

'Combination' Lyme Disease Vaccine Proteins Patented



John Dunn

Scientists at BNL and their collaborators at Stony Brook University have received U.S. Patent Number 7,179,448 for developing chimeric, or "combination," proteins that may advance the development of vaccines and diagnostic tests for Lyme disease.

The genetically engineered proteins combine pieces of two proteins that are normally present on the surface of the bacterium that causes Lyme disease, but at different parts of the organism's life cycle.

"Combining pieces of these two proteins into

one chimeric protein should trigger a 'one-two-punch' immune response more capable of fending off the bacterium than either protein alone," says John Dunn of the Biology Department, a researcher on the BNL Lyme disease team.

"These chimeric proteins could also be used as diagnostic reagents that distinguish disease-causing strains of bacteria from relatively harmless ones, and help assess the severity of an infection," Dunn said.

Lyme disease is the most common vector-borne disease in the U.S., causing approximately 25,000 new cases each year — a rate that is expected to increase by at least a third from 2002 to 2012, according to a new study. Early symptoms of the disease, which is spread by the bite of an infected deer tick, may include a bull's-eye rash at the site of the bite and flu-like symptoms. If not promptly treated with antibiotics, it can lead to more serious symptoms, including joint and neurological complications.

The research leading to the patent was funded by the Office of Biological and Environmental Research within DOE's Office of Science and by the National Institutes of Health.

For more detail on this work, see www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=07-38.

— Karen McNulty Walsh

Battelle Honors Bronson As BNL's 'Inventor of the Year'



Scott Bronson

Scott Bronson, an educational programs administrator in the Community, Education, Government & Public Affairs Directorate, was honored as BNL's "Inventor of the Year" by Battelle, a global science and technology company that develops and commercializes technology and manages five DOE laboratories. Bat-

telle and Stony Brook University comprise Brookhaven Science Associates, the company that manages BNL. Bronson holds 11 copyrights for science education kits he developed while working at the Lab. WARD'S Natural Sci-

ence of Rochester, NY, licensed the kits and is currently marketing them. Focusing on biology, engineering and environmental chemistry, the kits are used as hands-on learning tools in the classroom for middle school, high school and college students.

Bronson was honored at Battelle's annual recognition

program in Columbus, Ohio, on April 27, along with inventors from Battelle and from the other labs it manages.

Said Lori-Anne Neiger of BNL's Office of Intellectual Property & Sponsored Research, "I love this project! Scott's passion inspires his inventive ideas for educating students. Early in my career, I was a science educator. It was clear to me the value Scott's products could have for teachers and students. Technology transfer is not only commercial products, but also education. By working with WARD's, we have been able to have a direct impact."

"In many cases, the kits I designed were based on the work of BNL scientists, who gave me their full cooperation in developing them," Bronson said. "It is very enjoyable and rewarding to work with such talented and innovative people."

425th Brookhaven Lecture 'A Hydrogen Economy: Opportunities, Challenges'

The long-term goal of many nations, a hydrogen economy may confer energy security and environmental and economic benefits. However, the transition from the present petroleum-based economy to one based on the use of hydrogen for energy involves uncertainties, such as the development of efficient fuel-cell technology, the resolution of problems in hydrogen production and distribution, and the response of petroleum markets.

To learn more about this topic and something of BNL's part in it, join Paul Friley of the Energy Sciences & Technology Department (ES&T) as he gives the next Brookhaven Lecture, titled "A Hydrogen Economy: Opportunities & Challenges." Friley will give the lecture at 4 p.m. on Wednesday, May 16, in Berkner Hall. He will be introduced by William Horak, ES&T Chair. All are welcome to this free talk, which is open to the public. Visitors to the Lab of 16 and older must carry a photo ID.

During his talk, Friley will



Paul Friley

review BNL's angle on the opportunities and challenges that a transition to a hydrogen economy will face, and he will describe a BNL study of the impact of hydrogen production on U.S. energy markets. He will explain that both the hydrogen-economy analysis and the hydrogen-production study rely upon the U.S. MARKAL computer model, which was developed at BNL. Widely used around the world, the MARKAL model is an integrated energy, economic and environmental framework for simulating the impact of energy technology and the transition from one dominant technology to another.

Friley joined BNL in 2003 to work with the Energy, Environment, and Economic Analysis Group on the U.S. MARKAL Model. He is currently stationed in Washington, DC.

To join the lecturer for supper at an off-site restaurant after the talk should contact Jean Frejka, frejka@bnl.gov or Ext. 2349. — Liz Seubert

All Are Welcome to Attend

CFN Ribbon Cutting Ceremony
5/21, 11 a.m.

A Highlight of the 2007 Joint NSLS/CFN Users' Meeting, 5/21-23



The 2007 Joint National Synchrotron Light Source (NSLS) and Center for Functional Nanomaterials (CFN) Users' Meeting will be held at Berkner Hall from Monday, May 21 through Wednesday, May 23. The meeting is a forum for reporting new research results and advances in experimental capabilities that utilize synchrotron radiation and highlight nanoscience. The event is hosted and sponsored by the NSLS Users' Association, the CFN Users' Association, and external organizations representing the users of the NSLS and the CFN.

The BNL community is invited to attend the free plenary session on Monday morning, May 21, 8:30-10:40 a.m., as well as the CFN Ribbon Cutting Ceremony immediately following, at 11 a.m. Speakers include Pat Dehmer, DOE's Associate Director of Science for Basic Energy Sciences (BES), and Steve Dierker, BNL's Associate Laboratory Director for Light Sources. Updates will be given on BNL, BES, NSLS, NSLS-II, and the CFN. While the plenary session is free, the planning committee requests that anyone planning to attend should register at www.nsls.bnl.gov/users/meeting/2007/registration/registration.asp.

Biology

F. William Studier of the Biology Department helped to develop a kit that involves the use of the T7 bacterial virus, which forms the basis of the T7 expression system, developed and patented at Brookhaven in the 1980s and 1990s and used worldwide by academia and industry to produce specific proteins within bacterial cells. Using the T7 kit, students can safely learn about viruses.

With the tools in a protein extraction and purification kit, students can learn techniques that scientists use at BNL's National Synchrotron Light Source to study biological materials. Students can also learn a simple method to analyze DNA. Two additional biology kits aid students in learning about gene transfer applications and DNA amplification — the repeated copying of a piece of DNA.

Environmental Chemistry

Two of Bronson's kits are based on a green-chemistry process invented by Cleveland Dodge and A.J. Francis of the Environmental Sciences Department. Using the kits, students can safely extract iron, a model used for a contaminant, from soil using citric acid, and they can use harmless bacteria to remove iron from solution, a process called bioremediation. Another kit, which Bronson designed with the aid of Stony Brook University researchers Mirza Beg and Aaron Celestian, shows students how zeolites, common materials within the Earth's crust, play an important role in cleaning up toxic metals and radionuclides from wastewater.

Engineering

Another kit allows students to build a Maglev train, a vehicle that floats over a fixed track, sup-

ported and driven by magnetic fields. Retired Lab researchers Gordon Danby and James Powell invented the concept of the Maglev train in the 1960s. BNL holds a Maglev contest for middle school students annually, coordinated by Brookhaven's Melvyn Morris, an educational programs administrator who helped Bronson with the kit design.

Designed with the help of retired BNL engineer Martin Woodle, two model bridge-building kits provide instructions and materials for students to build model bridges from either basswood or soda straws. Building up to ten bridges with each kit, students learn about the physics and engineering of bridge construction. Also, the kits help prepare students for the annual International Model Bridge Contest. BNL sponsors a regional model bridge contest for high school students and sends the two top winners to the international competition.

Scott Bronson's career in science started as a James Simons Summer Research Fellow at Stony Brook University, where he joined other academically talented high school students in hands-on research. Bronson earned bachelor's degrees in both molecular biology and marine biology from the Florida Institute of Technology in 1994, then joined Cold Spring Harbor Laboratory as a research technician. In 1997, he began working as an education coordinator at the laboratory's DNA Learning Center, and, in 2004, he earned a master's degree in science education from Long Island University's C.W. Post College. From 2000-2004, he was also a course instructor at the Watson School of Biological Sciences at Cold Spring Harbor Laboratory. He joined BNL in 2004.

— Diane Greenberg

Nanoscience 101

Later this month, BNL will celebrate the dedication of its new Center for Functional Nanomaterials, one of five DOE nanoscale science research centers. Science and technology based on nanoscience is expected to be revolutionary, and could change the way almost everything is designed and made, from automobile tires, to vaccines, to computer chips, to objects not yet even imagined.

The CFN's overarching scientific theme is the development and understanding of nanoscale materials that address the nation's energy security, likely the most important problem of the 21st century.

As the transition to operations at the CFN begins, The Bulletin will publish a series of questions and answers to help familiarize members of the BNL community with nanoscience in general, the types of research planned at the CFN, and health and safety aspects of CFN operations. The first three Q&As are below. Employees, users, and guests are invited to attend the May 21 CFN dedication ceremony, tour the new building, and talk with CFN researchers.

Q: What is nanoscience?

A: Nanoscience is the synthesis and study of structures with dimensions that range from less than one nanometer to about one hundred nanometers. Nanoscience involves imaging, measuring, modeling, and manipulating matter, often at the atomic level. Although still part of a nascent area of research, nanostructured materials have the potential for creating or accelerating new technologies.

Q: What is a nanometer?

A: A nanometer is one-billionth of a meter. For comparison, the size of an atom is about half a nanometer and the width of a human hair is about 80,000 nanometers.

Q: What is nanotechnology?

A: Nanotechnology is the exploitation for practical use of the novel properties or functions of matter at the nanoscale. Nanotechnology research and development is directed toward creating and understanding improved materials, devices, and systems for applications in fields as diverse as energy, electronics, medicine, and industrial processes.

CIGNA: Tuesdays, Bldg. 400

A CIGNA Healthcare representative will be on site in Human Resources, Bldg. 400, on Tuesdays, for 30-minute meetings, by appointment only, 10 a.m.-1 p.m., to assist you with any claims issues that you have been unable to resolve yourself. Bring all pertinent documentation to your meeting. To schedule, call Linda Rundlett, Benefits Office, Ext. 5126.

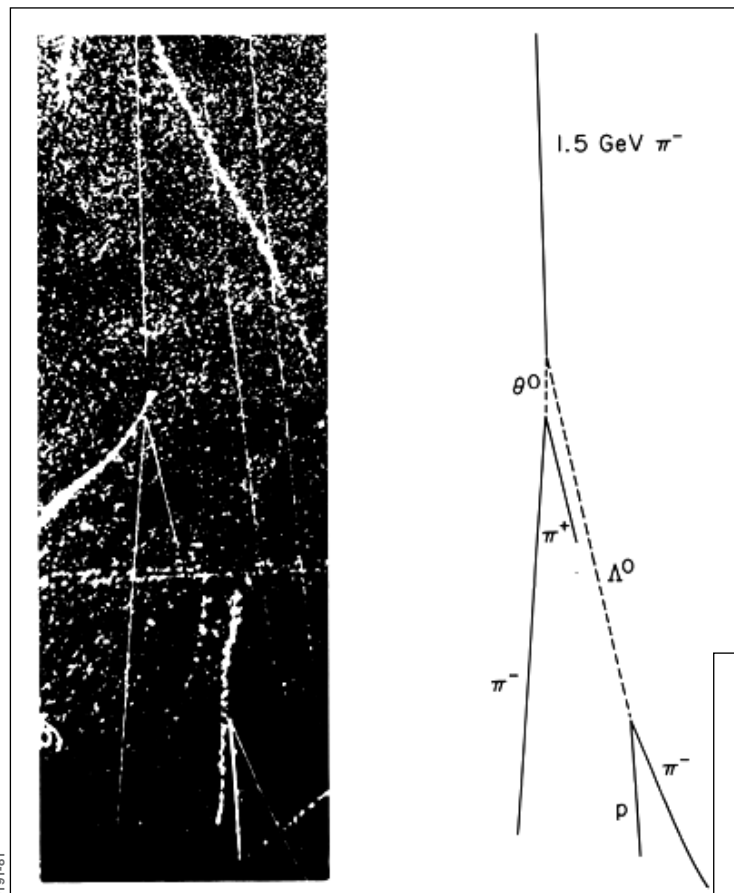
Then & Now — Did We Say 'Déjà Vu' Again?

Just as some articles in the Bulletins of today are aimed at demystifying the latest Lab science (see Nanoscience 101, left) the early issues of *Isotopics*, the Lab's first newsletter, regularly published articles explaining science and some of the Lab's new facilities and technical equipment. "You Can Understand the Atom" was a four-part serial in early 1948; "The Cosmotron" appeared in May-June, 1948; "The Cyclotron," in November-December, 1948; and, in July-August, 1948, came "The Cloud Chamber."

Unveiling Cloud Chambers

Cloud chambers were early particle detectors, filled with gases in which fast-moving particles left distinctive tracks that could be photographed. They were invented by C.T.R. Wilson, an English scientist, and used in studies of cosmic rays. The Lab's first large cloud chamber was sited at 51 Brookhaven Avenue. The largest, highest pressured of any existing cloud chamber, it was designed by Thomas Johnson, Physics Department Chair, and Ralph Shutt of the Particle Physics Division. However, as Robert Crease describes in his book on early BNL history, *Making Physics*, this cloud chamber had some drawbacks that led Shutt to take notice in 1950 of a new idea from Alexander Langsdorf of Argonne National Laboratory for a cloud chamber that worked in a different, simpler manner. Shutt and his group began working on models of the new instrument.

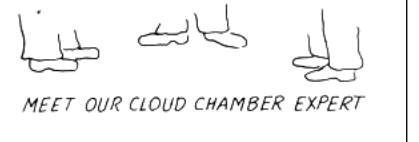
In 1951, Johnson left BNL to become Director of the Atomic Energy Commission's research



This photo (left) was taken during a particle interaction at the cloud chamber in the Cosmotron during an experiment by William Fowler, Ralph Shutt, Alan Thorndike, and William Whittemore. It provides early evidence for the associated production hypothesis, proposed in 1952 to explain the extra long lifetime of two long-lived, neutral particles seen in cloud chamber cosmic ray studies.

These neutral particles often decayed into two charged particles whose tracks formed a "V." Theorists postulated that the particles only are produced in association with each other, and that they carry a characteristic called strangeness.

The line drawing corresponds to the photographed events and indicates which particles caused the various tracks. The K^0 (K meson) and the Λ^0 (lambda) are the V particles produced in associated production. (At the time, one of the two forms of the K^0 was called the theta [θ^0 at left].) Their trajectories are indicated by dashed lines, since neutral particles leave no tracks in a cloud chamber. The V particles are identified by the other particles into which they decay.



This more light-hearted view of cloud chambers and their users was drawn by Margery Morse Miller, who worked in Graphics from 1948 to 1950.

division, and Shutt became head of a cloud chamber group, with Alan Thorndike, William Whittemore, Earle Fowler, and William Fowler. The group built a large, high-pressure version of the new type of cloud chamber and wheeled it over to the Cosmotron late in 1952, where it could begin work at detecting events.

The Bulletin reluctantly has to stop the story here — no space — but to learn more about new difficulties that were overcome and how the photographs taken of the cloud chamber's findings were scanned (and more!) read the details in *Making Physics*, available in the BERA Store.

School Outreach

Crease describes an interesting spinoff from the less complex and more efficient cloud chamber built by Shutt's group:

"The diffusion chamber was so simple in principle that one day Whittemore brought in a peanut butter jar to see if he could make one out of household ingredients. By putting a piece of felt, soaked in an alcohol mixture, at the top of the jar, and setting the jar on a piece of dry ice, he was able to see cosmic rays flit through — and sometimes even cosmic ray showers, which would fill

the jar with tracks. The scientists issued a press release to alert schools about the idea, which was widely publicized. Today, diffusion chamber kits for educational use can be brought commercially from outfits like Edmund Scientific Company."

That was "then." For "now," see the story on Scott Bronson's science kits, page one!

— Liz Seubert

Scharff-Goldhaber Prize Ceremony, 5/25

Stony Brook University (SBU) and the Lab communities are invited to attend the award ceremony and reception for the 2007 Gertrude Scharff-Goldhaber Prize won by Manuela Kulaxizi, SBU graduate student. The event will be held on Friday, May 25, at 3 p.m., in the Large Seminar Room of the Physics Department, Bldg. 510. Sally Dawson, Physics Department Chair, will present the award, which consists of a framed certificate and a check for \$1,000. Kulaxizi will give a short seminar on her research titled "Gauge theories, gravity and noncommutative geometry." She will be introduced by her thesis advisor, Martin Rocek. Refreshments will follow the presentation.

Established in 1992, the annual Gertrude Scharff-Goldhaber Prize recognizes substantial promise and accomplishment by a woman graduate student in physics. The prize honors the outstanding contributions of the late nuclear physicist Gertrude Scharff-Goldhaber, who, in 1950, became the first woman Ph.D. physicist appointed to the BNL staff, and, later, a founding member of Brookhaven Women in Science (BWIS), which administers the scholarship. For more information, call Vinita Ghosh, Ext. 6226.

Alexis P. Suter Band in Concert at BNL, 5/11

"Fierce and fabulous," said *Living Blues Magazine* of Alexis P. Suter's debut CD called "Shuga Fix." Blues fans and anyone who has not tried blues but likes to start at the top — do not miss the Alexis P. Suter Band, starring blues vocalist Alexis P. Suter, accompanied by her five-member band, on Friday, May 11, at 6:30 p.m. in the Brookhaven Center.

Suter has toured internationally, and she has appeared at such famous blues clubs as B.B. King's in Manhattan. She also performs regularly at the Levon Helm Midnight Ramble in Woodstock, NY. She has been featured on radio and television, appearing with some of the best-known names in blues. She recently released a CD/DVD recorded live at the Midnight Ramble. Also, if you were lucky, you might have attended a fantastic evening early this year in downtown Blue Point Brewery, where, for four hours plus, the standing (no seats!) audience vibrated together to the cool-hot, stunningly exciting rhythm of Suter and her band.

Sponsored by the BNL Music Club, the concert is open to the public. All visitors to the Lab age 16 and over must bring a photo ID. Tickets cost \$10 each and can be purchased in advance at the BERA Store and at www.ticketweb.com, or at the door on the evening of the show. Call Ext. 3846 for more information.



Alexis P. Suter

Summer Science Explorations At BNL's Science Learning Center

BNL employees are invited to register their children or grandchildren of fourth-to-sixth grade for the 2007 Summer Science Explorations Program provided by the Lab's Science Learning Center (SLC). This free three-day summer camp will be held during two weeks, July 10-12 and August 14-16, Tuesday through Thursday, 8:30-11:30 a.m. Students will have a hands-on field experience in observing habitats on site and spend two days in investigating the planet Mars. These programs center on research done at the Lab. Teaching participants will include SLC science educators, research staff, and college interns.

Space is limited, so register your child or grandchild early by contacting the Science Learning Center Office, Bldg. 400, Ext. 4495. Students must attend all three days of camp, and parents of participating children are welcome to attend.

Goose Management Info Session, 5/14

Tim Green, BNL's Natural & Cultural Resources Manager, will host an informational roundtable discussion on goose management next Monday, May 14, at noon in Berkner Hall, Room B. Anyone interested in discussing the resident Canada goose population and ongoing management efforts is welcome.

Defensive Driving

The next six-hour Defensive Driving (Point & Insurance Reduction) course will be held on Saturday, May 12, in Room B, Berkner Hall, 9 a.m.-3:30 p.m. Organized by the Environment, Safety, Health & Quality Directorate and delivered by Ed Sierra, the course is open to BNL, BSA, and DOE employees, facility-users, and their families. The cost is \$30 per person. Preregistration is required. To register, call Ed Sierra, 821-1013, and leave a message with your phone number.

For more information, call Sarah Wiley, Ext. 4207.

Prize-Winning Project of Robotics Club Students On Display at the Science Learning Center

The Long Island Robotics Club of Plainview, a group of middle school students who were the winners of the BNL Technology Transfer Award at the FIRST LEGO League Tournament, recently visited the BNL Science Learning Center (SLC) where they saw their winning project on display.

Thirty-five teams participated in the tournament held at Longwood High School in January. The local tournament is part of an international program created between a not-for-profit organization called FIRST (For Inspiration and Recognition of Science and Society) and the LEGO Group, the world's sixth largest toy manufacturer. Battelle and BNL were the primary sponsors of the tournament, coordinated by School-Business Partnerships of Long Island, Inc.

Students at the tournament engaged in scientific research and robotics design, with a focus on nanotechnology. The Plainview-based club had won a plaque from BNL for their

Gail Donoghue, Supervisor of BNL's Science Learning Center, (SLC) and Ken White, Manager of the Office of Educational Programs, welcomed the Long Island Robotics Club of Plainview and their families to the SLC, where the team's award-winning research project will be displayed and used in lessons about nanotechnology by SLC educators.



Roger Stoutenburgh 02679007

research project in which they developed a storybook, a robot, a nano-board game, and a fact book titled "How Can Nano Technology Help the Earth and Things That Live On It?"

"We will use this winning team's project in teaching ele-

mentary and middle school students about nanotechnology," said Donoghue, SLC Supervisor. "It is especially fitting to learn about this subject here at BNL, where, later this spring, we will have the official opening of the Center for Functional Nanoma-

terials." The new center will provide scientists with state-of-the-art facilities to study materials at nanoscale dimensions – typically, a few billionths of a meter, or about 10,000 times smaller than the width a human hair. — Diane Greenberg



BSA Noon Recital, 5/16

Indivigo Duo, the internationally acclaimed violinist Alla Aranovskaya teamed with fellow member of the St. Petersburg Quartet, violist Boris Vayner, will perform at noon in Berkner Hall on Wednesday, May 16, sponsored by BSA. They will play music by Mozart, Handel, Martinu, and Hunt. Oliver Hunt's work "The Barber of Baghdad" derives from a character in "1001 Nights" who, summoned to cut the hair of a young man with an appointment to see his lady love, does everything but cut hair. He takes a horoscope to see whether the day is auspicious for barbering, gives an account of himself as a man learned in arts and sciences, describes the days when he served the youth's father, offers counsel according to the proverb that "Whoever listens to good advice is successful," and finally gets around to the haircut with the observation that there is no time to be lost!

All are welcome to attend this free BSA Noon Recital. Visitors to the Lab of 16 and over must carry a photo ID.

New Book Club — Come, Discuss, 5/15

Anyone interested in books and discussion is welcome to come to the first meeting of the ASAP Book Club, organized by members of the Association for Students & Postdocs (ASAP). The meeting will be held on Tuesday, May 15, at 6 p.m., when the first book to be discussed will be *Elizabeth Costello* by 2003 Nobel Prize winning author J.M. Coetzee. The location will be the ASAP lounge in Bldg. 462. Tea and cookies will be provided. Email bnash@bnl.gov or check out the blog at <http://bnlasapbooks.blogspot.com/> for more information.

Employee Lunchtime Tour Come Birding, 5/18



Roger Stoutenburgh 00160407

On Friday, May 18, Ernie Lewis of the Environmental Sciences Department will lead another birding expedition to the far reaches of the BNL fields and meadows. To participate, meet at the upper lobby of Berkner Hall at noon to be taken by Lab vans to the walk location. Maybe you will see a male belted kingfisher like the one above, photographed a week or so ago by Lab Photographer Roger Stoutenburgh. If there are any interested employees who are early birds and wish to bird early, Lewis has agreed to conduct a 7:30 a.m. walk on the same day. Registration is required for the early walk with places for only about ten birders. Call Elaine Lowenstein, Ext. 2400.

Arrivals & Departures

- Arrivals —
 Suresh Deonarine C-AD
 Jeremy Jacobsen C-AD
 Qiong Liu..... Medical
- Departures —
 None

Retirees' Lunch, 6/5

All BNL retirees are invited to the Brookhaven Retired Employees Association (BREA) Luncheon on Tuesday, June 5, at the Bellport Country Club. To attend, send a \$30 check made out to BREA, to BREA, P.O. Box 5000, Bldg. 475C, Upton, NY 11973-5000. For more information, phone 344-2707 or see www.brea.bnl.gov.

BERA Trips

Join in on BERA trips: a full list is available at www.bnl.gov/bera/recreation/events.asp. As samples, you can go fishing from Matituck with Captain Bob, June 9, 7:45 a.m.-3 p.m., \$50; or take a bus to Atlantic City, Saturday, June 23, \$25 each with cash back to spend there.

Talks on Veterans' Benefits, 5/16, 6/6

BNL's Employee Assistance Program (EAP) and the BERA Veterans' Association are presenting talks on the needs of veterans and their families, noon-1 p.m., in Berkner Hall, Room B, as follows: 5/16 - "Suffolk County Entitlements for Veterans," by Tom Ronayne, Suffolk County Vets Service. 6/6 - "The Invisible Wounds of War," by Lawrence Brown, retired career military and mental health counselor, Babylon Vet Center of U.S. Veterans' Administration.

These talks may be of special interest to veterans, veterans' spouses, surviving spouses of deceased veterans, or veterans' parents. Contact EAP, Ext. 4567 or dipierro@bnl.gov to register.

BERA Swim Lessons

BERA swim lessons are available for children or grandchildren of all Lab employees, retirees, visitors and facility users. The child should be able to stand flat-footed in the shallow end of the pool, with mouth above the water, approximately 42" tall. The fee is \$80 for a one-hour lesson per week for eight weeks. Return your \$80 check made payable to BERA to the Recreation Office, Building 400. Payment in full is due on or before June 1, 2007. If you have questions you may call the Recreation Office, Ext. 2873 or go to www.bnl.gov/bera.

Service Anniversaries

The following employees celebrated service anniversaries during January 2007.

- 35 Years —
 Earle Edwards, Jr.Rad Contr.
 Frank Stubblefield Instrum.
- 30 Years —
 Willem De Jong C-AD
 Ronald Zapasek C-AD
 William Strelecki Em. Serv.
 Michael Todosow ES&T
 Mona S. Rowe CEGPA
 Barbara Lade Biology
 Doris Johnston Plant Eng.
 Kris Dahms Rad Contr.
- 20 Years —
 Thomas Throwe Physics
 Roy Butler Plant Eng.
 William Peterson ESD
 Charles Schuster Plant Eng.
 Michael Villaran ES&T
 Denis Joyce Plant Eng.
- 10 Years —
 Jeffrey Wilke C-AD
 Sergei Lyamar.....Chemistry
 Susan Sears CEGPA
 Zhong Zhong NSLS

CALENDAR — THIS WEEKEND —

Friday, 5/11

*Blues: Alexis P. Suter Band
 6:30 p.m. Brookhaven Center. Tickets, \$10. Blues vocalist Alexis P. Suter and five-member band. Sponsored by the BNL Music Club. All are welcome. Visitors to the Lab of 16 and over must carry photo I.D. See page 2.

Saturday, 5/12

*Defensive Driving Course
 9 a.m.-3:30 p.m. Berkner Hall, Room B. \$30/person. Preregistration required. To register, call Ed Sierra, 821-1013. Leave a message with your phone number. See page 2.

— WEEK OF 5/14 —

Tuesday, 5/15

*ASAP Book Club Meeting
 6 p.m. ASAP lounge, Bldg. 462, The Association for Students & Postdocs welcome all to discuss *Elizabeth Costello* by J.M. Coetzee. See left, below.

PHOTONIS Photo Sensor Technology
 11 a.m.-2 p.m. Berkner Hall lobby. Representatives of the PHOTONIS Group will describe their leading-edge photo sensor technology. Products include image intensifier tubes for night vision and low-light level imaging for industrial and scientific systems; photo-multiplier tubes for medical imaging, homeland security, high energy physics and life sciences; electro-optic products; and power tubes. See www.photonis.com.

Wednesday, 5/16

*BSA Noon Recital
 Noon. Berkner Hall. Violinists Alla Aranovskaya and Boris Vayner. Visitors to the Lab of 16 and over must carry photo I.D. See notice at left.

*Talk on Veterans' Benefits (2 of 3)
 Noon. Berkner Hall, Room B. "Suffolk County Entitlements for Veterans," by Tom Ronayne, Suffolk Co. Vets Service. See notice below.

Brookhaven Lecture
 4 p.m. Berkner Hall. Paul Friley, ES&T, will talk on "A Hydrogen Economy: Opportunities & Challenges." Visitors to the Lab of 16 and over must carry a photo I.D. See page 1.

— WEEK OF 5/21 —

Monday, 5/21

*Joint NSLS/CFN Users' Meeting
 8:30-10:40 a.m. Berkner Hall. Plenary session, all welcome. See page 1.

CFN Ribbon Cutting
 11 a.m. Center for Functional Nanoscience. All are welcome.
 1:30-6 p.m. User Meeting Workshops. See www.nsls.bnl.gov/users/meeting/2007/schedule/. Registration required.

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

Tues. - Wed. 5/22-23

*Joint NSLS/CFN Users' Meeting
 Continued. See www.nsls.bnl.gov/users/meeting/2007/schedule/. Registration required.

— WEEK OF 5/28 —

Wednesday, 5/30

BSA Distinguished Lecture
 7 p.m. Berkner Hall. Lawrence Krauss, Case-Western University will present "Einstein's Biggest Blunder? A Cosmic Mystery Story." All are welcome to this free lecture, open to the public. Visitors of 16 and over must carry a photo I.D.

EMS, OSH Audits Scheduled, 5/21-25

Message from James Tarpinian and George Goode

During the week of May 21-25, NSF-International Strategic Registrations, Ltd., the independent organization that certifies our conformance to environmental and occupational health and safety standards, will be conducting a re-certification audit of the Laboratory.

Re-certification requires that all BNL organizations be audited to assess compliance with all elements of the International Organization for Standardization (ISO) 14001 and Occupational, Health & Safety Assessment Series (OHSAS) 18001 standards. Department points of contact will be notified via e-mail of the specific times and dates of the organizational audits.

The auditors may randomly interview BNL employees, so everyone is expected to know that BNL has an Environmental, Safety, Security and Health Policy. You can find the policy at www.bnl.gov/eshq/ESSH.asp. It is also posted in buildings across the site.

For more information on this audit, contact your environmental management system representative, your environmental compliance representative, or your Occupational, Safety and Health Management Rep.

- James Tarpinian, Occupational Safety & Health Management Rep and Assistant Laboratory Director for ESH&Q, tarpinian@bnl.gov
- George Goode, EMS Management Rep and Manager, Environmental & Waste Management Services Division, goode@bnl.gov

Classified Advertisements

Placement Notices

The Lab's placement policy is to select the best-qualified candidate for an available position. Candidates are considered in the following order: (1) present benefits-eligible employees within the department/division and/or appropriate bargaining unit, with preference for those within the immediate work group; (2) present benefits-eligible employees within the Laboratory; and (3) outside applicants. In keeping with the Affirmative Action Plan, selections are made without regard to age, race, color, religion, national origin, sex, disability or veteran status. Each week, the Human Resources Division lists new placement notices, first, so employees may request consideration for themselves, and, second, for open recruitment. Because of the priority policy stated above, each listing does not necessarily represent an opportunity for all people. Except when operational needs require otherwise, positions will be open for one week after publication. For more information, contact the Employment Manager, Ext. 2882. Access current job openings on the World Wide Web at www.bnl.gov/HR/jobs/.

LABORATORY RECRUITMENT - Opportunities for Lab Employees

APPLICATIONS ARCHITECT (I-9, reposting) - Requires an advanced degree in computer science or in the physical sciences with at least ten years' experience in scientific computing, and advanced knowledge of C++, Linux, and scripting languages. Experience in leading large software projects, preferably in high energy or nuclear physics, required. Very good communication skills are necessary. Experience in distributed computing and/or data management strongly preferred; grid computing experience an asset. In addition, experience with working collaboratively on large projects preferred and ability to work in this environment essential, as is interest and aptitude in user support. Background in high energy or nuclear physics an asset. Responsibilities will include participating in the planning, management, development, and support of distributed processing and data management systems for the ATLAS experiment and the Open Science Grid (OSG), in support of distributed data analysis by ATLAS and other OSG science communities. Physics Applications Software Group/Physics Department. morales@bnl.gov, referring to Position No. RM4308.

OPEN RECRUITMENT - Opportunities for Lab employees and outside candidates.

ASSISTANT SCIENTIST (S-1) - Requires a Ph.D. in physics, chemistry, materials science, or a closely related field, as well as postdoctoral experience. Expertise in terahertz spectroscopy of superconducting materials and in picosecond time-resolved electron diffraction of superconducting materials is desired. Successful candidate to start a new program in ultrafast spectroscopy and terahertz spectroscopy of superconducting and correlated electron materials. Must have the capability to start a new program utilizing ultrafast electron pulses as a picosecond time-resolved materials probe of complex materials. Under the direction of J. Misewich. Condensed

Matter Physics & Materials Science Department Position No. KH4592.

SCIENTIFIC STAFF POSITION - ASSISTANT (S-1)/ASSOCIATE (S-2) - Requires a Ph.D. in physics, chemistry, materials science, or a closely related discipline and at least one year of postdoctoral experience. Excellent communication and interpersonal skills and a demonstrated ability for productive work in several projects simultaneously are required. A documented track record of successful independent research based on *in-situ* low-energy electron microscopy and/or photoelectron microscopy is most desirable, including experience in the planning, implementation, and analysis of real-time microscopy experiments of growth, chemical reactions at surfaces, or similar surface processes. Candidates with other relevant expertise, such as *in-situ* transmission electron microscopy or scanning probe microscopy, may be considered as well. Several years' experience in ultra-high-vacuum techniques and experimentation at synchrotron light sources will be regarded as a plus. Expected to establish an outstanding independent scientific program using state-of-the-art cathode lens microscopy techniques, aligned with the (broadly defined) scientific themes of the CFN (nanocatalysis, electronic nanomaterials, nano/bio interfaces). The level of the position will be based on the background and experience of the selected candidate. Under the direction of P. Sutter. Center for Functional Nanomaterials, psutter@bnl.gov, referring to Position No. KH4013.

POSTDOCTORAL RESEARCH ASSOCIATE - Requires a Ph.D. in chemistry and a knowledge of and experience with semiconductor fabrication techniques together with a knowledge of relevant solid-state and surface/interface chemistry. Experience with x-ray techniques and synchrotron radiation is desirable. Must be capable of developing new processes for the fabrication of semiconductor devices. This position is in support of a project to develop a planar process for germanium semiconductor devices similar to the well-known process for silicon. This involves gaining the understanding of the germanium surface and developing the various components of a planar semiconductor process, including: designing surface layer suitable for use as an implantation mask, developing process steps for patterning the layer, making electrical contacts on the germanium suitable for connection to external circuits via aluminum wire wedge-bonds, processing the implanted wafers and testing fabricated devices. Under the direction of D. Siddons. National Synchrotron Light Source Department, siddons@bnl.gov, referring to Position No. KH3254.

SCIENTIFIC STAFF POSITION - ASSISTANT (S-1)/ASSOCIATE (S-2) - Requires a Ph.D. in experimental high-energy physics. Candidates are expected to have extensive experience in physics analysis or detector systems, be active in the Analysis Support Center, and will be expected to help lead one of the physics analysis efforts in ATLAS. We seek candidates with significant accomplishments and promise for future achievements in high energy physics. Successful candidate is expected to play an important role in the collider physics program at BNL. Research will be on the ATLAS experiment at the LHC in Geneva, Switzerland. BNL is

involved in many aspects of the ATLAS experiment. It is an ATLAS Tier-1 computing facility. It is designated as one of the US ATLAS Analysis Support Centers. The Omega Group has significant responsibilities in ATLAS for Liquid Argon Calorimeter, Cathode Strip Chambers in Muon Spectrometer, High Level Trigger, Technical Coordination, as well as software development for the event data model, detector performance and analysis tools. The physics analysis effort focuses on understanding the early physics potential at Large Hadron Collider, search for Higgs and supersymmetric particles. The level of the position will be based on the background and experience of the selected candidate. Under the direction of D. Lissauer. Physics Department, lissauer@bnl.gov, referring to Position No. KH4571.

SENIOR TECHNOLOGY ARCHITECT (I-10) - Requires a B.S. in Computer Science, Electrical Engineering or Physics. A minimum of ten (10) years' experience in the design and development of control systems for accelerator control is required. Experience with tools for system configuration, Oracle, SQL programming, is required. The successful candidate will have superior analytical and problem-solving skills and considerable experience in functioning in a lead design role. Strong communication skills and the ability to work effectively with a diverse group of scientists and engineers are critical. Reporting to Diagnostics & Controls Group Leader, the Senior Technology Architect will lead the design and development efforts of relational database tools and applications for NSLS-II throughout all phases of the project. Responsibilities include the installation and development of an Oracle database to support the physics applications, system configuration, instrument and wiring documentation. The position requires the management and participation in the development of the tools required for utilizing the database for data entry, report generation, and data extraction required to load configuration parameters for machine control and modeling support. National Synchrotron Light Source II. morton@bnl.gov, referring to Position No. TM4657.

SENIOR TECHNOLOGY ARCHITECT (I-10) - Requires a B.S. in computer science, electrical engineering or physics. A minimum of ten (10) years' experience in the design and development of Control Systems for Accelerator Control is required. Programming experience with either C++ or JAVA required is required. Proficiency in real time programming, XML, XML-RPC, C, JAVA or C++, scripting such as PERL or Python, data visualization, data archive and retrieval, system monitoring, equipment control, fast feedback and modeling support, and UNIX is required. Experience with EPICS, XAL, and web-services is highly desired. Strong communication skills and the ability to work effectively with a diverse group of scientists and engineers are critical. Reporting to the Diagnostics & Controls Group Leader, the Chief Technology Architect will play a primary role in the control system architecture and tools that will be deployed to control and automate the NSLS II. The successful candidate will develop tools and applications and support the design and development of the applications of others. National Synchrotron Light Source II. morton@bnl.gov, referring to Position No. TM4658.

ADVANCED TECHNOLOGY ENGINEER/EXCHANGE ADMINISTRATOR (I-7) - Requires a B.S. degree, MCSE and/or equivalent work experience and 5+ years of hands-on management experience with Microsoft Exchange 2000/2003 in a multi-server enterprise environment including installation, configuration, maintenance, and troubleshooting. Requires Windows 200x skills with working knowledge of Active Directory/NT Domains, WINS, TCP/IP, DNS and server builds (Dell a plus). Familiarity with OWA, IIS, ISA and various e-mail client software is necessary. Must be able to demonstrate a working knowledge of 3rd-party product integration (such as backup/recovery, BlackBerry services, archiving products and enterprise monitoring); be a self-motivated professional with strong communications skills and should be able to support and troubleshoot issues independently during and after normal working hours. Responsibilities will include daily operations, problem diagnostics and performance tuning of our exchange environment. Additional responsibilities will include independent project work supporting integration of Exchange with enterprise monitoring and archiving strategies. Information Technology Division. morales@bnl.gov, referring to Position No. RM3458.

BUDGET SPECIALIST (A6) - Requires a bachelor's degree in accounting or business administration and a minimum of four years' relevant experience. Proficiency in Word, Excel, Outlook, and other MS Office software is required. Excellent written and oral communication skills, ability to communicate effectively with administrative and technical personnel is essential. Knowledge of BNL policies and procedures as well as PeopleSoft Financials or labor cost distribution is strongly desired. Excellent organization and analytical skills are necessary as is the ability to work well in a team environment. The ability to exercise a considerable degree of initiative and judgment is necessary. Will be expected to identify and resolve the majority of complex problems within work area. Involves considerable interaction within BNL to obtain and provide detailed and complex information that will be used

to make business decisions. Responsibilities will include budget development, estimating, analysis of cost and commitment, rate development, preparation of financial analyses and reports to management and ad-hoc analysis. National Synchrotron Light Source Department, tbuck@bnl.gov, referring to Position No. TB3264.

OFFICES SERVICES ASSISTANT (CW-2) - Requires AAS degree or three years' accounts payable experience, and knowledge of Excel and Word. Working knowledge of personal computers, exposure to computerized business systems, and knowledge of PeopleSoft are desirable, and good oral and written communication skills are necessary. Responsibilities will include opening and sorting incoming mail, filing, invoice processing in accordance with BNL policies, daily check processing, and providing Accounts Payable guidance to Laboratory organizations. Accounts Payable/Fiscal Division, morales@bnl.gov, referring to Position No. RM4210.

Motor Vehicles & Supplies

06 CARGO TRAILER (CARRY ON) 6x10 - Encl, sp. tire, LED Tail Lights, Rf Vent, Side Dr, Dbl rear drs. \$2,000. John, Ext. 7018.
04 BMW R1200C MONTAUK - 1200cc, ABS, chrome pkge, excel cond., extras. 2,500 mi. \$10,300/neg. Frank, Ext. 5131.
03 MERCURY MOUNTAINEER - AWD, a/t, 3rd rd seat, 6cd, 8cyl. (towing), excel cond., one owner. 50K mi. \$15,200/neg. 775-0266.
00 HARLEY DAVIDSON ROAD KING - lots of extras. 6500 mi. \$15,500. 374-3682.
96 AUDI A4 QUATTRO - V6 2.8, blue ext, gry lthr int, 5spd manual, gd cond, m/ roof, Bose stereo. 132K mi. \$4,800. Ext. 2576.
96 SUZUKI SIDEKICK - 4cyl, 4dr, 4-by-4. 125K mi. \$1,000/neg. Nobuyuki, Ext. 8088.
95 HONDA MAGNA - extras, nds cleaning & tune up, runs v.well, + 40/45 mpg - full face helmet. 49K mi. \$2,850. 484-1133.
94 FORD MUSTANG GT - cd, AM/FM, AC, gd condition. \$1,600. Cynthia, 286-3545.
85 PROWLER REGAL - 28' tag-along camper. Some cosmetic wk. All appls work. Slps 5. \$1,000/neg. Ext. 7912 or 516-316-6346.
85 TRAILER 24' PROWLER - grt cond. Slps 7. 4 bunk beds, new tires, A/C Lg Awning. \$3,000. Martin, 631-585-2335.
83 KAWASAKI SPECTRE 750 - Runs, wind jammer shield, nds some TLC. 12K mi. \$600/neg. Peter, Ext. 4028 or 897-6283.

Boats & Marine Supplies

19' GRADY WHITE TOURNAMENT - 130 hp Yamaha, magic tilt trlr, full encl., VHF & Depth Fdr, more. excel. \$8,000/neg. 878-8302.
AVON INFLATABLE BOAT - Model 3.15 w/ roll up floor, excel cond, wood oars, bow bag wnt/grey 10 HP max \$1600. Ext. 2799.

Furnishings & Appliances

BABY GATE - Metal, off-wht color, adj to larger width, hardware incl, \$20. Ext. 3621.
BEDROOM ITEMS - Qu. matrress (\$50, ~new), Futon + matrress (\$35), IKEA Chest (new, \$35), IKEA shelf (\$5). Rama, Ext. 8215.
BUNKBED LOFT SYSTEM - TWIN - White atchd dressers, toy box at top, excel. cond. Drawers still have warr. 662-1220.
CURIO CABINET - Corner cabinet, 4 glass shelves, excel cond \$75; Ent/taimnt cntr, 4 pieces, excel cond \$250. Ext. 3362.
GAS OVEN/STOVE - Approx. 10 yrs old, almond color, \$100.00. Peter, Ext. 4028 or 897-6283.
TV ARMOIRE - Pine finish. Fits up to 37" TV with space for stereo equip \$200 neg. Jim, Ext. 7912 or 516-316-6346.

Audio, Video & Computers

SATA EXT. HDD - New, Beyond Micro 320GB, 3.5" SATA II, USB2.0 and eSATA interface w/cables, AC adapter, \$150 neg. Michael, Ext. 2550 or 744-7360.
TV & ENTERTAINMENT SYSTEM - Sony Trinitron 29" TV, Philips Stereo System with 5 Speakers + Sub Woofer, Samsung DVD, Philips VCR. Rama, Ext. 8215.
X-BOX 360 - w/modem/auto-save; 3 cntrls; 5 games: NBA LIVE 07; MADDEN 07; LOST PLANET; GEARS OF WAR; GHOST RECON; 3yr warr. Ext. 6344.

Sports, Hobbies & Pets

COMICS - Original X-Men, silver age, Issues 39-49, great condition, not graded. Asking \$200 for all. Ext. 4538.
SCUBA TANK - 80 cf alum. LUXFER tank w/valve, excel. cond., needs hydro & vip. \$75. Ext. 2799.
TRAMPOLINE - 15 ft. dia. \$30. Mark, Ext. 3837 or 365-9822.

Tools, House & Garden

TOOL BOX FOR PICKUP TRUCK - fits small pick-up truck beds (Ranger, S10, etc.) \$100 obo. Henry, Ext. 5370.
UNITED COMMERCIAL FREEZER - 65" t, 3' w, hvy dty full size. Wht, defrost setting, sm dent on side. \$200/neg. Melanie, Ext. 5810.

Miscellaneous

CUBE SLIDE - excel. cond. \$20. John, Ext. 4028.
FRAGRANCE GIFT SET - Dream Angels 'Divine' by Victoria's Secret, retails for \$54, asking \$25. Ext. 4538.
RANGE HOOD - Broan, white, 36" range hood. Brand new. Asking \$35. Ext. 5561.

WEDDING DRESS - New, size 10, \$250 (orig. \$1,350). Ext. 3621.

WOODEN SWING SET - swings, glider, fort w/slide, cargo net, monkey bars. You pick up. \$125.00. Ext. 5132 or 744-6309.

Yard & Garage Sales

YAPHANK - 482 Yaphank-Mdl Is Rd., 5/19 & 20, no reasonable offers refused, something for everyone. Ext. 4538.

Happenings

MOTORCYCLE RUN - Harry Chapin Food Bank 1st Annual Run - 6/24, 11am. For flyer: mschwart@bnl.gov. Melanie, Ext. 5810.

Free

CAT FOR ADOPTION - loving, spoiled, well-mannered indr cat, abt 6 yrs. old, Siamese mrkgs, blue eyes. Ext. 5090 or 828-2172.
DAY BED - Trundle. Does not have sides. Can use it as sofa. Back cushions. Pic avail on request. Hans, Ext. 5116.
FOLDING TABLE - 10'x30" cafeteria style tbl, caster wheels. You pick up. 588-1214.
GARAGE DOOR - All wood w/top glass row, 9'wx7'h, w/tracks, springs, etc. Avail. for one week. Ext. 4507 or 878-1060.

Wanted

BABY GATE - want wooden baby gate, must be Evenflo brand, adj. type. Ext. 3621.
BABY SWING - for infant up to 30 lbs. Nice tune. Gd cond. Prefer no batteries needed. Williamson, Ext. 4992.
BOSTON WHALER - 17' Montauk Boston Whaler, good shape. Ken, Ext. 3124.
CAMPER HOT WATER HEATER - Looking for a 6.2 gall. Steve, 404-8109.
COMPUTER DESK & VACUUM - sm or mid-sz computer (study) desk & a vacuum nted. Ext. 3829.
FOOSBALL TABLE - Good qual used table wanted. Must be workg cond. All prices considr. Will pick up. Eric, Ext. 8226.
HOUSE TO RENT - at least 2 bdms w/lots of closets, prefer close to Lab, \$1300/mo or less. Excellent tenants! Ext. 4538.
HOUSE TO RENT - 1-3 bdms. Close to Lab will be better. Ext. 5351.
ROOM OR APT - Cheap, near Lab. Kitch& bath. For at least 1 yr, max 2 yrs. 1 person. Eugenio, Ext. 2365 or 375-6341.
SONY CYBERSHOT CAMERA - Looking for models DSC-W1 or DSC-W5, but might consider others. Ext. 3621.
YARD SALE ITEMS/DONATIONS - for yd sale, 6/2, to raise \$ for restor/upkeep of abandoned cemeteries in Patchogue. Steve, Ext 2496 or Donna, Ext 2826, Ext. 2826.

For Rent

BROOKHAVEN - One room of a charming house in B/haven Hamlet, v quiet area, use of kitch, w/d, cent. a/c, high spd internet, rent incl all. \$475/mo. 286-4028.
CENTER MORICHES - 1 bdrm., full bath, nice area, pkg, apt. in sep. bldg., large closet, eik, nr. Lab. \$800/mo. 878-1178.
CORAM - Spacious 1 bdrm apt, l/r, den, eik, full bath, large closets, dishwasher, a/c; free club house, pool, tennis court. heat & water incl. \$1,100/mo. 745-1580.
EAST PATCHOGUE - newly renov 1-bdrm. apt., kit., 1/r, bath, pvt. ent., no smkg/pets, 1 mo. sec, utilities incl. \$995/mo. Sandy, Ext. 2922 or 475-2705.
MILLER PLACE - 1bdrm 11'x12', lvg area/kitch combo 10'x12'. Bath w/shower stall. Gr flr, bright, quiet. No smkg/pets. For 1 pers. mid-June. \$750/mo. 928-8322.
PATCHOGUE VILLAGE - 4-5 bdrm house \$1800/mo + utils, yr to yr lease, nr. stores, schools. l/r, den, d/r, + 2.5 bath, bsmt fresh paint \$1,800/mo. Ext. 7430 or 286-6492.
SHOREHAM - Ranch, 3 bdrms, 1 bath, l/r, den, kitch, w/d, 1 car garage, large yard, utilities extra, \$1,800/mo. 258-4607.

For Sale

FARMINGVILLE - 4BR, 3bath, 2 kitchens, perf. for mother/daughter. OSE, l/r, dr, vaulted ceilings, w-to-w carpet, 2 heating zones. \$339,000. Bob, 965-6186.
MANHATTAN - Timeshare, any 7 days per year. Across from Carnegie Hall. Sleeps 4, 1 bath, kitchen. \$23,500 OBO. Gerhart Friedlander, 631-650-3222.
MASTIC BEACH - 3-bdrm., 1 bath ranch, totally renov, hdwd flrs, new windows, new kich., more. \$275,000/neg. 516-449-1623.
MEDFORD - Updated 3 bdrm. Condo in Blue Ridge Development. See www.for-salebyowner.com/20793141. \$329,900/neg. Eileen, Ext. 3995 or 696-4366.
MILLER PLACE - 4/5 bdrm, 2.5 bth - 3200 sq ft. mod. Col. in new develop. FLR, FDR, Den w/fp, hdwd flrs, grnte eik, CAC, bsmt, 3/4 acre fenced. \$770,000/neg. 880-1765.

On-Site Services

ENTERPRISE RENT-A-CAR - Stop by the on-site office at Bldg. 355, 50 Brookhaven Ave., to check weekend specials, daily rates. Or call Ext. 4888 or see www.enterprise.com.
ON-SITE SERVICE STATION - All vehicle services, NYS inspections, new batteries, tires, timing belts, repairs, etc., done while you are at work. Ext. 4034.
NAYYARSONS DINING at BROOKHAVEN CENTER - full menu dinners 5-8 p.m.; specials 5-6:30 p.m. 3-course, wine/soda, coffee, \$10.95 or \$9.95 (no take out); Weds. rib-eye steak, veg., Bud. \$11.95, all plus tax.