BROOKHAVEN BULLETIN
Vol. 54 - No. 20 June 9, 2000
BROOKHAVEN NATIONAL LABORATORY

I Think, Therefore?

BNL and the Friends of Brookhaven hosted the second annual Science in Society essay contest awards ceremony on May 5. The contest challenges juniors and seniors at selected high schools near BNL to question and deliberate the purposes and social implications of scientific research.

At the ceremony, finalists from each of eight participating schools presented their essays and received plaques, T-shirts, and $200 each. A Grand Champion, chosen from among the finalists in judging that took place prior to the ceremony, was awarded an additional $500. All prize money was donated by Friends of Brookhaven. Below is an abbreviated version of the winning essay, "I Think, Therefore?" by Louis Volle of Eastport/South Manor High School.

The Nobel laureate Francis Crick once said, "In spite of the steady accumulation of detailed knowledge, how the human brain works is still profoundly mysterious." Although these words were spoken many years ago, Mr. Crick's observation still applies today. . . . The brain is a magnificient machine: the only machine that wonders about itself. It is still one of the greatest frontiers in science . . .

Brain research utilizes the whole spectrum of scientific resources. Entire laboratories are devoted to learning how brain chemicals work, or how people sleep, or how drugs alter the mind. While some researchers are looking for answers to basic biological and chemical questions, others are searching for ways to retard the aging process or for ways to eliminate pain . . . Some researchers look for methods to cure mental disorders or for ways to allow the blind to see and the deaf to hear. . . . Some study

(continued on page 2)

Roger Stoutenburgh

Jose Rodriguez, Andrea Freitag and John Larese prepare samples for analysis. Their molecular-level research into how catalysts adsorb pollutants could lead to the development of more effective catalytic converters and smokestack scrubbers.

Catalyst Studies May Yield Better Pollution Traps

Better catalytic converters and smokestack "scrubbers" could help keep pollutants out of the air. Studies on how pollutants stick to or are broken apart by certain materials, now under way in BNL's Chemistry Department, could be a step in that direction. In March, Chemistry Research Associate Andrea Freitag presented results of one aspect of this work — how magnesium oxide (MgO) adsorbs hydrogen sulfide (H_2S) — at a meeting of the American Physical Society.

Sulfur is a common impurity in fossil fuels. Upon combustion, sulfur by-products such as H_2S can contribute to air pollution and acid rain. To keep these pollutants out of the atmosphere, catalytic converters and smokestack scrubbers typically contain metal-oxide catalysts that adsorb the pollutants, that is, cause them to stick to the catalyst surface.

"But many of these devices were designed on a trial-and-error basis, without understanding the detail of how they actually work," Freitag says.

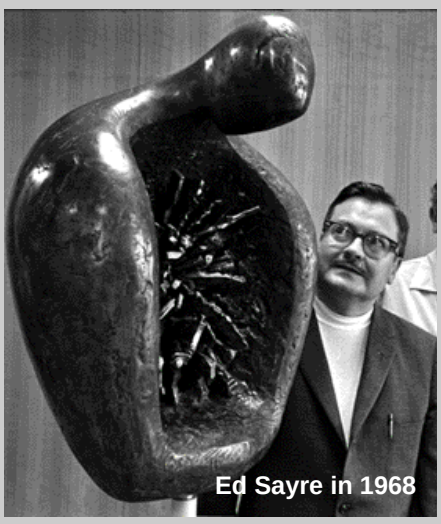
Furthermore, the catalysts typically used are made from expensive metals, such as platinum and rhodium. Over time, some of these catalysts lose their ability to adsorb pollutants, "like a Slinky that loses its springiness due to overuse," says John Larese, a Senior Scientist in Chemistry.

Freitag, Larese and Jose Rodriguez, also of Chemistry, are working to develop new catalysts based on less-expensive metals, such as magnesium and

(continued on page 2)

BNL Retiree Ed Sayre Wins Archaeology Award

Former BNL Chemist Ed Sayre was recently awarded the Pomerance Award for Scientific Contributions to Archaeology by the Archaeological Institute of America. Much of his work, including the development of a variety of techniques to analyze and authenticate archaeological artifacts, took place during his tenure at BNL from 1952 to 1984. "I was very pleased to be remembered," Sayre said from his home in Washington, D.C. "The scientific support we have been able to give to the fields of archaeology and the fine arts has been well received. This has been very gratifying to me."



Ed Sayre in 1968

Sayre is best remembered for establishing neutron activation analysis as a means of dating and determining the geographic origins of artifacts. He also helped develop a method to analyze the structure and composition of oil paintings that enables scientists to attribute particular paintings to particular artists — and uncover frauds.

He also worked with BNL Chemists Garman Harbottle and Raymond Stoenner to develop a method of carbon-14 dating that can be used with very small samples.

(continued on page 2)

355th Brookhaven Lecture

RHIC Commissioning: The Gold Rush Toward Collision

These are exciting times for accelerator physicists, especially those witnessing the labor pains of the Relativistic Heavy Ion Collider (RHIC).

For a full account and an up-to-the-minute progress report on the commissioning of Brookhaven's newest "baby," don't miss the 355th Brookhaven Lecture, "RHIC Commissioning: The Gold Rush Toward Collision." The lecture will be given by Accelerator Physicist Fulvia Pilat of the Collider-Accelerator (C-A) Department next Wednesday, June 14, at 4 p.m. in Berkner Hall.

Pilat, one of seven shift leaders in the RHIC control room, will give a chronological history of the past few months, conveying both the latest developments as well as a sense of the atmosphere in the control room.

"It's a very high-energy environment," she says. "At times it seems like you hit your head into the wall trying to solve some problem, and then you get a breakthrough and make a great leap."

At press time, the RHIC commissioning team had succeeded in circulating beam simultaneously in both rings to 66 billion electron volts (GeV), the target energy for first collisions. They are now fine tuning the alignment of the beams so they will collide head-on at the six intersection points. First collisions could come at any time.

Fulvia Pilat began her physics career at CERN, the European laboratory for particle physics in Geneva, Switzerland, while earning her Ph.D. in physics from Italy's University of Trieste. After six years at CERN, Pilat, born in Trieste, came to the U.S. to work on the Superconducting Super Collider.

Roger Stoutenburgh

Fulvia Pilat in the RHIC/AGS control room

She joined the BNL staff in April 1994, and has worked on all phases of RHIC, from the design and modeling to the beam tests prior to commissioning and beyond. "For me, it's been a first to see an accelerator starting from scratch," Pilat said.

Refreshments will be served before and after the lecture. To accompany Pilat for dinner at a restaurant after her talk, call Mary Campbell, Ext. 4776, by noon on June 14.

— Karen McNulty

Pollution Traps *(cont'd)*

zinc, and are conducting molecular-level studies of how the pollutants and catalysts interact. Their findings may help engineers build a better pollution trap.

For example, the scientists have used x-ray diffraction at Brookhaven's National Synchrotron Light Source and neutron scattering at facilities in Europe to take molecular-level "pictures" of how the pollutant molecules adhere to the catalyst crystals. In accompanying thermodynamic studies, in which the catalyst is held at a constant temperature while the pressure of a pollutant gas above it increases, the scientists calculate the capacity of the catalyst to adsorb the pollutant.

"These studies enable us to match what's happening thermodynamically with what's happening microscopically," Larese says.

For example, the team has shown that when H_2S adsorbs on MgO, two or three uniform layers form at distinct intervals as the pressure increases. The studies also show that the adsorption process can be reversed if the catalyst is heated to release the adsorbed gases. That means the catalyst can be used over and over, eliminating the "worn-out Slinky" problem.

Larese and Freitag are also looking at ways to tailor-make MgO and other catalyst crystals to increase their adsorbing capacity — for example, by altering the crystals' size or shape to increase their surface area, or by doping the crystals' surfaces with other reactive metals.

The structural and thermodynamic studies are the key, Larese says. "You can make a better catalyst if you understand the process."

— Karen McNulty

Visitor, Vendor Access Update

Access to BNL is controlled by permitting entrance only to those persons who have official business at the Lab and only to those visitors who are properly sponsored.

Recently, there has been a steady increase of unannounced arrivals of casual visitors at the main gate. Thus, to avoid having vendors and visitors delayed at the gate while the purpose of their visits is being verified, the Safeguards & Security Division (S&SD) asks that employees who sponsor vendors and visitors inform the division at least 24 hours before their guests arrive. The 24-hour lead time is needed to compile a visitor log used at the main gate and indexed by date, arrival time, event and sponsor's name.

During normal business hours, 24 hours in advance of a visit, sponsoring employees should provide S&SD with the following information: the name of the visitor, the date of the visit, the approximate arrival time, the name of the event being attended or reason for visit, the name of the visitor's sponsor and that person's extension.

During the usual weekday business hours, send this information to S&SD, Bldg. 50; fax it to Ext. 5688; or phone it to Ext. 4271 or 2880. To notify S&SD during other hours, come to Police Headquarters in Bldg. 50, fax Ext. 5457, or phone Ext. 2238 or 2239. Due to the volume of visitors, do not call the main gate with this information.

When a visitor arrives, S&SD patrol officers at the main gate may announce the visitor's arrival and verify the information provided by calling the sponsoring employee, traffic conditions permitting, or the visitor will be asked to call his/her point of contact and have them call one of the above numbers.

Science Fair Success

Michael Herbert

On Saturday, May 13, more than 660 elementary school students and their parents and teachers came to BNL to participate in the sixteenth annual BNL Elementary School Science Fair. Prizes and honorable mentions were awarded to students in each grade level. Fourth grader Monica Weinberg (above), from the Lincoln Avenue Elementary School in Sayville, won for her project entitled "Quantitative Comparison: Effects of Different Foods on Stomach Acid."

"I Think, Therefore?" *(cont'd)*

techniques to eliminate violence . . . [prevent] strokes or tumors and repair . . . brains damaged by disease or accident. Scientists are looking for ways to expand creativity and even increase intelligence. It is the blending of chemistry, physics, mathematics, biology and computer science that makes these discoveries possible.

Technology has also played a large role in brain research. . . . Inventions [such as] computed tomography scans and magnetic resonance imaging have revolutionized the biological world. . . . Positron emission tomography scans have provided functional details of the brain and an insight into metabolic functions.

Although we have come a long way, there is still much more to be discovered. The question I would like science to answer is: "Where and how do thoughts arise?"

It is already known that . . . the cerebral cortex is responsible for much of the intellectual capacity of the brain. Intelligence of a human develops partly by means of stored impressions received by the five senses. . . . These stored impressions can usually be recalled at will to a conscious level. Some memories often last a lifetime, suggesting that long-term or remote memory depends on a type of permanent change that occurs in neurons. Recent memory is somewhat less stable.

Intelligence and memory generally result from some sort of stimulus. They can be considered the effect of an occurrence outside the human body. But what if there were no stimuli? Suppose a human were . . . placed in an environment in which no stimuli existed; if that person were to have a thought, where would it arise from? . . . What neuronal or neurochemical event occurs at the inception of a thought? What is the source of a thought *de novo?*

This question transcends many fields, and, in order to answer it, a cross-disciplinary integration of researchers in psychology, philosophy, artificial intelligence, anthropology, linguistics, and neuroscience would be required. But before finding a solution, I feel that it is important to understand the difference between the mind and the brain. Once the difference between the conceptual part and the physical part can be deciphered, the question can then be tackled. What form does a thought have prior to it being stored in and taking up a physical part of the brain? My question pertains to the uncharted territory [among] the psychological, philosophical and physiological.

If this question could be answered, the impact of this knowledge would be far-reaching. By finding out what a thought is and its origin, perhaps the quality of thought could be altered. The implications of this knowledge could affect public health or public education, e.g., in the recommendations for nutritional requirements or the necessity of early childhood intervention. If the differences between certain thoughts could be revealed, then the causes of violent thoughts could be compared with those of peaceful ones. The creative or inventive could be contrasted with the average or ordinary. The quality or frequency of thoughts might even be altered to benefit society.

However, such powerful knowledge might be misused. Uniform standards could be imposed on the kind of thoughts allowed. Creativity would possibly be sacrificed, unique ideas lost, and inventions might cease to exist. Who we are and what we are is determined by our minds. Who will set the standard and who will be the enforcers? The societal implications would be endless. . . .

— Louis Volle

Retirement Planning Seminar, June 19

A TIAA-CREF representative will give a one-hour seminar on "Investments and Options at Retirement" on Monday, June 19, at noon in Berkner Hall Auditorium. The seminar will cover withdrawals, minimum distributions, survivor benefits and annuities. If you plan to attend, please complete the form mailed to all employees and return it to the Human Resoruces Division, Bldg. 185, by June 9, or send an e-mail to Joyce Wund at jwund@bnl.gov.

Also, remember that a TIAA-CREF representative will be on site on Tuesday and Wednesday, June 20 and 21, to conduct a limited number of 45-minute one-on-one retirement counseling sessions. To arrange an appointment, call Duane Walden, 800 842-2733, Ext. 7289 (*not* on-site Ext. 7289).

Sayre Award *(cont'd)*

In addition to his work at Brookhaven, Sayre served as a visiting professor at the American University in Cairo, 1969-70; he was head of the research laboratory at the Museum of Fine Arts in Boston; and he was an adjunct professor of fine arts at New York University. After leaving Brookhaven, he signed on as a senior research scientist at the Smithsonian Center for Material Science and Education, an emeritus post he still holds.

"There will continue to be a need for active collaboration between art historians, archaeologists and physical scientists in which each can bring his or her own expertise to the resolution of problems that arise in these disciplines," he said. — Karen McNulty

NSLS Tour, June 14

At its next meeting, on Wednesday, June 14, the Long Island Section of the American Nuclear Society (LIANS) will host a tour of the National Synchrotron Light Source (NSLS). There will be a short presentation and a buffet, courtesy of the LIANS, in the NSLS second floor conference room at 6 p.m., before the tour. Members and non-members are invited. Contact Arnie Aronson, Ext. 2606, by Tuesday, June 13, to attend the tour.

Wireless Phone Special

On Wednesday, June 14, from 10 a.m. to 2:30 p.m., a representative from Voicestream/Omnipoint Communications will be in the Berkner Hall lobby to discuss special rates for BNLers for digital PCS wireless services on its GSM network. All plans include free features such as caller ID, voice mail, and SMS messaging. Plans range from $15.99 per month for no minutes, a free phone, and no contract, to $39.99 per month for 500 minutes with the first incoming minute free and free weekend calling with a one-year contract. For more information, call Richard Goll at 343-5900.

Service Awards

The following employees celebrated service anniversaries during May 2000:

35 Years
Robert A. Brown ..... Rad. Control
Conrad F. Koehler ..... Chemistry
Bruce A. Style ..... Info. Services

30 Years
Herbert J. Langenbach ..... NSLS
Joan D. Perullo ..... Staff Services

25 Years
Michael A. Iarocci ..... C-A
Mary Anne McGrath ..... HR

20 Years
Jean Bunselmeyer ..... Staff Svcs.
Eileen G. Pinkston ..... NSLS
Hugh D. Rhodus ..... Plant Eng.

10 Years
Neil V. Baggett ..... Physics
Charles Dimino ..... Reactor
Elizabeth A. Hicks ..... NSLS
Kenneth A. Kentoffio ..... Plant Eng.
Richard E. Meier ..... C-A
Louvania Minter ..... Staff Svcs.
Carmen M. Narvaez ... Plant Eng.
Paul O'Connor .... Instrumentation
Joseph E. Perry ..... Emer. Svcs.
William T. Robinson ..... Plant Eng.
Dawn M. Schick ..... Fin. Svcs.
Robert L. Soja ..... Physics
William J. Struble .... Cent. Shops
Bruce A. Thyberg ..... Plant Eng.
Raymond J. Van Houten Plant Eng.
Patriche A. Windley ..... Fin. Svcs.
Michael J. Zarcone ..... Physics

Computing Corner

The following PC training classes have been scheduled for June:

date	class	level
6/13&14	Access	beginner
6/15	Windows	basics
6/19	PowerPoint	beginner
6/21&22	Project	beginner
6/26	PowerPoint	intermediate
6/27	Excel	beginner
6/29&30	Word	advanced

For more information, see the ITD training page at www. ccd.bnl.gov/bnl/training/ or contact Pam Mansfield, Ext. 7286 or pam@bnl.gov.

JAVA Training in August

A five-day JAVA programming class will be held August 21-25 in the training room of Bldg. 515, 9 a.m. to 4:30 p.m. The fee is $1275 per student. To register, send an ILR to Pam Mansfield, Bldg. 515, by June 26.

Equipment Demos

Rent-a-PC

Rent-a-PC will be in Berkner Hall on Tuesday, June 13, 11 a.m.-2 p.m., to discuss short-term computer rentals for BNL employees. Desktops, notebooks, LCD projectors, servers, etc. are available for a day, a week, a month or more, with immediate availability as well as local delivery, setup and on-site support. "No-excuses" guarantee. For more information, call 273-8888.

Fiberglass Products

On Wednesday, June 14, Fiberglass Products Company will be in Berkner exhibiting fiberglass mechanical and structural products, such as pipe, tanks, grating, doors, roofing and siding enclosures. The company will also show epoxy-floor toppings, concrete repairs, epoxy-crack injection and chemical grouting.

Defensive Driving

The training group of the Safety & Health Services Division will offer a six-hour defensive driving course on Saturday, June 24, 9 a.m.-3:30 p.m., in Room B, Berkner Hall.The course is open to BNL, BSA and DOE employees, BNL facility-users, and their families, at $23 per person. Completing the course entitles participants to a 10-percent discount on liability and collision insurance for three years.In addition, MetLife now offers a 5 percent discount on auto and home insurance to BERA members. For more information on the discount, call 952-3436.To register, send a check made out to Empire Safety Council to Scott Zambelli, P.O. Box 670, Mount Sinai, NY 11766 by June 16. Include your phone number on the check in case you need to be contacted.

Digital Photography

The BERA Camera Club will meet on Wenesday, June 14 at noon in Room D, Berkner Hall, to discuss digital cameras, scanners, printers, PhotoShop, Quark, Illustrator and Corel Draw. Non-members are welcome. For more information, call club president Ripp Bowman, Ext. 4672.

BROOKHAVEN BULLETIN

Published weekly by the Media & Communications Office for the employees, facility-users and retirees
BROOKHAVEN NATIONAL LABORATORY

LIZ SEUBERT, editor
KAREN MCNULTY, acting editor
PETER GENZER, DIANE GREENBERG, contributors
ROGER STOUTENBURGH, photographer

Bldg. 134, P.O. Box 5000 Upton NY 11973-5000
phone (631) 344-2345, fax (631) 344-3368, e-mail bulletin@bnl.gov

On the World Wide Web, the Brookhaven Bulletin is located at www.pubaf.bnl.gov/bulletin.html. A Weekly Calendar listing scientific and technical seminars and lectures is found at www.pubaf.bnl.gov/calendar.html.

BSA Lunchtime Recital, June 14

Alhambra will present a program of Sephardic music for voices and instruments at noon on Wednesday, June 14, in Berkner Hall.

Alhambra was founded in 1981 by Isabelle Ganz to transcribe, record and perform Sephardic music preserved by descendents of the Jews of Spain. The ensemble has collected the songs of native singers, worked with transcriptions and arranged the music for performance on instruments appropriate to the folk cultures of the countries of origin.The group has toured Andalucia; performed at festivals in Lithuania, Turkey and the United States; and given a recital in the Royal Festival Hall's Purcell Room in London.

Alhambra's musicians come from New York City and Texas. They include: George Mgdrichian (oud, dumbek), Isabelle Ganz (mezzo-soprano, lyre, Hirtenschalmei, dumbek), Rosamund Morley (vielle, Kemenche Rumi, voice) and two guest artists. Translations of the songs will be provided.

BSA Lunchtime Recitals are free, informal and open to all. Audience members may bring lunch and come and go as they please.

Roll Up Your Sleeve: Blood Drive 5/19 & 20

Summer is approaching, which means good-bye to cold weather — but hello to a short supply of blood.

Unfortunately, summertime means more accidents and more accident victims needing blood. That translates into a depletion of the stock of local blood banks.

To replenish Long Island's blood supply as the long July 4 holiday weekend approaches, BNL is holding its annual summer Blood Drive — on Monday and Tuesday, June 19 &20, from 9:30 a.m. to 3 p.m. in the Brookhaven Center.

The last blood drive, which was held at the Lab on February 14, drew 211 BNLers and 195 units of blood. During this summer's donation day, BNL Blood Drive Chair Susan Foster asks the Lab community to top that number of donated units.

Those eligible to donate are people in good health between the ages of 17 and 76 who have not donated blood in the past 56 days.

To make an appointment, contact Foster at Ext. 2888 or e-mail donateblood@bnl.gov. In your message, include your name, extension, and preferred time to donate.

Healthline Lecture

Common Urological Problems in Men

Urologist Richard Musto will give the next Healthline lecture, "Common Urological Problems in Young and Older Men," on Tuesday, June 13, at noon in Berkner Hall. The talk will include discussion of infertility, impotence, urinary tract infections, benign prostate hypertrophy and prostate cancer. All are invited to the lecture, which is sponsored by the Health Promotion Program (HPP) of the Occupational Medicine Clinic.

Richard Musto, M.D., is a graduate of Downstate Medical Center. Since 1977, he has been a practicing physician affiliated with St. Charles, Mather, Brookhaven and Central Suffolk Hospitals. He is a Fellow with the American College of Surgeons, a Diplomat in Urology, and the Chief of Urology at Mather Hospital.

To register for this lecture, complete and return the bottom portion of the Healthline flyer recently sent to all employees to Health Promotion Specialist Mary Wood. For more information about HPP and its Healthline lecture series, call Ext. 5923.

GLOBE@BNL Today

The monthly meeting of the gay and lesbian club, GLOBE@BNL, will be today, Friday, June 9, at 7 p.m. For more information and the meeting's location, call Mike Loftus, Ext. 2960, or Chris Gardner, Ext. 4537; or go to the club's web site: http://homestead.juno.com/bnlglobe/files/home.html.

Rifle & Pistol Club

The BNL Rifle & Pistol Club will meet on Wednesday, June 14, at noon in the conference room of Bldg. 535. For more information, call Joe Gatz, Ext. 4212; Jim Durnan, Ext. 5993; or the club's hotline, Ext. 2658. Or go to the club's Web page: www.berahome.bnl.gov/clubs/rpc/rpc.html.

CSCoRE 2000, 6/27 & 28

Remember the Love Bug virus? For the latest on computer security, come to CSCoRE 2000, a BNL-hosted conference on June 27 & 28. The registration fee has been discounted to $50 for employees who sign up by June 15. For details or to register, go to www.ccs.bnl.gov. The Information Technology Division has arranged the conference to help resolve difficulties in doing collaborative science while maintaining computer security.

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 employees within the department/division and/or appropriate bargaining unit, with preference for those within the immediate work group; (2) present 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; call the JOBLINE, Ext. 7744 (344-7744), for a list of all job openings; use a TDD system to access job information by calling (516) 344-6018; or access current job openings on the World Wide Web at http://www.bnl.gov/JOBS/jobs.html.

OPEN RECRUITMENT – Opportunities for Laboratory Employees and Outside Candidates.

MK8893. SCIENTIST – To assist with the design and implementation of the off-line computing infrastructure for PHENIX and participate in the analysis of PHENIX physics data. Requires a Ph.D. in nuclear or high-energy physics and demonstrated skills in C++ and object oriented design. Familiarity with object-oriented and relational databases and a working knowledge of Linux and other Unix operating systems desirable. Under the direction of D. Morrison. Physics Department.

MK7985. POSTDOCTORAL RESEARCH ASSOCIATE – To participate in studies of the structural, electronic and chemical properties of metal and metal oxide surfaces. Experimental work will involve the use of ultrahigh-vacuum techniques for surface characterization and a chemical reactor for catalytic studies under high-pressure conditions. Requires a Ph.D. in physical or chemical engineering, extensive experience in the use of techniques for surface characterization, and a strong background in surface spectroscopies and surface chemistry/catalysis. Experience with computer programming and experience in the use of synchrotron-based techniques (photoemission, x-ray absorption spectroscopy, x-ray diffraction and infrared spectroscopy) is desirable. Under the direction of J. Rodriguez. Chemistry Department.

MK8523. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in accelerator physics or a closely related discipline, and a significant base of accelerator physics experience – experimental and/or theoretical. Operational experience in the control room is highly desirable, since the position will involve active participation the RHIC commissioning and development. Software skills in C++ are desirable, as are established skills with accelerator and/or RF hardware. The positions are in the Accelerator Physics Group or the Radio Frequency Group. The Collider-Accelerator Department operates the AGS and the AGS Booster and is the early stages of commissioning RHIC, the superconducting Relativistic Heavy Ion Collider. Under the direction of S. Peggs. Collider-Accelerator Department. (Reposting)

NS8624. ELECTRICAL ENGINEERING POSITION – Requires a minimum of a BSEE and an interest in both digital and low-level analog design. Responsibilities will include general electronic design support as well as assuming a leading role in the group's detector development program. This program is a collaboration between the NSLS and BNL's Instrumentation Division, and aims to provide advanced detector systems for use at NSLS beamlines. National Synchrotron Light Source Department.

NS7964. UNIX SYSTEM ADMINISTRATORS – Requires a BS in computer science, or the equivalent, and at least five years' experience administering UNIX systems in a production environment.Certification in Solaris and/or Linux is required, as is experience with common tools used to remotely administer systems. An understanding of system operations under load and experience with performance and kernel tuning is necessary, as well as a working knowledge of scripting languages used for system administration, such as Bourne shell, and Perl, as well as NIS. Knowledge of TCP/IP networking as it relates to system/network interactions is necessary; experience with C and/or Java a plus. Information Technology Division.

NS7892. NT SYSTEM ADMINISTRATOR – Requires a BS in computer science, or the equivalent, and at least five years' experience as an NT-based network administrator. Experience with TCP/IP, local area networks; T1 based external communication links for business critical applications; experience with Microsoft Exchange, MS Office, Excel programming, MS Access programming, and Crystal Report generation is required. NT certification is a must; SQL and VB and HTML programming experience is a plus. Will be involved with network setup, administration and maintenance; software and database installation and configuration; and end user report development. Information Technology Division.

(continued on page 4)

BNL Food Drive

Please give early, as the pickup is on June 15. Or, send personal checks to BNL Food Drive, care of Rita Kito, Bldg. 460, or Donna Wadman, Bldg. 129.

Classifieds *(cont'd)*

NS8626. SCIENTIFIC ASSOCIATE POSITION – Requires an MS or equivalent experience in physics or engineering, or comparable training, and knowledge of LabView programming, MS Office applications, and basic mechanical and electronic skills. Responsibilities will include coordinating the operation and development of the two NSLS microfabrication beamlines. National Synchrotron Light Source Department.

MK8892. PHYSICS ASSOCIATE POSITION (Term Appointment) – Requires an MS/PH.D., computer experience on the UNIX platform and experience handling large data samples. Will analyze data from experiment E-951 which will involve calculation of pion production distributions in proton interactions with Be, Cu and Au targets at 6, 12, and 18 GeV. Physics Department.

NS8979. PHYSICS ASSOCIATE POSITION (Term Appointment) – Requires an MS in physics, or the equivalent, familiarity with UNIX operating systems, and strong C/C++ programming and object-oriented design skills. Nuclear or particle physics training is highly desirable. Physics Department.

NS7742. CHEMISTRY ASSOCIATE POSITION – Requires MS/PhD in organic chemistry, or a related field, and experience in GC-MS and LC-MS techniques. Work will involve research in the broad area of environmental organic chemistry and organic geochemistry. Current areas of research include geochemical transformations of sedimentary nitrogen and sulfur and studies of metal-organic matter interactions in soils and sediments. Environmental Sciences Department.

DD8623. DRAFTER POSITION - term appointment, reposting – Requires significant experience with AutoCad in Windows 95/NT environment as well as familiarity with the ANSI Y14.5 Drafting Standards. Must be able to work with minimal guidance from engineers to prepare working drawings from layouts. Knowledge and/or experience in the areas of machine shop practice, welding, vacuum systems, cryogenic systems and magnetic components is highly desirable. National Synchrotron Light Source Department.

DD8434. LASER TECHNICIAN POSITION - The Experimental Systems Group of the NSLS is seeking a technician to participate in laser system development at the Deep Ultra-Violet Free Electron Laser (DUV-FEL). The DUV-FEL is a revolutionary fourth-generation light source, which utilizes state-of-the-art laser and optical technology in all phases of its operation. Responsibilities will include the regular operation and maintenance of an existing high power titanium:sapphire CPA system, and participation in the development of new optical sources and diagnostic systems. The successful candidate will have a BS or AAS in optical science or physics, or equivalent experience, and a knowledge of short-pulse solid state laser systems. Demonstrated capability in operation and troubleshooting of titanium:sapphire CPA systems is highly desirable. National Synchrotron Light Source Department. (Reposting).

DD8625. ELECTRO-MECHANICAL TECHNICIAN POSITION - term appointment -Will work on DUV-FEL. Experience with the operation, installation and modification of hardware associated with photocathode RH electron guns and electron linacs is highly desirable. Must be able to design and construct modest experimental apparatus with minimal direction and become a fully qualified operator of the accelerator. Will be assigned through the NSLS Experimental Systems Group. National Synchrotron Light Source Department.

NS8978. COMPUTER OPERATIONS POSITION - term appointment – Requires several years' experience supporting a medium- to large-scale UNIX facility, and knowledge of UNIX commands for system monitoring and troubleshooting. Primary responsibility will be monitoring and correcting real-time facility problems during off-hours shifts, as well as providing minor help desk support for users, assisting administrators with the creation of support documentation, and the training of future operators. After training period, initial assignment will be for the 3:30 to midnight shift. RHIC/US ATLAS Computing Facility/ Physics Department.