BROOKHAVEN BULLETIN
Vol. 51 - No. 34 August 29, 1997
BROOKHAVEN NATIONAL LABORATORY

50th Anniversary Lecture:

Nobel Laureate to Discuss Theories of Brain Function

During the past decade, extraordinarily sensitive new techniques have allowed researchers to see what is happening inside living, functioning brains.

As a result, it is now known that the brain's billions of neurons — the specialized cells of the nervous system — communicate electrochemically and make connections, and that the more connections, the better the brain functions. In addition, researchers have discovered, for example, that the neurons of a fetus can grow at a rate of 250,000 a minute and that about half of them die before the baby is born.

Yet knowledge of brain function is still at the pioneering stage. Answers are being sought for many questions — such as, *why* is there such redundance among the fetal neurons? Is this a natural process to eliminate flawed neural connections? Could the development and organization of the higher brain functions be explained by a process of neuronal group selection, in which the fittest neurons are selected by a sort of "neural Darwinism?"

This theory was presented in 1987 by Nobel laureate Gerald Edelman,

Gerald Edelman

in his book *Neural Darwinism*. Edelman's continuing work in theoretical neuroscience includes designing new machines for testing his hypothesis.

To introduce his own and other modern theories on how the brain works, and to describe how higher brain functions may be stimulated, Edelman will ask "Is It Possible to Construct a Perception Machine?" at the next BNL 50th Anniversary Distinguished Lecture. He will give this lecture on Tuesday, September 2, at 4 p.m. in Berkner Hall.

A native of New York City, Edelman earned a B.S. degree in chemistry from Ursinus College in 1950 and an M.D. from the University of Pennsylvania in 1954. He spent a year at the Johnson Foundation of Medical Physics, and he served as a medical house officer at Massachusetts General Hospital and, later, as a captain in the Army Medical Corps. He earned his Ph.D. in biophysical chemistry at The Rockefeller Institute in 1960.

In 1972, Edelman was awarded the Nobel Prize for Physiology or Medicine for his early studies on the structure and diversity of antibodies. He has received numerous other prizes and honorary degrees, and authored over 450 research publications.

Currently the Director of The Neurosciences Institute in San Diego, California, and President of the Institute's not-for-profit parent organization, Neurosciences Research Foundation, Inc., Edelman is also a member of The Scripps Research Institute and Chairman of the Institute's Department of Neurobiology.

— Liz Seubert with Diane Greenberg

RFP Update

Meet SUNY-Battelle on 9/2 At Reception for BNLers

The State University of New York (SUNY) at Stony Brook has partnered with Battelle Memorial Institute to attempt to obtain the management-and-operations contract from the U.S. Department of Energy to run BNL .

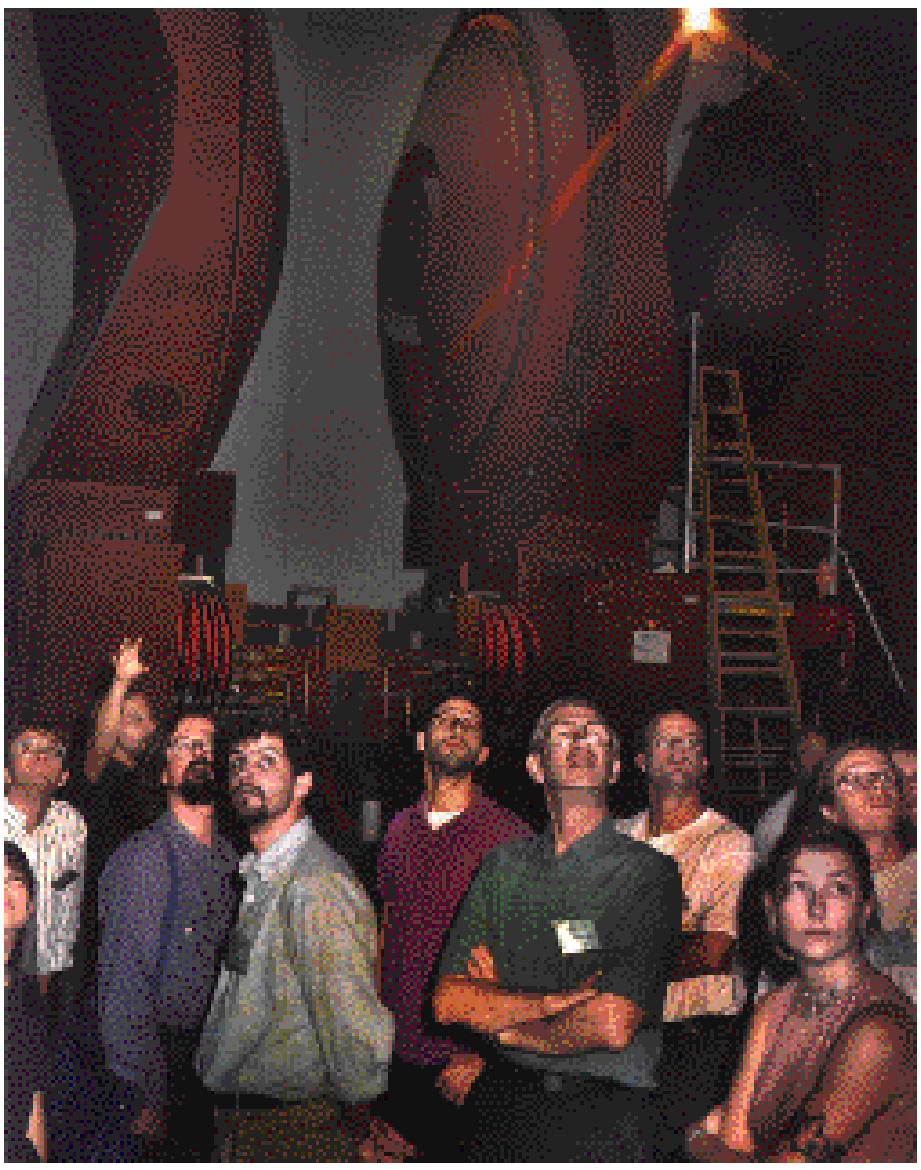
So that BNLers can learn more about this partnership and its proposed approach to managing and operating the Lab, the President of SUNY-Stony Brook and President of Battelle Memorial Institute recently issued an invitation to all Lab employees and retirees to a reception on Tuesday, September 2.

It will be held 7:30-9:30 p.m. in the auditorium of the Staller Center for the Arts, which is located on SUNY-Stony Brook's main campus. During the informal meeting, the partnership's leaders will be available to answer questions about its approach.

DOE Extends Deadline For Proposals to 9/8

The deadline by which organizations that wish to be BNL's next contractor have to get their proposals in to the U.S. Department of Energy (DOE) has been extended: Originally, proposals were due on by 3 p.m. Chicago time on August 28; DOE has extended this deadline to 1 p.m. on September 8. In addition, the date for oral presentations by proposers has been moved from September 7 to September 14.

RHIC Summer School of Future Physics



Joe Rubino

Intense interest in the physics of tomorrow drew some 90 theorists, experimentalists and students to the ten-day Relativistic Heavy Ion Collider (RHIC) summer school, workshop and mini symposium at BNL, July 7-16. Co-chaired by Tim Hallman and Sid Kahana, Physics Department, the meeting was held to familiarize young scientists with what is going to be a major world laboratory in relativistic heavy-ion physics, as well as to bring together specialists from both high-energy and nuclear physics to discuss the theory of quantum chromodynamics, to be investigated through experiments at RHIC. Many participants, about half of whom were from outside the Lab, visited the collider, which is scheduled to come on line by the turn of the century. The tour included a view of the towering PHENIX detector (background), ably supervised by Captain Jean-Luc Picard (background, right) of the starship *Enterprise*. — Liz Seubert

Norwegians, Russians Visit DAT To Learn About Innovative Technologies

Roger Stoutenburgh

Admiral Nikolai Birillo (second from right) from the Russian Ministry of Defense and Thor Engoy (left) from the Norwegian Ministry of Defense visited the Lab recently to tour BNL's new Hazardous Waste Management Facility. They also came to learn about innovative technologies being developed in the Department of Advanced Technology (DAT) to dispose of radioactive waste. They were hosted by Paul Moskowitz (right), Head of DAT's Environmental Waste & Technology Center (EWTC), and by Andrew Griffith (second from left) of the U.S. Department of Energy. In 1996, Russia, Norway and the U.S. agreed, as part of the trilateral Arctic Military Environmental Cooperation protocol, to exchange information and to develop technologies for managing the radioactive waste generated by the decommissioning of Russian nuclear submarines. During the tour, the delegation also discussed a related EWTC project, which assesses the reliability of a Russian radioactive-waste-disposal method. The dumping of nuclear submarine reactors, fuel assemblies and low-level radioactive waste into the Arctic and North Pacific Oceans between 1959 and 1992 was disclosed to the world in 1993 by the Russian Federation. As part of the international response to this disclosure, the U.S. has been working with Norway and Russia to prevent any further nuclear contamination through several bilateral and multilateral efforts (see Brookhaven Bulletin of May 3, 1996). — Dan Ferber

BNL's Vacuum-System Parts Now Ultrasonically Cleaned At Award-Winning, Environmentally Safe, Worker-Friendly Facility

Caustic etch, hydrofluoric acid, nitric acid — even some the names of the seven dips that were used as solutions at the old cleaning facility in Bldg. 197 are corrosive to the ear.

Run by the National Synchrotron Light Source (NSLS) Department for the past 15 years, the old facility was operated to clean chemically the aluminum, copper and stainless steel parts making up the ultrahigh vacuum systems critical to the operation of the NSLS' two storage rings, BNL's existing Alternating Gradient Synchrotron (AGS) accelerator and the under-construction Relativistic Heavy Ion Collider (RHIC) collider, as well as detectors built by the Physics Department that intersect with such vacuum systems.

During their manufacture and repair, vacuum parts become coated with oils and greases. If these parts aren't cleaned to specification before being inserted in an accelerator or synchrotron, then, under ultrahigh vacuum conditions, carbon and other molecules from the oils and greases are liberated as gases — which interfere terribly with the proton or electron beam traveling within the vacuum ring.

While the cleaning solutions used at the old facility got parts *really* clean, they posed a potential hazard to employees who worked with them and, in case of an accident, to the environment. When depleted, the cleaning solutions had to be disposed of as hazardous waste.

So, knowing how strong the acids and bases actually are that were used at the old cleaning facility, it isn't surprising to learn that the new Centralized Degreasing Facility (CDF), which was opened by the Central Shops Division (CSD) on August 4th, earned a Pollution Prevention Appreciation Award before it was commissioned.

The CDF earned this award from the U.S. Department of Energy in July 1996 (see Brookhaven Bulletin of February 7, 1997) because, instead of corrosives, it employs strong soaps, mild citric acid, hot water and ultrasonics to degrease vacuum parts — so its waste water can usually be discharged to the Lab's sewage system with no impact on the environment.

In addition, Bldg. 498, the structure housing the CDF, is not subject to corrosion or in need of as much ventilation as was the part of Bldg. 197 that contained the old cleaning facility's corrosive baths.

Finally, the metal parts that are sent to the CDF can now be cleaned to specification without the threat of corrosive damage from the cleaning agents themselves.

CDF Does a Better Job

According to CSD Welding & Sheet Metal Supervisor Al Farland, "The CDF's cleaning system does a better job — both according to our tests and Dow Chemical Company's Advanced Cleaning Systems Division," which was contracted by the Lab's Safety & Environmental Protection Division (SEP) in February 1995 to determine what should be done to replace the old NSLS cleaning facility.

During that process, Project Engineer Conrad Foerster of the NSLS' Vacuum Group compared the effectiveness of the old method with that of suggested new methods, by performing x-ray photoelectron spectroscopy on samples identically contaminated but cleaned differently.

As a result of his testing, acceptable solutions and cleaning steps were developed. In fact, Foerster and Christopher Lanni, NSLS; Robert Lee, SEP; and two Dow Chemical representatives published a paper detailing the development of the process through acceptance testing in the May/June 1997 issue of the *Journal of Vacuum Science Technology*.

Roger Stoutenburgh

Helper Jeff Raynor at the CSD's new Central Degreasing Facility.

Lee and George Leskody of BNL's Plant Engineering Division, along with Dow Chemical, collaborated on the design of the CDF's Bldg. 498, which was built last year. The installation of the tanks, heaters, ultrasonics, control hardware, and cleaning solutions was completed this February.

The Office of Pollution Control of the Suffolk County Department of Health Services approved the building plans, satisfied that the design of the cleaning system and its containment are more than adequate.

Five vs. Seven Tanks

In addition to having no containment for its corrosive solutions, the old facility had seven small tanks — meaning that parts had to be washed in seven steps and that large parts could not easily be accommodated. The new CDF does its job in five steps, in large, well-contained and well-controlled tanks heated to 140-170° F.

First, a part is placed in the chemical and ultrasonic buff-off wash, then passed to the deionized-water rinse. Next comes the chemical Ridoline and ultrasonic wash. A bath in the Citranox wetting agent occurs before a rinse in deionized water — and, in a minimum of four minutes, a part is clean. A ½-ton crane moves parts from bath to bath, and cleaned parts are then dried in a 175° oven.

Since its opening August 4th, the CDF has been operating 20 hours a week and is staffed by CSD Helper Jeff Raynor. So far, he has cleaned mounting brackets and flanges for ultrahigh vacuum use at the NSLS; parts and test weld samples for a cold neutron moderator at the High Flux Beam Reactor, and bellows and flanges for RHIC.

The response from CDF users has been very positive: For instance, "One technical supervisor told me that the new facility was very impressive and a big improvement over the old one," reports Richard Spellman, CSD Manager.

Meanwhile, NSLS Senior Technical Specialist Norman Cernyar, who had cleaned parts at the old facility for the past ten years, closed up shop on August 14, and, at present, he is decommissioning the facility. When that task is done, he will once again rebuild vacuum pumps within the NSLS Vacuum Group.

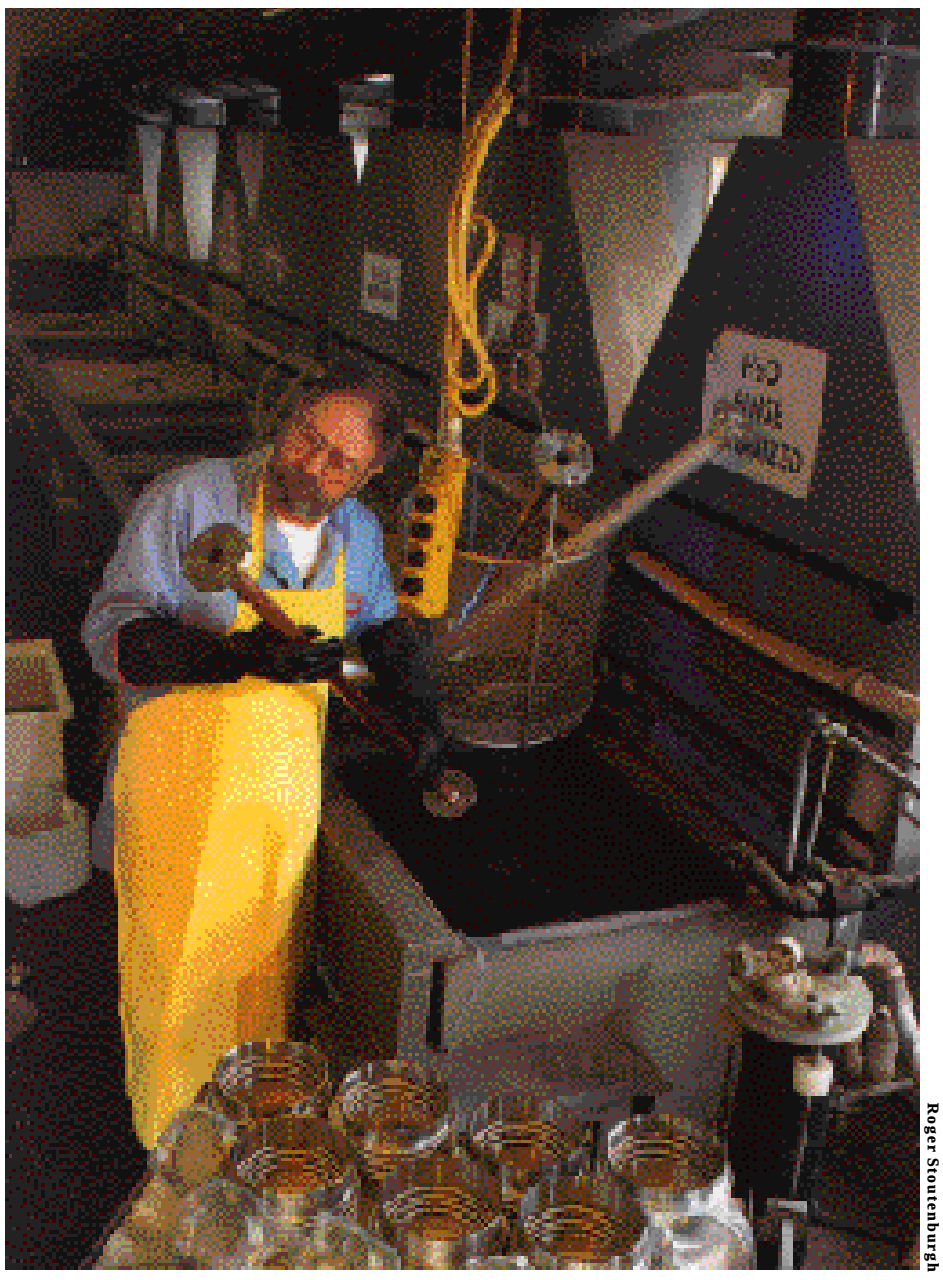
"After ten years on the job, it is sad for me to close the old place down, but I'm glad that BNL can now clean parts in the most environmentally responsible way," says Cernyar.

Concludes Spellman, "Replacing the environmentally unfriendly old cleaning facility with the new, more efficient state-of-the-art Central Degreasing Facility is another example of how BNL is reducing operational threats to the environment and risks to its workers' health and safety."

— Marsha Belford

Deadline Change For BB Notices

A new deadline has been set for submitting items for publication in the Brookhaven Bulletin. Other than notices from the Human Resources Division, all items must be received in the Bulletin Office by noon on the Friday before the week of publication – except for this week, when they are due by 9 a.m. today.



Roger Stoutenburgh

Senior Technical Specialist Norman Cernyar at the NSLS' old cleaning facility for vacuum and other parts.

Indian Vocal Concert

The BERA Indo-American Association (IAA) will host a Dhrupad Recital — a form of Indian classical music — by the accomplished artist Falguni Mitra on Saturday, September 6, at 4 p.m. in Berkner Hall. Mitra will be accompanied by Bhaskar Mukherjee, who plays the pakhawaz, the Indian drums, and by his wife, Pratima Mitra, on the harmonium, an instrument similar to an accordian,

All are invited. Tickets are $8 each for IAA members, $10 for nonmembers and $25 per family. For tickets and information, contact Sumitra Ranganathan, Ext. 5267, or A.M. Topé, Ext. 5672.

Arrivals & Departures

Arrivals

Robert M. Burkhardt.....AGS
Galen A. Hon.....App. Science
Calvin A. Lom.....RHIC
Scott D. Wachino.....Env. Restoration
Hubert K. Zajonz.....Physics

Departures

This list includes all employees who have terminated from the Lab, including retirees:

Sharon P. Benjamin.....Plant Eng.
Brian J. Collinson.....Plant Eng.
Brigitte R. Sylvain.....Biology

Nursery School Meeting

The Upton Nursery School, an on-site, parent-run cooperative, will hold an introductory meeting for the 1997-98 school year, on Thursday, September 4 at 7 p.m. in the Recreation Building in the apartment area.

Prospective students and their families are encouraged to attend and meet the teachers. Classes begin Monday, September 8 and will be held on Mondays, Tuesdays and Thursdays, 8:30-11:30 a.m. BNL employees, concessionaires and visitors may enroll their three- and four-year-old children for $100/month, for a minimum of three months. For more information, call Rachel Eugenio, 821-3986, or Jennifer Greene, 345-5194.

BNLers 'Stamp'ede for Special Cancellation

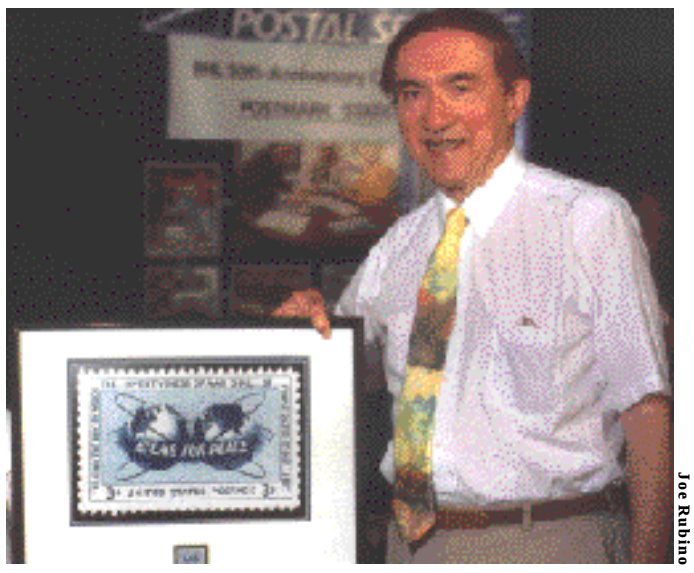
Fifty years to the day after the U.S. Postal Service opened the Upton Post Office on the Lab site — effectively creating the town of Upton — the anniversary was marked at BNL with a special postal cancellation and a ceremony in Berkner Hall.

About 100 people gathered in the Berkner Hall lobby at noontime on August 1, around the special postmark station the Upton Post Office had set up there to handle the overflow demand for postcards bearing the special cancellation, which featured the logo for BNL's 50th anniversary year, designed by Theresa Esposito, Information Services Division.

Special guests at the ceremony were "The 41ers," four World War II veterans who had been inducted at Camp Upton, the U.S. Army outpost that occupied the Lab site during both World Wars.

Business was brisk at both Berkner Hall and the Post Office in Bldg. 179. By the end of the day, Postmaster Jeanine Fornsel reported, some 2,800 special cancellations had been issued, and all 500 of the "Atoms for Peace" 3-cent stamps that the Postal Service had purchased from collectors had been sold — for 50 cents each.

Reflecting on the day's activity, Postal Clerk Ralph Garappolo said, "I told Jeanine that I had thought tax deadline day was busy, but this far surpassed it!" And a few days later, recalling the marathon stamping that he had done the previous Friday, Postal Clerk Ralph Persson said, "My hand is still sore!" — Anita Cohen



Joe Rubino

As the employee with the longest record of Lab employment, Bernard Manowitz, who will observe his 50th BNL service anniversary in October of BNL's 50th anniversary year, served as the Mayor of Upton for the August 1 ceremony. On behalf of the Lab, he not only accepted the day's mail addressed to that office, but he also accepted the framed enlargement of the "Atoms for Peace" stamp from Alex Blandeburgo and Sal Sparacino of the Long Island District of the U.S. Postal Service. Issued on July 28, 1955, on the eve of the International Conference on Atomic Energy in Geneva, Switzerland, the stamp was designed by the late George Cox, a BNL technical illustrator.

Joe Rubino

Due to popular demand, another 300 of the 1955 Atoms for Peace 3-cent stamps are available for sale at 50 cents each at the window of the Upton Post Office, Bldg. 179. In addition to purchasing the restocked Atoms for Peace stamps, post-office goers may still, through September 1, have their mail hand-cancelled with the Upton's 50th-anniversary postmark. For more information, call Ext. 2539.

At the Postmark Station that the Upton Post Office set up in Berkner Hall on Friday, August 1, Postmaster Jeanine Fornsel (seated, right) and Postal Clerk Pat Rogers help some of their many customers who obtained the special postal cancellations, stamps and other U.S. Postal Service items that day.

84 BNLers Earn $200 Bond for Their Perfect Attendance in 1996

Congratulations to the following 84 full-time employees who have won BNL's 1996 Perfect Attendance Awards of $200 U.S. Savings Bonds. In this caption, the names of one-time previous winners are highlighted with a single star; two stars indicate employees who have won twice before; three, three times; four, four times — and five stars denote a record-breaking five times as a previous winner.

(Seated, from left) Henry Floege*, Central Shops Division (CSD); Lawrence Lettieri*, Safety & Environmental Protection (SEP) Division; Marguerite Mason, Administrative Support Division (ASD); Veronica Varlack*, ASD; Kerry Bonti, Medical Department; Patria Cortes*, Plant Engineering (PE) Division; John Bloom, Reactor Division; Janet Sikora, Biology Department; Paula Pozzoli*****, ASD; Barbara Boerjes*, ASD.**

Roger Stoutenburgh

(Standing, from left) Alfonso Canedo*, PE; Gerhard Redelberger, CSD; Ronald Orsini, CSD; Bruce Weatherell, Computing & Communications Division (CCD); John Bourquin, PE; Richard Lutz*, PE; William Jensen, PE; Dollie Johnson*, PE; Ronald Brewer*, CSD; Roland Overton, Relativistic Heavy Ion Collider (RHIC) Project; Eugene Barrow, PE; Walter Ducoing, CSD; Kenneth Wenger, PE; Frank Zambriski*, PE; Alex Reben*, Information Services Division (ISD); Frank Flegar, CSD; Richard Ryder*, CSD; Alvin Vestal*, CSD; Lamar Gardner, ASD; Frederick Ligon*, PE; James Bell, CSD; William Dalton*, CSD; James Sorohan*, PE; Joseph Modjeska*, ASD; Barry Lotko, PE; Susan Evans*, PE; and Franklin Snell*, PE.

Not present were: Kevin Barnes, PE; Roy Barone*, SEP; Andrew Brems, ISD; Charles Brown*, PE; Selestine Brown, ASD; Mattie Brown*, ASD; Herman Butts*, PE; Victor Cassella, PE; Samuel Cortes*, ASD; Joseph Cracco*, SEP; Thomas Crews, PE; James Downing, ASD; Raymond Edwards, Department of Applied Science; Eva Esposito*, ASD; Francisco Gaetan, PE; Dhruba Ghimiray, ASD; Gerald Greenidge*, CSD; Daniel Harrow*, SEP; Claudia Hatton, PE; Clarence Hicks*, PE; Marie-Luise Hobson, Financial Services Division (FSD); Peter Horton, ISD; Neil Jackson*, ISD; Kenneth Johnson*, PE; Linwood Johnson*, ASD; Linda Jones, FSD; Eric Klug*****, SEP; Charles La Salla, SEP; Robert Lynn, CSD; Brian Mayo, ASD; Paul Mickaliger, RHIC; Lonnie Muldrow*, PE; Stephen O'Kula, PE; Frederick Orsatti****, RHIC; Jerome Quigley*, ASD; Glenda Radich*, ASD; Jeffrey Raynor*, CSD; Brian Rohena*, PE; Zaida Rosado*, PE; William Schmidt*, PE; Robert Schnoor*, PE; Jennifer Schretzmayer*, Chemistry Department; Randolph Seibel*, CSD; Gary Stoner, PE; Edward Sujeski*, PE; Phyllis Tinsley-Smith****, Biology; and Shelby Williams*, ASM.** — Liz Seubert

BROOKHAVEN BULLETIN

Published weekly
by the Public Affairs Office
for the employees of
BROOKHAVEN NATIONAL LABORATORY

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World Wide Web:
http://www.pubaf.bnl.gov/bulletin.html

The Brookhaven Bulletin is printed on paper containing at least 50 percent recycled materials, with 10 percent post-consumer waste. It can be recycled.

Holiday Notes

In observance of Labor Day, the Lab will be closed on Monday, September 1. As a result, the following schedules will be in effect:

• **Brookhaven Bulletin** — There will be a short Bulletin on Friday, September 5. The classified ad deadline for that issue is 9 a.m. today, Friday, August 29. That issue, the first for September, will include ads for services; real estate ads will run on September 19.

• **Credit Union** — All branches of the Teachers Federal Credit Union will be closed on Saturday, August 30, and Monday, September 1. The automatic teller machine in Berkner Hall foyer will be open throughout the holiday.

• **Food Service** — The Cafeteria will be open 9 a.m. - 2 p.m., Saturday through Monday, August 30 - September 1. The Brookhaven Center Club will be closed Sunday, August 31; it will reopen on Monday, September 1, 5-9 p.m.

• **Gym & Pool** — The swimming pool will be closed Saturday, August 30, through Monday, September 1. It will reopen Tuesday, September 2, resuming its usual hours — i.e., no family swim 3:45-5 p.m. until next summer. The gymnasium, which was closed on weekends throughout the summer, will resume Saturday hours September 6.

• **Omega Travel** — The office will be closed on Monday, September 1.

• **U.S. Post Office** — The customer-service window at the Upton Branch of the U.S. Postal Service will be closed on Monday, September 1.

BNL Dance Club Goes 'International'

For the 1997-98 dance-school year, the International style of ballroom and Latin dancing dominates the BNL Ballroom, Latin & Dance Club's schedule. So, whether you've never done ballroom dancing before, or if you've always wanted to learn the technique involved in the steps, then sign up for the Dance Club's classes. They start on Wednesday, September 10, and continue almost every Wednesday through May 13.

Usually held in the North Ballroom of the Brookhaven Center, lessons are taught by Giny Rae and Peter Sciurca, who are former Empire State Ballroom Champions, with assistance from Sean Breaton, a medalist in the recent U.S. Amateur Ballroom Dance Association's national competition.

During one of the four 8-week series offered by the Dance Club, three 1-hour classes are offered each Wednesday, and each class features two dances at a specified level (level I is beginner, level II advanced beginner, etc.). The first dance listed for a class is taught over the first four weeks, while instruction in the second dance is offered during the last four weeks. Review classes are open to those who have already taken regular classes at the levels listed.

If a minimum of 40 people sign up for each class, then the cost per person is $25 for eight weeks of instruction. Lab employees, retirees, on-site contractors, their families, friends and dance partners are all invited to attend. Not having a partner is not usually a problem , as the club signs up equal numbers of men and women.

To register before the first class, send a check, payable to the BNL Dance Club, with a note specifying which classes and including your name, Bldg. and extension to: Marsha Belford, club president, Bldg. 134. For more information, call Ron Ondrovic, 1st vice president, Ext. 4553; or Rudy Alforque, 2nd vice president, Ext. 4733.

BNL Dance Club
1997-98 LESSON SCHEDULE

CLASS TIME	SERIES 1 9/10-11/5/97	SERIES 2 11/12/97-1/21/98	SERIES 3 1/28-3/18/98	SERIES 4 3/25-5/13/98
5:30 p.m.	AMERICAN rhumba & waltz I & II REVIEW	AMERICAN rhumba & waltz III & IV REVIEW	INTERNATIONAL rhumba & waltz I	INTERNATIONAL rhumba & waltz II
6:30 p.m.	INTERNATIONAL cha cha & fox trot I	INTERNATIONAL cha cha & fox trot II	INTERNATIONAL cha cha & fox trot I & II REVIEW	INTERNATIONAL tango & quickstep I & II REVIEW
7:30 p.m.	INTERNATIONAL tango & quickstep I	INTERNATIONAL tango & quickstep II	AMERICAN bolero & hustle I	AMERICAN bolero & hustle II

Classified Advertisements

Placement Notices

The Laboratory'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 complete 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.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees.

DD 0496. FABRICATION SPECIALIST POSITION - Under direct supervision, prepares shop orders for on-site and off-site fabrication of unique scientific equipment or components used in experiments. Included in shop orders are bills of materials, cutting orders, and purchase requisitions. Submits cost estimates for all fabrications to departments for approval. Requires a working knowledge of machining processes including numerical control, a basic background in welding and sheetmetal fabrication, and a thorough knowledge of materials. Will work extensively with Lab computerized estimating, job-costing and purchasing software. A fundamental background in computer use is beneficial; good communication skills essential. Central Shops Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

NS 3129. PROGRAMMER/ANALYST POSITION - Requires a BS in computer science, MIS or related field, at least five years' experience in system administration, demonstrated problem-solving and strong organizational skills. Experience with network administration and UNIX workstations is required; knowledge of scripting languages is highly desirable.Will be part of a small team responsible for the system administration of a large network of computers in the AGS-RHIC control system. RHIC Project.

NS 3134. PROGRAMMER/ANALYST POSITIONS - Requires an MS in computer science or related field and at least three years' experience in computing support within a research environment. Knowledge and experience with UNIX system support and administration, including networked file systems and other tools and utilities, are required. Programming skills in FORTRAN, C and C^{++} highly desirable, as is experience with Windows NT, object-oriented databases and robotic tape systems. Will be responsible for integrating and supporting established hardware and software. RHIC Project.

NS 3132. COMPUTER ANALYST POSITIONS - Requires an MS in computer science or related field and at least five years' experience with UNIX system support and administration, including networked file systems, and other tools and utilities. Programming experience is required at the systems level and in utilizing modern programming techniques (object-oriented) and languages (C^{++}, Java, etc.). Knowledge of and experience with object-oriented databases, object brokers, hierarchical storage managers (HPSS in particular), robotic tape systems and Windows NT are highly desirable, as is familiarity with FORTRAN. RHIC Project.

DD 4060. TOWER LINE PERSON - (term appointment) Under minimum supervision, installs, repairs and maintains overhead and underground electrical-distribution lines, systems, equipment, controls and related devices, ordinarily of 2300 volts and over. Duties include rigging, electrical and mechanical work incidental to the installation, maintenance, and repair of equipment, wires, lines, instruments and fabricated metal on structures such as meteorology towers, pile stacks and water towers. Will otherwise perform duties of Electrician A. Plant Engineering Division.