft to fly scientists and instruments for the aerial measurements. Daily flights mapped the deposition and decay of radioactive material on the ground out to 50 miles from the nuclear plants. Field teams collected samples to identify the radionuclides present and measured soil concentrations with gamma spectrometers to validate the data collected by the aircraft. One issue Musolino resolved was a discrepancy between two types of ground level measurements. “The helicopter flies at 500 ft. and monitors the gross exposure rate from the radionuclide mix over a broad area,” Musolino said. “Then, if you measure the mix on the ground, you can convert that to an exposure rate. That reading should match a direct measurement of the exposure rate taken with a hand-held dosimeter. When I arrived, there was a factor of two disagreement between two different types of ground-level

measurements,” he said.

“There was great concern about this because if these measurements were not close enough in agreement, scientists could not validate the aircraft’s readings. ‘Which of the three is correct?’ was the question,” explained Musolino.

Observing photographs taken by the field teams at sampling locations, Musolino suspected that the difference arose from whether the ground measurements were compared to the aircraft’s when it was flying over countryside or over developed areas. So he went out in the field and took his own measurements to corroborate what he was seeing in the photographs.

“I made measurements with hand-held dose-rate meters on wide areas of undisturbed soil, then on pavement, and compared them, then asked the field teams to repeat the test for a few days.” he said. “From the undisturbed soil, I got higher radiation readings than on pavement because the radioactive material tends to wash off asphalt and concrete, whereas it gets bound more tightly to soil and vegetation. From that exercise, I wrote a guide for the field teams to assist them in collecting data that would be representative of the aircraft results. Thus, the discrepancy was resolved and the data quality was understood.

Musolino was pleased to be a part of the effort and work with a very talented and dedicated

group of people. After participating in emergency response exercises for decades, “All that effort paid off because we conducted a very high-quality, scientific response to this event, adapted on-the-fly as the emergency unfolded, and we got the right answers,” he said. “And this time we had no room for error and had to solve the puzzle from scratch. You couldn’t go to the exercise controller when you had a problem, so we did in real life what we’ve practiced so many times in exercise scenarios.”

Cacace called his time in Japan “a once-in-a -lifetime experience. Although I spent 3 weeks there, the time flew by,” he said. “We train for these types of responses in the hope that something like this never happens, but when it does, it’s nice to just go out as you were trained and perform your job,” he said. “It felt great to go there and help the people of Japan, but at the same time it was sad to see so many people displaced from their homes.”

While Musolino primarily worked at the U.S. air base in Japan, he also occasionally interacted with some of the Japanese people whose lives have been most impacted by the disaster. “They were very polite,” he said. “The umbrella organization for the US/Japanese effort is called Operation Tomadachi, which means friendship. Once people realized we were part of Tomadachi, their first words were ‘thank you’.” — Kay Cordtz

Learn more in a video online:  
[http://www.bnl.gov/today/story.asp?ITEM\\_NO=2454](http://www.bnl.gov/today/story.asp?ITEM_NO=2454)

**T2K Experiment from p. 1**  
...from Tokai to Kamioka (T2K) transformed into electron neutrinos.

Evidence of this new type of neutrino oscillation may lead the way to new studies of a matter-antimatter asymmetry called charge-parity (CP) violation. CP violation in the early universe may be the reason that the observable universe today is dominated by matter and no significant anti-matter. If the T2K result does indicate this third oscillation, then a search for this CP violation in neutrinos will be a major scientific quest in the coming years.

The T2K experiment utilizes the J-PARC complex that accelerates protons onto a target to produce an intense secondary particle beam that is focused by special magnets called neutrino horns. The focused particle beam decays into a beam of neutrinos, which is monitored by a neutrino detector 280 meters from the target. This beam of neutrinos travels 295 km underground to be detected in the Super-Kamiokande detector.

The work of the T2K experiment is located in Japan and primarily supported by the Japanese Ministry of Education, Culture, Sports, Science and

Technology. However, the experiment was constructed and is operated by an international collaboration of about 500 physicists from 59 institutions in 12 countries. The US groups have built superconducting corrector magnets, proton beam monitor electronics, the 2nd neutrino horn, and a GPS time synchronization system for the T2K neutrino beam line; and a pi-zero detector and a side muon range detector (partial detector) in the T2K near detector complex. They also are part of the team that built, upgraded, and operates the Super-Kamiokande detector.

The March 2011 earthquake in eastern Japan caused damage to the accelerator complex at J-PARC, and the data-taking run of the T2K experiment was abruptly discontinued. Fortunately, no scientists working on T2K or technical staff supporting their work were injured in the earthquake or its aftermath. The T2K experiment will be ready to take data when J-PARC resumes its operation, which is planned to occur at the end of 2011.

For more information, see [www.bnl.gov/bnlweb/pubaf/pr/PR\\_display.asp?prID=1295](http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=1295).

**MINOS Experiment from p. 1**  
... announcing an indication of this type of transformation.

Results of these two experiments could have implications for understanding the role of neutrinos in the evolution of the universe. If muon neutrinos transform into electron neutrinos, then neutrinos could be the reason that the Big Bang produced more matter than antimatter, leading to the universe as it exists today.

MINOS recorded a total of 62 electron neutrino-like events. If muon neutrinos do not transform into electron neutrinos, then MINOS should have seen only 49 events. The experiment should have seen 71 events if neutrinos transform as often as suggested by recent results from the Tokai-to-Kamioka (T2K) experiment in Japan. The two experiments use different methods and analysis techniques to look for this rare transformation.

The MINOS experiment sends a muon neutrino beam 450 miles (735 kilometers) through the earth from the Main Injector accelerator at Fermilab to a 5,400-ton neutrino detector half a mile underground in the Soudan Underground Laboratory in northern Minnesota. Two almost identical detectors are used: the

detector at Fermilab checks the purity of the muon neutrino beam, and the detector at Soudan looks for electron and muon neutrinos. The neutrinos’ trip from Fermilab to Soudan takes about 2.4 milliseconds, giving the neutrinos enough time to change their identities.

For more than a decade, scientists have seen evidence that the three known types of neutrinos can morph into each other. Experiments have found that muon neutrinos disappear, with some of the best measurements provided by the MINOS experiment. Scientists think that a large fraction of these muon neutrinos transform into tau neutrinos, which so far have been very hard to detect, and they suspect that a tiny fraction transform into electron neutrinos.

The observation of electron neutrino-like events in the detector in Soudan allows MINOS scientists to extract information about a quantity called sin^2 2 theta-13 (pronounced sine squared two theta one three). If muon neutrinos do not transform into electron neutrinos, this quantity is zero. The range allowed by the latest MINOS measurement overlaps with but is narrower than the T2K range.

MINOS constrains this quantity to a range between 0 and 0.12, improving on results it obtained with smaller data sets in 2009 and 2010. The T2K range for sin^2 2 theta-13 is between 0.03 and 0.28.

The MINOS measurement is the latest step in a worldwide effort to learn more about neutrinos. MINOS will continue to collect data until February 2012. The T2K experiment was interrupted in March when the severe earthquake in Japan damaged the muon neutrino source for T2K. Scientists expect to resume operations of the experiment at the end of the year. Three nuclear-reactor based neutrino experiments, which use different techniques to measure sin^2 2 theta-13, are in the process of starting up.

Said Jenny Thomas from University College London, MINOS co-spokesperson, “If the transformation from muon to electron neutrinos occurs at a large enough rate, future experiments should show whether nature has given us two light neutrinos and one heavy neutrino, or vice versa. This is really the next big thing in neutrino physics.”

For more information, see [www.bnl.gov/bnlweb/pubaf/pr/PR\\_display.asp?prID=1302](http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=1302).



# American Heart Association Honors BNL As a ‘Fit-Friendly Company’ Six Years in a Row

By Michael Thorn, Health Promotion Program Manager, Occupational Medicine Clinic. From the Monday Memo of June 20

The American Heart Association (AHA) has again honored BNL as a “Fit-Friendly Company,” making it one of more than 1,400 employers so recognized nationwide. This is the sixth year in a row the Lab has received this award. According to AHA criteria, fit-friendly employers “champion the health of their employees and work to create a culture of physical activity in the workplace.”

This year, we have been identified as one of the few platinum-level recipients, the most prestigious award in the AHA program. Becoming a platinum recipient means that not only does the Lab promote a wellness culture at the workplace but also positive outcomes from that culture have been achieved. BNL is the only employer in Suffolk County to receive this distinction.

The award recognizes all the outstanding on-site resources that promote good health for employees, their families, and guests. We have a 5,300-acre site with trails for hiking, running, and biking, and dozens of BERA clubs that promote sporting activities. We have a gym, a pool, tennis courts, and classes that promote fitness, from aerobics to yoga. Our annual Healthfest,



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which features activities, displays, and workshops that promote good health, has expanded to a month-long program. And we hold workshops throughout the year on health-related issues.

The on-site physical therapy program is an important part of our wellness offering to employees. The service is provided at no cost, and in one year employees have saved more than \$94,000 on co-pays and eliminated hundreds of hours of lost time traveling to and from an off-site facility.

The Health Promotion Program is part of the Lab’s Occupational Medicine Clinic, which provides a free annual on-site

physical for all employees, as well as health-risk assessments. BNL’s cafeteria offers heart-healthy choices, and consultations are available with a registered dietitian who runs an on-site monthly nutrition group. The employee assistance program offers individual counseling, support groups, workshops, and lectures. The presence of the fire-rescue group that provides 24/7 response to emergencies on site contributes to the Lab population’s well-being.

If any employees have questions or suggestions about the many services I’ve mentioned in this article, please let me know at [mthorn@bnl.gov](mailto:mthorn@bnl.gov), Ext. 8612.



Roger Shoultenburgh 5280311

## Summer Sundays 2011: 7/17-8/14

Where can you go on a summer Sunday on Long Island to see exciting science shows, enjoy tours of world-class science facilities, and engage in hands-on educational activities for the whole family — all for free? Visit BNL on Summer Sundays, July 17 to August 14, to enjoy a fun-filled Sunday while learning about dynamic scientific developments at the Lab. No reservations are needed, but visitors age 16 and over must bring a photo ID. Visitors may arrive any time between 10 a.m. and 3 p.m. A different tour and new science show will be featured each week. Arrive early to avoid crowds; all activities are on a first-come, first-served basis. On Sunday, July 17, visitors can explore the ultra small at the Center for Functional Nanomaterials and be amazed by “The Magic of Energy” show. Watch for the full schedule in the Bulletin of July 15.

## Join a BERA Trip

Buy tickets at the BERA Store in Berkner Hall, weekdays, 9 a.m. - 3 p.m. All trips leave from the Brookhaven Center, Bldg. 30, and cannot be cancelled or refunded. For more information, drop by the store or see [www.bnl.gov/bera/](http://www.bnl.gov/bera/).

- Tues. July 5. Six Flags Great Adventure NJ**, on this Lab holiday. Leave BNL 7 a.m., leave park 5 p.m. \$30/person.
- Sat. July 16. New York City** “Do as You Please” trip. Bus drops you off in the Battery Park/Statue of Liberty/Ellis Island vicinity. Leave BNL 7:30 a.m., leave NYC 5 p.m. \$20/person.
- Sat., July 23. Walking Tour of Greenwich Village** in NYC. Leave BNL 8 a.m., leave NYC 5 p.m. \$25/person includes bus, 2-hour walking tour, tips for tour guide & bus driver. Have lunch, shop, sight-see on your own after the tour.
- Sun. Aug. 28. Red Bull Professional Soccer vs. LA Galaxy** in Harrison, NJ. Leave BNL 4 p.m., for 7 p.m. game, leave after game, 10 p.m.-ish. \$33/person incl. bus, tip, ticket to game, in Sect. 221.
- Fri. Aug. 19. Skyline Princess Dinner Cruise** around New York City. Leave BNL 4:30 p.m. for 6:30 p.m. boarding at the World’s Fair Marina. 7 p.m. begin the cruise around NYC, Statue of Liberty, Ellis Island, enjoy gourmet dinner, open bar, dancing, and the sights. Return to pier 11 p.m., and back to BNL about 12:30 a.m. \$110/person includes luxury bus, driver tip, taxes, gratuities, shipboard bar, dinner. 21 & over only, Max of 54 on trip.
- SPLISH SPLASH!** Save \$4 & \$7 per ticket with the BERA discount at \$25 & \$31 per person. Tickets are available in-store or online.

## In Memoriam

**Robert Aikman, Jr.**, who came to join the Plant Engineering Division on October 1, 1988, as a project engineer I, and retired on September 30, 2004, died at the age of 78 on March 2, 2011.

**Michael Zukas**, who joined BNL on June 21, 1948, to work as a machinist on the Brookhaven Graphite Research Reactor, and retired from the Reactor Division as a project engineer I on July 31, 1983, died on March 7, 2011. He was 95.

**Karl Brandl**, who came to join the Plant Engineering Division as a cabinet maker A on March 4, 1963, retiring on December 30, 1977, died on March 10, 2011. He was 98.

**Peter Fallon**, who joined the Nuclear Engineering Department as a technician B on November 5, 1956, left on September 25, 1957, returned as a development engineer IV on February 12, 1961, and died at age 77 on March 12, 2011. He had retired as a research engineer I from the Department of Applied Science on January 18, 1991, returning as a guest technical collaborator for a year until 1992.

**Charles Spillett**, who became a laborer in the Plant Engineering Division on January 20, 1964, and rose to be a rigger group leader, died on March 21, 2011, at age 74. He had retired on May 31, 2000.

**James Trombacco**, who joined the then Health Physics Division as a hazardous waste technician on May 28, 1996, and left the Waste Management Division on January 2, 2009, died at the age of 68 on March 27, 2011.

**Genevieve Bahan**, who became a clerk IV in the Supply & Materiel Division on June 21, 1954, and retired on June 30, 1988, as a senior clerk, died at the age of 87 on April 29, 2011.

## Have You Given to the BNL Food Drive Lately?

### Arrivals & Departures

— Arrivals —	
None	
— Departures —	
Ruthann Callahan.....	Env. Restor.
Thomas Russo.....	Physics
Tao Wang.....	Biology

## Take F&O’s Customer Support Survey

By Lanny Bates, Assistant Laboratory Director for Facilities & Operations. From the Monday Memo of June 20

BNL’s Facilities & Operations Directorate (F&O) provides the Lab community with a variety of facilities and services, from workspaces to moving assistance to the on-site cafeteria. Now, we at F&O would like to know what you think about everything we provide.

F&O has teamed with the consulting company Facility Issues to develop a short survey for everyone who works at Brookhaven Lab. Facility Issues already works with other national laboratories, as well as a number of institutions, companies, and utility providers — including Smithsonian museums, Kodak, and the New York State Electric & Gas Corporation — to improve facility management services and reduce costs with methods that measure effectiveness, identify issues, and apply best practices.

There have been a number of changes in F&O during the past several years, so we hope to use your feedback from this survey to determine what F&O is doing well, and where it can improve. We will also use the results from this survey as a benchmark for monitoring our performance, and to compare our performance with that of our counterparts at other national laboratories.

The survey is available from today, June 20, until Wednesday, July 20, and it should not take more than five minutes to complete. If any questions do not apply to you, just click the “NA,” or “Not Applicable” option and continue.

Please take the survey today: <http://www.facilityissues.com/OSurveys/Brookhaven.asp>.

## CALENDAR

### THIS WEEKEND

#### Saturday, 7/2

- On-Site Service Station**  
Closed all next week, 7/2-10, reopening on Mon., 7/11.
- Cafeteria Has Weekend Hours**  
7:30 a.m.-2 p.m., for period Sat., 7/2 through Tues., 7/5.
- Center Club Closed Four Days**  
Closed Sat. 7/2 through Tues., 7/5, reopens Wed., 7/6, 5 p.m.

### — WEEK OF 7/4 —

#### Monday, 7/4

- Independence Day Holiday**  
Lab closed. Enjoy the day!  
See closings above.

#### Tuesday, 7/5

- Floating Holiday, Lab Closed**  
No Bulletin this week. See closings above.

#### Thursday, 7/7

- \*Talk: Innovation in Clean Energy**  
2-3:30 p.m. Berkner Hall, Room B. Konstantinos Karachalios, European Patent Office, to talk on “Global Innovation in Clean Energy Technologies.” All the BNL community is welcome. See p.1.

### — WEEK OF 7/11 —

#### Monday, 7/11

- \*Talk: DOE Response to Releases From Power Plant in Japan**  
3:30 p.m. Berkner Hall. Stephen Musolino, Nonproliferation & National Security Department, will talk on “The DOE Response to Radiological Releases from the Fukushima Dai-ichi Nuclear Power Plant.” All the BNL community is welcome. See p.2.

### — WEEK OF 7/18 —

#### Monday, 7/18

- \*Defensive Driving Course, Part I**  
6-9:15 p.m. Brookhaven Center South Room. See below.
- Wednesday, 7/20**  
**Talk on Investing for Retirement**  
Noon. Berkner Hall, Room B. Brett Hammond, TIAA-CREF Senior Economist, will talk on investing for retirement in the “new normal” economy. All the Lab community is welcome. Register at <https://intranet.bnl.gov/eventreg/> or Ext. 7516.

## Defensive Driving Course: Two Parts, 7/18 & 25

The next six-hour Defensive Driving (Point & Insurance Reduction) course will be held in two parts on consecutive Mondays, July 18 in the Brookhaven Center South Room and July 25 in Berkner Hall Room B, 6- 9:15 p.m. The course is open to BNL, BSA and DOE employees, BNL facility-users, contractors and other guests, and their family members. The cost is \$33 per person. Preregistration is required. To register, call Ed Sierra, 821-1013, and leave a message. Or take a New York DMV approved course (Use code: “SAVE10” for \$10 discount) online: [www.lidrivesafe.com/](http://www.lidrivesafe.com/).

## TIAA-CREF One-on-One Retirement Counseling

A TIAA-CREF consultant will visit BNL on July 8 and 28, on August 1, 4, 18, and 23, and September 7, 8, 12, 19, and 27, to answer employees’ questions about their financial matters. For an appointment, please call 1-800-732-8353 or go online at [www.tiaa-cref.org/bnl](http://www.tiaa-cref.org/bnl) and select “set up a meeting.”



# Congratulations, Volleyball Champs

Last year’s volleyball champions (see photos below) have celebrated, the season is over — but that does not mean there is no more volleyball until fall! Volleyball continues to be played indoors every Monday and Wednesday evening during the summer. Please sign up on the Doodle poll at <http://www.doodle.com/5mrdv73scz5wq> to indicate what time you can come to the gym and play (no login is required). All skill levels are welcome.



## Open A League

The champions of the Open A League, Edge of Chaos, lined up on the brink to win over the runner-up Empire team with final game scores of 26-24, 25-21, 18-25, 17-25, 25-23 (3-2). Edge of Chaos team members are: (standing, from left) Art Sedlacek, Fernando Benito, James Ackley, and Allen Jones; (sitting, from left) Chongai Kuang, Marie Van Buren, and Gene Van Buren.



## Mixed 2 League

Champions of the Mixed 2 League, Team Bad Pass, passed up another round with runners-up Another Round after their final game scores of 25-15, 25-17, 27-25 (3-0). Team Bad Pass members are: (standing, from left) Paul Humbert, Chris Turbush, John Van Houten, Timur Shaftan, and Loredana Tirziu; (sitting, from left) Sarah Seiler, Steven Seiler, and Heather Turbush. Not pictured: Dawn Levy.



## Open B League

Open B League champs, Quantum of Shank, successfully targeted runners-up Dodging Bullets, winning with final game scores of 23-25, 25-17, 25-21, 22-25, 25-22 (3-2). Quantum of Shank team members are: (standing, from left) Cecilia Sanchez-Hanke, Gene Van Buren, and Kensuke Okada; (sitting, from left) Marie Van Buren, and Christie Nelson. Not pictured: Dario Arena, Jennifer Arena, and Art Sedlacek.



## Mixed 3 League

Champions of the Mixed 3 League, Cobbled Together, had the runners-up, Volley of the Dolls, all sewn up by the final game scores of 27-29, 25-20, 26-24, 25-11 (3-1). Cobbled Together members are: (standing, from left) Marissa Familette, Kirsten Thieme, Kim Ely, and Sabine Kessler; (sitting, from left) Gary Polonski, Brian Heflich, and Anthony Mantone. Not pictured: Debbie Brodbar and Rich Alles.



From left: John McCaffrey, Joe Stanisci, Michael Stanisci, Joanne Rula-Delles, Robert Duffin, Lisa Metz, Joyce Fortunato, Janet Sikora. Missing from photo: Susan Duffin, Michael Paquette, Denise Rodgers.

## Visiting U.S. Soldier Brings Thanks From Platoon to AdoptaPlatoon

When Michael Stanisci, Military Police Officer/Private First Class in the U.S. Army, walked into Bldg 400 lobby wearing military camouflage on Tuesday, June 28, all heads turned. After all, it isn’t every day that a uniformed soldier visits the Lab. Stanisci, the son of Lab employee Joe Stanisci of the Facility & Operations Directorate is home on leave after being deployed to Afghanistan last January.

Stanisci came to BNL especially to thank the AdoptaPlatoon (AAP) group.

“Every month since I arrived in Afghanistan, a care package from the Lab’s AdoptaPlatoon has arrived in my barracks,” said Stanisci. “The package is loaded with everyday personal supplies and plenty of goodies. I wanted to extend my personal gratitude and let the AAP volunteers know that their efforts make a huge difference to me and my fellow soldiers. Nothing is better than getting a package from home, especially when it’s full of chocolate and other snacks not readily available to us. It’s like celebrating your birthday once a month.”

John McCaffrey, an employee in the Lab’s Photon Sciences Directorate, a member of the Brookhaven Veterans Association and the team leader for AAP, is proud of the commitment and hard work of the AAP volunteers.

“The Lab’s AAP supports a specific adopted platoon, but also sends packages to BNL family members currently on active duty. These volunteers do a tremendous job and never let an opportunity pass where they can send off a package to members of our military. I commend them for their hard work,” he said. While shaking hands with Stanisci, McCaffrey asked if there was anything special he needed or wanted in the next care package. Stanisci’s response: “Every care package is perfect.”

A somber moment brought home the hard reality of why care packages are being sent abroad. Joe Stanisci put his arm around his son’s shoulders, kissed his cheek and said that Michael would return to Afghanistan on July 4th.

“He arrived home just in time for his birthday and Father’s Day. How appropriate it is that he returns on the 4th of July. I am so very proud of him,” he said. — Jane Koropsak

## Car-Wash to Benefit Care Package Program, 7/28

AAP recently reached a major milestone — 20,000 lbs of supplies and goodies sent to deployed soldiers. To raise funds for future care packages, AAP will be sponsoring a car wash on July 28, 11 a.m. – 1 p.m. at the Lab firehouse.

To make donations to the AAP or to become a volunteer, contact McCaffrey at Ext. 8162 or email [mccaffrey@bnl.gov](mailto:mccaffrey@bnl.gov).

For more information on AAP see [www.bnl.gov/bera/activities/va/Adopt-A-Platoon/](http://www.bnl.gov/bera/activities/va/Adopt-A-Platoon/).

AIR COMPRESSOR – elec; vertical dual stage at least 25gal, but other types may work if price right. 484-9888.  
BNL FAMILY MEMBERS IN MILITARY – If you have a family member who has been deployed overseas, please contact Adopt-a-Platoon so we may send them a goodwill package. Joanne, jrula@bnl.gov.  
BOATING LIFE VESTS – youth size, these are needed asap, willing to pay fair price, ty. Ext. 7271, 905-6941.  
CHILDREN’S FOOTBALL EQUIPMENT – pads, pants, jerseys in decent cond, for 8 yr old. Theresa, Ext. 2051 or tcutrone@bnl.gov.  
HANDYMAN – for opening/cleaning agp, will pay fair \$\$, thanks. JS, 775-8492.  
INVERSION TABLE – will pick up, please call. Ed, 516-250-4600 or gavine@bnl.gov.  
WORKBENCH TOPS – looking for 2 new tops, prefer Butcher block, but particle top OK, the larger the better. Richard, Ext. 7443.

### Lost & Found

LOST – Man’s wedding ring, half white gold, half yellow, poss. betw. gym & Cavendish hse, \$100 reward. Josh, 202-258-9639.  
SUNGLASSES – lost, ray-band, metal frame w/blk lanyard, no case, poss at softball field a month ago, REWARD. 516-250-4600.

### For Rent

CORAM – sublet apt from 7/1/11-4/1/2012, 1 bdrm, full ki,t l/r, d/r, full bath, all carpet no sec, 1 mo rent, no pets. \$1,145/mo. Cynthia, 394-6243.  
CORAM – 2 bdrm townhse, end unit apt w/gar, 2 full baths, w/d hookkup, laundry rm on site, avail mid July, July free. \$1,645/mo. Jon, 301-233-8710.

EASTPORT – lg 3 bdrm, 2 ba hse, l/r, fam rm, 2 car gar, deck, nice yd, excel neighborhd, prefer long term tenant. \$1,800/mo. Ext. 7116, 325-0928 or rayc@bnl.gov.  
RIDGE – lg sunny studio, full kit and bath, priv patio, all util incl, free cable & int access, 5/min to Lab. \$825/mo neg. Maggie, Ext. 4720, 775-0828 or mrando@bnl.gov.  
SHOREHAM VILLAGE – 5-bdrm hse, 2-1/2 updated bath, 4 seasn sunrm, hwd flrs, 4 car gar, Clubhse, priv beach, tennis, \$2,900/mo neg. Safiyy, Ext. 5306, 744-8747.  
WADING RIVER – from Sept’11-Jan’12; SWRSD, 4 bdrm, 3 baths, fully furn, park-like setting, walk to beach/tennis. \$2,500/mo neg. 821-7605.

### For Rent or Sale

SPRING HILL, FL – priv Ranch on Gulf, nr beach, tennis, 3/bdrm, 2/baths, d/r, t/p, 2/gar, see review.oktane.net/HouseTour. \$950/mo neg, or wkly, or \$129,000 neg. 344-5537.

### For Sale

CENTER MORICHES – Wilcox Farm, Victorian 4/5 bdrm, energy-effic, hdwd & Ceramic flrs, 3.5 ba, l/r, d/r, kitch, fam & game rm, office, Pro Garden. \$577,500. 766-7189.  
SHOREHAM – 3 bdrm Col, cul-de-sac, updatd b/r, kit w/stainlss appli; den w/ fp, deck, wood shed, SWRSD. \$369,000. Andrea, Ext. 3347, 744-8793.

### On-site Service Station To Take Vacation July 4 Week

The on-site service station will be closed Mon., July 4, through Fri., July 8, reopening Mon., July 11. To make an appointment to service your vehicle, call Ext. 4034.

## Classified Advertisements

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

### Motor Vehicles

04 TOYOTA COROLLA CE – 127K mi. slvr, 4dr, 1.8L, a/c, cd/cass, new wheel cap, v/gd cond, pics available, \$5,900 neg. 375-7703.  
03 DODGE DURANGO SXT – 4x4, 4.7 a/t, lthr, 3rd row, low mi, BFG all terr. tires, auto strt, tint, HID lights, alarm, \$8,900. 220-2302.  
02 KIA SPECTRA – 133K mi. 4dr, 1.8L, a/t, drk grn, new catalytic converter/batt/tmg belt/brakes/tires, \$2,400 neg. cma@bnl.gov.  
99 FORD ESCORT WGN – 140K mi. Runs well, new tires, orig owner. \$3,000 neg. Ext. 7179.  
97 FORD EXPEDITION – 180K mi. E. Bauer, clean, rem strt, white, 6CD player, tan lthr int. \$3,900 neg. 767-0527 or puck@bnl.gov.  
97 HONDA PRELUDE – 75K mi. 2dr, a/t, abs, p/l, p/w, p/m, m/roof, am/fm/cd, xtra whls w/snow tires. \$4,000 neg. Ext. 2180.  
81 DELOREAN GULLWING – 62K mi. orig dealer maintained, full records. \$20,000 neg. Peter, Ext. 7657, 298-7821.

### Boats & Marine Supplies

38’ CHRIS CRAFT COMANDER – ‘67-Fglss, radar, depth findr, radios-CB etc, twin 260 merc/cruisers, more. \$9,500 neg. 375-6608.  
26’ YAMAHA PERSON SAIL BOAT – ‘5, 9.9 elec start, in water in Port Jeff Mooring. \$4,000. Edward, 642-7240.  
23’ ODAY 23’ CONVTLBLE C/B – 9.9 O/B, Pulpit, Pushpit, Lifelines PFD’s, SwimLddr, Sails: Main w/cvr, jib, Genoa. \$2,300 neg. Ext. 5055.  
22’ PENN YAN 215 TEMPEST – cuddly cabin w/hd top, ‘04 Mercrsr 4.3 vortek, in/outbrd, more, excel. \$5,800 neg. James, Ext. 5217.  
19’ 1986 BAYLINER CAPRI – ‘98 outbrd Mercury force, 120 hp Trailer incl, rec upholstery, \$2,500. Bob, 804-2438.  
19’ STINGRAY STINGRAY – caddy cabin, new rebt inboard, Mercrsr 470, 3.7L w/less than 10/hrs on. \$4,000. Edward, Ext. 7502.  
MOORING BALL & ANCHOR – 250lb mushroom achr, 50’ chain & ball/\$250. 476-5810.

### Furnishings & Appliances

ARMOIRE – \$375, like new, lt wood, w/ drawers, 40”wx21dx68h, pics avail. Theresa, Ext. 2051, 935-3777.  
DINING TABLE – 7pc Oak round to oval dining table, 48”Lx24”leafx48Wx30”H, gd cond, \$50, u-pic-up, pic avail. Ext. 5049.  
DRYER – Asko, 220V, 23.5” w, stackable, fits in closet, excel cond, \$250. Ext. 4211.  
KITCHEN TABLE & CHAIRS – Lt Maple tble w/leaf, 60x36, 4 spindleback chrs, excel cond, \$300. 678-3299 or dgordon@bnl.gov.  
PORTABLE AIR CONDITIONER – Edgestar AP14001HS, 14,000 Btu-new, 2/hrs on the motor, \$350. Frances, Ext. 4901.  
SOFA & LOVESEAT – Clatton Marcus, used for 1 yr, v/gd cond, lt brown, pic on req, \$1200/neg. Ext. 7013 or derocher@bnl.gov.  
SOFA SET – Matching sofa, loveseat, chair, microfiber upholstery w/hardwd, sell piece-wise or \$500/all. 606-2718.  
TWIN BEDS – dresser, night table, lg mirror/\$500; free mattress, excel cond. 928-5185.  
UPRIGHT PIANO – Janssen Piano Co, NY; tuned regularly; dk brn wood case, b/o, must take prior to 7/25. Ext. 7509.  
WINDOW AC – 6,000 Btu/Haier 1yr old, \$70. Christoph, Ext. 8194 or clehner@bnl.gov.  
WINDOW AIR CONDITIONERS – 3 Frigidaire 6,000 Btu Energy Star w/rem, used 2 seasons, 50/ea. 375-7959, badal@bnl.gov.

### Audio, Video & Computers

DIGITAL PHOTO FRAME – Pandigital, 8” 1 GB, brand new in box. Steve, Ext. 4211.  
DVD/CD – 3 movies: The Pagemaster, The Seeker, Transformers, 1 DVD TV Game-Deal or No Deal, \$5/ea. Ext. 7918.  
IPAD & NINETENDO – 64 gig WiFi + 3G, factory reset w/orig cbls/chrgr/\$600; Nin.DSI XL, w/Brain Age games, \$160. Ext. 8278.  
MACBOOK AIR – 11” screen, 1.6GHz, 4GB 1066MHz DDR3 SDRAM, 128GB flash storage, in orig box, \$1200. Ext. 8278.  
PHILIPS DVD PLAYER – modl DVP3962/37 w/Progrsv Scan, 1080i Up-conversion & HDMI, remote incl/\$20. Ext. 7779.

### Sports, Hobbies & Pets

BASKETBALL HOOP – Fisher Price Gro to Pro, adjts to 4 heights: 3’ to 6’, \$25, pics avail. 935-3777 or tcutrone@bnl.gov.  
CELLO – German-made, intermed.-level instr., excel cond, hard case/\$4500. Ext. 4475.

NEPTUNE WATER ROWING MACHINE – 1st Dgre Fitness, 3 mos old, new/\$850, ask/\$600 or b/o, pics. johnsona@bnl.gov.  
TREADMILL – Nordic Track Power Model PT60, rarely used, great cond, pd/\$1300, ask/\$500, have photos. 516-477-9119.  
TREADMILL – Sears Proform 745CS; excel cond, folds up for storage, \$250. 678-3299 or dgordon@bnl.gov.  
WETSUIT – youth size 12, like new, Pd/\$110, ask/\$55. Ext. 7235 or fitz@bnl.gov.  
YAMAHA MOTORCYCLE – ‘03 Roadstar 1600, low mi, new tires, w/shield, extra helmet ask/\$5,100. 872-5074, jonesr@bnl.gov.

### Tools, House & Garden

CUB CADET TRACTOR – Model 122 incls mower deck and snow blower, eng needs rings, \$500. Roger, Ext. 4084.  
PATIO UMBRELLA & STAND – Red floral 7’ diam, umb. (some fading) w/crank & tilt \$20; cast iron stand \$20. Ext. 2733, 395-6784.  
TABLE SAW – 10” Delta contractor’s table saw w/moveable base, great cond, \$300, have photos. 516-477-9119.

### Miscellaneous

BABY’S ITEMS – walker \$10, Graco Travel System Stroller Set \$75, pics. Rachel, Ext. 3500 or irachel@bnl.gov.  
BABY CRIBS – Dream-on-me w/mat/cvr/\$120; G. Lauren Classc, w/mat/\$130; 3-in-1 highchr/\$40; gate/\$5. 540-204-2910.  
WETSUIT – youth size 12, gd cond/\$50. Lynda, Ext. 7235 or fitz@bnl.gov.

### Community Involvement

FUND RAISER - WADING RIVER – A WR family lost all in a fire. Bella Gusto (6278 25A, Wdg Rvr, 929-3939) has offered to donate % of proceeds Wed 6/29 4-9pm. Phone orders welcome. Thanks! Charles, Ext. 5722.

### Happenings

GOLF OUTING MEMORIAL – for scholarships in Vincent Nasta’s name. 7/18, 11:30 lunch, 1:00 shot-gun start, 5:30 cocktails & dinner. Indian Island course, \$160 if register by 7/8, \$175 after. Kathleen, Ext. 7114.

### Wanted

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

On the Web, the Bulletin is located at [www.bnl.gov/bnlweb/pubaf/bulletin.asp](http://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](http://www.bnl.gov/bnlweb/pubaf/calendar.asp).

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