BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Multimillion Dollar FACE-ility Approved for North Carolina

Building on the Department of Applied Science's (DAS) successful coordination of studies of how plants react to extra carbon dioxide in the atmosphere, the U.S. Department of Energy has given the green light to a project that will focus on a North Carolina evergreen forest for at least three years.

The newest facility in the DAS's Free Air Carbon-dioxide Enrichment (FACE) program will be called FACTS, for Forest-Atmosphere Carbon Transfer and Storage. It will be coordinated by DAS's Biosystems and Process Sciences Division and Duke University, which is located in Durham, North Carolina, and owns the forest site.

The initial funding for the project's first year will be $1.1 million, divided between Duke and BNL. When the facility is completed later this year, it will welcome dozens of ecologists and plant biologists from many institutions, who will examine the forest's trees at many levels. Twenty-five researchers from 13 institutions have already signed on to pursue year-round studies at the FACTS facility.

Said project head George Hendrey, DAS, "FACE asks, 'How will changing carbon dioxide [CO_2] levels affect plants and their ability to reduce CO_2 levels in the atmosphere?' The development of the facility at Duke will be a major step forward in answering that question and will bring ecologists together in a large integrated project."

First Forest for FACT-Finding

FACTS will be the first facility built in a forest ecosystem using BNL-developed FACE technology, which allows scientists to study the effects of enhanced CO_2 levels on plants growing in their natural environments.

This summer, after completing the engineering design, BNL's team, including Hendrey, David Ellsworth, Keith Lewin and John Nagy, will travel to North Carolina to erect six sets of sixteen 12-meter towers in circular patterns among the forest's 10-meter-tall trees. Pipes running up the towers will provide a conduit for CO_2-enriched air to be pumped out at the level of the forest's canopy, or treetops.

FACTS will use a "square-wave" pattern for CO_2 levels — a sudden increase over baseline concentrations. An infrared gas analyzer will keep track of gas concentrations in the air and send updates to the controlling computer every second. Meanwhile, dozens of air-sampling tubes placed throughout the FACE plots will allow three-dimensional sampling of CO_2 concentrations.

Discussing plans for the FACE forest in North Carolina, shown in the background, are members of the Department of Applied Science's FACE team: (from left) physicist John Nagy, project head George Hendrey, plant physiologist David Ellsworth and design engineer Keith Lewin. — Photos in this issue by Roger Stoutenburgh

Not just any CO_2 will be used: FACTS will only employ gas captured from fossil fuel-burning plants and fertilizer manufacturers, which means that the gas is given a useful purpose before it is emitted to the atmosphere.

Carbon dioxide from these fossil sources has no carbon-14 (^{14}C), a naturally occurring radioactive isotope present in the atmosphere and in all "modern" organic matter. In addition, CO_2 given off by the burning of fossil fuel has a distinctive ratio of the stable isotopes ^{12}C and ^{13}C. The isotopic features will give scientists a precise means of measuring the trees' uptake of the introduced gas when they later take tissue samples from the trees.

Using these markers, they could determine, for example, the shift in isotopic ratios of plants grown in FACE compared with plants grown with naturally occurring CO_2 — information that could show how much more CO_2 the trees may be capable of taking up and storing in forest soils in a future, CO_2-enriched global environment.

This is just one of the studies that could be pursued at FACTS. Hendrey and co-principal investigator Bill Schlesinger of Duke, anticipate that the forest's trees will be studied inside and out: from DNA regulation of proteins within cells, to efficiency of water use, and from leaves and roots to the entire canopy.

"Because dozens of scientists will use the FACTS facility, we can take the black box apart," he said. "And, the modelers can use this information across many levels of organization, to relate molecular-level processes to the regulation of CO_2 exchange with the atmosphere."

FACE Up to Global Change

The FACE approach gives many scientists access to a large facility that encompasses hundreds of individual plants, and their native soils, in an intact ecosystem, Hendrey explained. This reduces costs per scientist dramatically and provides a broad base of knowledge on a single ecosystem.

The idea is somewhat analogous to a particle accelerator at which many

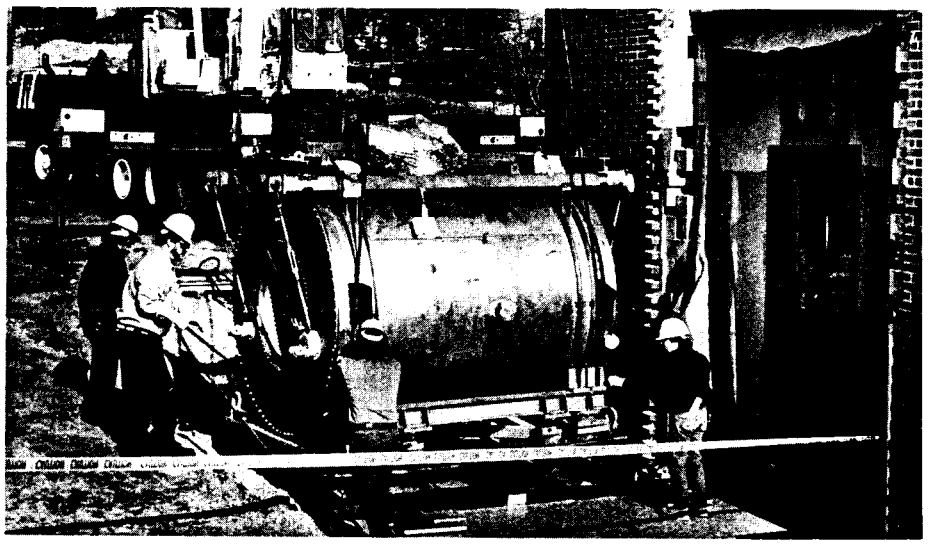
(continued on page 2)

Immense MRI Magnet Slides Home

The great magnet that will be the heart of the Lab's new magnetic resonance imaging (MRI) facility arrived on site on March 31.

Expected to be completed by June and operational by fall, the MRI facility, for which ground was broken last September, will be part of the new Brookhaven Center for Imaging and Neuroscience (BCIN).

The MRI unit will complement two existing imaging methods — positron emission tomography, or PET, and single photon emission computed tomography, or SPECT — with which researchers in BNL's Chemistry and Medical Departments currently study the human brain for effects of schizophrenia, Alzheimer's disease, brain tumors and substance abuse.



Riggers from New Breed Corporations, an international transportation firm with a Long Island base in Syosset, are seen having balanced the 11,000 kilograms or so of the superconducting magnet for BNL's new MRI facility on four small aluminum pads, each connected by hose to an air compressor. The pressurized air was continuously fed to the pads to maintain a cushion on which the magnet slid gently forward onto its concrete "home plate." Once in place, the magnet was enclosed in plywood for protection, while the rest of the building is completed around it.

Manufactured by Siemens Medical Systems, Inc., Germany, in collaboration with Spectroscopy Imaging Systems, a subsidiary of Varian Associates, California, the four-tesla magnet will have at least twice the field strength of any MRI machine used for general medical diagnosis. Therefore, it will provide the very high spatial resolution needed for MRI research.

Heading BNL's MRI research effort is Charles Springer, Chemistry. In addition to doing collaborative studies with PET and SPECT researchers, the MRI team will also pursue relaxographic imaging, a form of MRI pioneered by Springer's group at the State University of New York at Stony Brook, where he has been Professor of Chemistry for more than 25 years. In fact, Springer is now giving some lectures on fundamentals of magnetic resonance, which are being attended by about 30 BCIN staff members.

Springer commented that the main mission of BCIN remains fundamental research into the function and biochemistry of the brain. "Recently," he said, "many news media have reported on significant discoveries using PET and MRI techniques that can directly map brain function — for example, apparent gender differences have received much attention. The MRI method, which is noninvasive, is known as *functional* MRI, or fMRI. There is reason to believe that fMRI localization to the exact site of activity can best be made — possibly, *only* be made — at the high, four-tesla field. BNL and Stony Brook researchers have been conducting a number of experiments on this issue."

— Liz Seubert

Coming Up

D. Allan Bromley, formerly President George Bush's science advisor and currently Sterling Professor of the Sciences and Dean of Engineering at Yale University, will deliver the next George B. Pegram Lecture Series at 8 p.m. on three consecutive evenings — Tuesday, Wednesday and Thursday, May 30-June 1. Collectively called "Science and Technology: Advice and Policy," the lectures will be held at 8 p.m. in Berkner Hall.

As Assistant to the President for Science and Technology and Director of the Office of Science and Technology in the Executive Office of the President of the U.S. from 1989-93, Bromley was at the pinnacle of decision-making for the nation's scientific endeavors. He will offer an insider's view of national science policy in the three Pegram lectures, entitled "A Connecticut Physicist in the White House," "The Support of American Science and Technology," and "The Future of American Science and Technology."

BNL Police: In the Wake of Oklahoma, More Vigilant Than Ever

When word of the federal building bombing in Oklahoma City reached the Lab, countless BNLers probably found themselves wondering if the same kind of terrorist attack could happen here.

While virtually no regimen of security measures could guarantee complete immunity from such incidents, BNL's Police Group, in the Safeguards and Security Division (S&SD), has increased its already vigilant watch over the site's entrances and facilities in recent weeks.

Since the Lab is not an open facility, and its gates and facilities are monitored by BNL police, potentially suspicious vehicles and individuals can be intercepted. In the wake of the Oklahoma bombing, in which the bomb was hidden in a rental truck, BNL police now routinely search all rental vans and trucks that come through the Lab's entrances.

This kind of increased "security posture" as it is called is not new to BNL. During the Gulf War, IDs were checked at the entrance gates, while a less noticeable increased security plan was put into place after the World Trade Center bombing and around its one-year anniversary. And, the Police Group keeps in constant contact with the intelligence sections of the Federal Bureau of Investigation (FBI) and Suffolk County to guard against any malevolent acts against the site.

While BNL Patrol Officer James Hensch checks the back of an incoming vehicle, Captain Thomas Gilbert explains the authorization for such inbound checks to driver Vicki Feldman, Safeguards & Security Division. The randomly scheduled inspections aim to keep contraband drugs and weapons from entering the site.

Inbound Searches Stepped Up

In addition, the police recently stepped up their rate of random searches of incoming vehicles of all kinds. "These searches are expected to deter the introduction of prohibited items such as weapons and explosives," said Russel Reaver, S&SD Manager. "It only takes a minute or so to complete the checks, and it should provide employees with a more secure feeling about their work environment."

The inbound searches are similar to the random checks of outbound vehicles that are performed monthly to prevent theft and loss of Laboratory property.

An order from the U.S. Department of Energy establishes the Police Group's responsibility to conduct these searches, and a BNL Standard Practice Instruction explains the procedure. The searches are scheduled by Reaver and are done on every third, ninth or other number vehicle.

So, whether they are inbound or outbound, Reaver reminds employees, guests and visitors to slow down when they see the cones and signs, and to pull over and follow police instructions when stopped for a search.

Everyday Safety & Security, Too

These actions are just part of what S&SD does every day to protect the Lab site, its facilities and its occupants. The division's mission is a wide-ranging one, which includes the protection of nuclear material, classified matter, and property against theft or destruction; the prevention of sabotage of scientific and other programs that could result in significant financial impact.

"What this boils down to is a presence to deter the bad guys, coupled with the ability to counter what the bad guys may attempt," Reaver explained.

To make that possible, BNL police have limited arrest authority for crimes against property, and strong links with the FBI and Suffolk County police, who can be called in to make arrests for crimes against people. They are capable of dealing with violent mentally ill individuals, and S&SD coordinates a crisis-negotiation team that includes police and members from other Lab organizations.

Not all security efforts deal with bombs and bad guys — S&SD also helps make the Lab a safer place to live and work by enforcing traffic codes, providing first aid until the emergency medical technicians of the Safety & Environmental Protection Division's Fire/Rescue Group arrive, helping people who are locked out of their cars or on-site housing, performing escorts, screening visitors, securing buildings, and jump-starting and providing after-hours gas for cars.

"You may ask, 'What do the cops do at the Lab?'," said Reaver. "And the answer is, 'A lot more than most people see or know about, in order to provide a safe and secure workplace for all BNL personnel.'" —Kara Villamil

FACE (cont'd.)

physicists can pursue studies at once. But, instead of finding new subatomic particles, FACE studies aim to show how crop plants and trees could be affected by increased CO_2 in the atmosphere. Since plants absorb CO_2 by photosynthesis, they act as a crucial counterpart to humankind's CO_2-producing activities, including the burning of fossil fuels.

Carbon dioxide is thought to be a major driving variable for potential global climate change due to an enhanced "greenhouse effect." With FACE, said Hendrey, "We can feed information on the plant processes that are the major potential regulator of atmospheric CO_2 in the coming decades into global models" of climate change, to give the models a basis in experimental data.

Ecologists and plant biologists have already put FACE techniques to use in studying cotton and wheat fields in Maracopa, Arizona, and meadows in Switzerland. Their findings have been published in numerous journal articles and a bound volume of articles edited by Hendrey. A new study of wheat at Maracopa is planned for next year.

Several countries, including New Zealand and Italy, have drawn on BNL's FACE project experience to build their own facilities to study elevated CO_2's effects on plants important to their region.

Other FACE facilities are proposed, or are in the works, including a Michigan forest of aspen trees that would be grown from clones of a single plant and followed for a decade or more. Another FACE facility may be built in Nevada, along a desert-water ecotone, or intersection of two ecosystems.

—Kara Villamil

Outreach Workshop
Fathers and Their Children

Society's stereotype for males that stresses rugged individualism, emotional toughness and self-restraint can inhibit fathers from openly and freely expressing their love for their children. Within the family, for instance, a father is often expected to be the authoritarian parent whose main functions are to provide financial support, physical protection and whatever discipline his children require. So, how does a man balance these expectations with the wish to be emotionally close to his children?

Helping fathers out of this dilemma will be the topic explored in the next Outreach workshop, on Tuesday, May 23, from noon to 1 p.m in Berkner Hall. To be presented by clinical psychologist Don-David Lusterman, "Fathers and Their Children" is sponsored by the Employee Assistance Program (EAP) of the Occupational Medicine Clinic. All are invited.

Returning to BNL by popular demand, Don-David Lusterman, Ph.D., is a fellow of the American Psychological Association (APA) and the American Association of Marriage & Family Therapists. He specializes in family therapy in his Baldwin private practice and is a founding member of the Society for the Psychological Study of Men and Masculinity. Lusterman was the 1987 family psychologist of the year, named by the APA's Division of Family Psychology.

To register for this workshop, return the completed bottom portion of the Outreach flyer recently sent to all employees to EAP Staff Psychologist Dianne Polowczyk, Bldg. 490, by Monday, May 22. For more information about EAP and its Outreach workshop series, call Ext. 4567.

Reducing the Risk: Tips on Avoiding Letterbombs

The recent letter-bomb murder of a California forestry lobbyist, yet another in a 17-year string of 16 such incidents that the Federal Bureau of Investigation (FBI) attributes to the "Unabomber," has once again put mail rooms across the country on alert.

The Unabomber, dubbed as such by the FBI for attempting "*un*iversity and *a*irline *bomb*ings," seems to strike most often at scientists and others associated with technology — two Nobel Prize-winning geneticists recently received threatening letters from the bomber. And anyone who intercepts a Unabomb or other letter bomb on its way to the intended victim is also at risk.

"Although no one at Brookhaven has received any threats, it is prudent to be aware of the indicators of a potential letter bomb or parcel," said Russel Reaver, Manager of BNL's Safeguards and Security Division (S&SD).

Added BNL Mail Room Supervisor Frank Norton, Staff Services Division, "We are aware of these issues, and we have letter-bomb awareness procedures in place. If we saw anything that appeared suspicious, we would flag it out and take the necessary precautions." Still, he said, the volume of mail delivered to the Lab each day makes letter-bomb awareness everyone's responsibility.

Reaver offered a list of indicators to look for:

- Excessive stamps instead of metered postage;
- Incorrect titles or names, or titles without names;
- Misspelled words with a poorly typed or written address;
- Handwritten instruction on how to open, or markings reading "personal" or "to be opened by addressee only";
- No return address or a return address that is inconsistent with postmarks;
- Excessive tape or string;
- Lopsided or uneven envelope or package, with weight unevenly distributed;
- Protruding wires or tin foil;
- Oily stains on the wrapper, or strange odors, such as almonds;
- Excessive weight for the size; and
- Thick envelopes or those with stiffeners inside.

If a letter or package displays such indicators, says Reaver, treat it as suspect, and don't open it. Leave it where it is, and get out of the office or home to call for help — on the Lab site, dial the police Ext. 2222, or at home, call 911. Lab police will respond to on-site calls, assess the situation and call in the county bomb-disposal unit if necessary.

"Don't try to relocate the object to a safer area," said Reaver. "And, despite what you may have seen in the movies, it's not a good idea to immerse it in water or to cool it with a CO_2 fire extinguisher. These actions could cause it to detonate."

For more information on letter bombs, contained in an FBI flyer, call S&SD, Ext. 4177, or send e-mail to reaver@bnl.gov. — K.V.

Volleyball Champions

Congratulations to the teams pictured below, which will be recognized at the Volleyball League's end-of-season party tonight in the Recreation Building:

Koopas pulled a coup in League I: (front, from left) Millie Laster, Ali Lopez; (back, from left) Barry Karlin, Ron Webster and Jay Adams (captain). Not shown: Jim Higgins, Marissa Higgins, Orest Kawka, Bill Kropp, Dan Kropp and Jean Spears.

Monday Night Live showed just how lively they are by winning it all in League II: (front, from left) Jean Jordan-Sweet, Craig Ogata, Fang Shu, Kathleen Griffin (captain); (back, from left) Johnny Kirkland, Art Sedlacek, Ying Chao Zhang. Not shown: Julie Leader.

Take Five took it all in League III: (front, from left) Kelly Bornhoft, John Addessi (captain); (back, from left) Terry Lacker, John Biemer and Dawn Mosoff. Not shown: John Butler, Gloria DeBoer and John DeBoer.

The Men & Me bested the other men and women in the Open League: (front, from left) Gail Penny (captain), Lars Furenlid, Cahit Eylem; (back, from left) James Safranek, John Millener, Ralph Wiedmann, Eddie Meier, Steve Hulbert. Not shown: Mark House.

Main Gate Drilling: Groundwater Testing

For the past few weeks, BNLers traveling down Princeton Avenue on their way to or from the main gate may have wondered about all the heavy equipment along the road.

The answer comes from Tom Burke of the Office of Environmental Restoration, who explained that environmental contractors ERM Inc. and Delta Drilling are conducting a groundwater-screening survey for Operable Unit III, which is an environmental remediation area that includes the locations of several past chemical spills at BNL.

Using the equipment seen at the gate, Delta is drilling for soil and groundwater samples, while ERM is analyzing the samples for contaminants. This survey will also yield valuable information about local geology. The drilling will continue along the site's south boundary through this summer, so anyone traveling toward the south gate may soon see the same equipment.

If you have questions or would like to know more about the Operable Unit III project, contact Burke at Ext. 3130.

Equipment Demo

From 11 a.m. to 4 p.m. on Wednesday, May 24, the Schroff Infomobile will be parked outside Berkner Hall. It will contain product displays and demonstrations of the latest technology in NEMA and RFI/EMI cabinets, desktop and rack-mount cabinets, IEEE 1101.1 and hard-metric subracks, pluggable and open-frame subracks, VME and VXI backplanes, and accessories, such as front panels, connectors, telescopic slides and more.

Amateur Radio Club

The Amateur Radio Club will next meet on Thursday, May 25, at noon in Room D, Berkner Hall.

All Lab employees, guests and licensed amateur-radio operators are invited. For more information, contact Chris Neuberger, Ext. 4160, or Nick Franco, Ext. 5467.

Prizes for the Science Fairest of Them All

In these scenes from the annual BNL Elementary School Science Fair are a few of the record number of children who participated this past Saturday, May 13: More than 950 youngsters submitted over 450 science projects from over 100 Suffolk County schools. The science projects were judged by teams of Brookhaven scientists and local elementary school teachers, based on the students' scientific thought, creativity, thoroughness and clarity. Seven prizes were awarded, one for each grade from kindergarten — won by Lauren Strong (photo top right) from Hawkins Path Elementary, Selden — through grade 6 — won by Craig Riha, from Emmanuel Lutheran of Smithtown (photo bottom left). Numerous honorable mention ribbons were also given out. The science fair is organized each year by Museum Programs in the Public Affairs Office.

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

Art Bus Trip

On Saturday, June 24, all are welcome to join the Art Society-sponsored bus trip to see Old Lyme, Connecticut, an attractive village where turn-of-the-century American Impressionists spent summers painting around Miss Florence Griswald's mansion-*cum*-boardinghouse. It is now a museum with gardens, period rooms and art by over 100 painters, including masters such as Childe Hassam, Willard Metcalf and William Chadwick.

After a late lunch, speed forward in time to the free sculpture garden of the Aldrich Museum of Contempory Art in Ridgefield, which also has eating places nearby.

The bus will leave the BNL tennis court parking lot at 7 a.m. and return by about 9:45 p.m. The Florence Griswald Museum ticket is $4 and the bus ticket is $21. Call Liz Seubert, Ext. 2346 or 286-8563, evenings, for information or reservations.

Bowling

The winners of the Red & Green League are:

- **First Place** — Portsiders
- **Second Place** — The Force

The winners of the Purple & White League are:

- **First Place** — Terminators
- **Second Place** — Strike Outs

Annual Awards Party

The annual Bowling awards party will be held at Rock Hill Country Club on Friday, June 9, from 6 to 10 p.m. The cost is $10 for bowlers and $15 for guests, which includes dinner and an open bar. For tickets, contact Debbie Botts, Ext. 7218, by Friday, May 26.

Retirement Counseling

A TIAA-CREF representative will visit the Lab on Thursday and Friday, June 22 & 23, to answer BNL employees' questions regarding the TIAA-CREF retirement plan in one-on-one counseling sessions. Questions employees might have include:

- What are the differences between TIAA and CREF?
- How should I allocate my money between TIAA and CREF?
- How can I save on taxes?
- What options and flexibilities do I have for my existing dollars with TIAA-CREF?
- What are my options for the retirement years?

To arrange an appointment, call Joyce Wund, Personnel Division, Ext. 7516, by Friday, May 26.

Arrivals & Departures

Arrivals

None

Departures

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

Stephen M. Bart.....Physics
Lawrence L. Latour.....Chemistry
Joseph A. Granato.....Comp. & Comm.

Cafeteria Menu

Monday, May 22	
Soup: Autumn harvest	.90/1.20
A la Carte: Char-grilled flank steak	3.95
Lite: Veg.-Roquefort-stuffed zucchini	3.85
Deli: Pastrami	3.20
Grill: Ratatouille skewers over rice	3.30
Tuesday, May 23	
Soup: Hot & sour	.90/1.20
A la Carte: Turkey w/cranberry biscuits	3.65
Lite: Haddock w/tomatoes & ginger	3.85
Deli: Top round of beef	3.20
Grill: Turkey tortilla	3.30
Wednesday, May 24	
Soup: Beef barley	.90/1.20
Display Cooking: Oriental stir-fry	4.75
Deli: Pork loin Dijon & apple compote	3.20
Grill: Filet of fish	3.30
Thursday, May 25	
Soup: Chicken gumbo	.90/1.20
A la Carte: Beef stew	3.85
Lite: Burrito w/cheddar & gaucamole	2.95
Deli: Jamaican jerk-rubbed lamb w/slaw	3.20
Grill: Turkey chili tortilla	3.30
Friday, May 26	
Soup: Tomato & pinto bean	.90/1.20
A la Carte: Seafood & vegetable scampi	3.95
Lite: Chicken Chablis	3.95
Deli: Corned beef w/carraway cabbage	3.20
Grill: BBQ beef quesadilla	3.30

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, May 22, at 6 p.m., in the Knights of Columbus Hall, Railroad Avenue, Patchogue. On the agenda will be regular business, committee reports and the president's report.

June C/W Dance

The BNL Country/Western (C/W) Dance Club will hold a C/W dance on Friday, June 9, from 7 to 11 p.m. in the North Room of the Brookhaven Center. There will be dance instruction from 7 to 8 p.m. with Joel Piereth and Elise Prado, and open dancing from 8 to 11 p.m. So, pull on your boots to join us for some hootin' 'n hollerin' and good old-fashioned bootscootin' country music and dancing.

Tickets are limited, so they will be sold first come, first served, for $10 per person, which includes hot and cold hors d'oeuvres. A cash bar will be available, and door prizes will be awarded. Purchase tickets in advance from: Carmen Falkenbach, Ext. 2663, Bldg. 460; Lois Marascia, Ext. 3315, Bldg. 460; or Ginny Morante, Ext. 3555, Bldg. 460.

UNIX Training

If there is enough interest, CCD, through the end of the fiscal year, will be organizing the following classes:

Course	Fee
C++ Programming	$500
Introduction to UNIX	$250
Perl Programming	$250
Solaris System Administration	$1,050

For more information and for course outlines, call Ed McFadden, Ext. 4188, or Pam Mansfield, Ext. 7286. To register, send an ILR for the appropriate fee to Marcia Swiss, Bldg. 515.

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position. Consideration is given to candidates 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, handicap or veteran status.

Each week, the Personnel Division lists new placement notices. The purpose of these listings is, first, to give employees an opportunity to request consideration for themselves through Personnel, and second, for general recruiting under 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, or call the JOBLINE, Ext. 7744 (282-7744), for a complete listing of all openings.

SCIENTIFIC RECRUITMENT - Doctorate usually required. Candidates may apply directly to the department representative named.

POSTDOCTORAL RESEARCH ASSOCIATE - Training in condensed-matter physics, with a background in neutron or x-ray scattering, or optical spectroscopy. Experience in theoretical physics, low-temperature techniques and/or high-pressure techniques is desirable. The successful candidate will participate in a broad-based program in elastic and inelastic neutron-scattering experiments using triple-axis spectrometers at the HFBR. Contact: John Axe, Physics Department.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

DD 0564. TECHNICAL POSITION - (term appointment) Requires AAS degree in a technical field or equivalent and experience in close tolerance and mechanical assembly. Knowledge of shop tools (electric and hand), including precision measuring devices, is desirable, as is vacuum and fabrication experience with scientific equipment. RHIC Project.

Motor Vehicles & Supplies

95 MUSTANG - black/black, fully loaded, 5-spd., 5k mi., mint cond., asking $21,500. Pat, 878-9117.

94 FORD XLT EXPLORER - 7k mi., sunroof, leather seats, 4-dr., must sell, $23,500. A. DiDio, Ext. 2138.

92 GEO METRO - 17k mi., 45 mpg, 5-spd., 3-yr. warr. Joe, Ext. 4496.

90 TOYOTA COROLLA - white, 4-dr., 5-spd., ac, p/s, p/b, excel. cond. in/out, $5,500 neg. Ext. 3376.

90 MUSTANG - air bag, passive alarm, a/t, p/l, p/w, sunroof, ac, am/fm w/tape deck, ext. warr., asking $6,200. Harris, 758-7911.

89 NISSAN 240SX - a/t, ac, am/fm cass., 92k mi., mint, $6,500. 722-8719.

88 MERCURY SABLE LS - s/w, all power, leather seats, new tires, 15k on rebuilt eng., excel. cond. in/out, $3,900. Ext. 5919 or 929-1099.

88 OLDS FIRENZA - a/t, full power, cruise, ac, 4-dr., 90k mi., excel. cond., $2,500. Arnie, Ext. 2606.

88 VW CABRIOLET - convertible, red/black, orig. owner, high hwy. mi., maint. records, excel. cond., reduced $5,500. Karen, 874-2357.

87 MAZDA 323- parts, many items, batt., fuel filter, plastic bulb protectors, am/fm cass., stereo. Mike, Ext. 2052.

87 VOLVO 740 WAGON - turbo, black, sunroof, leather seats, all power, low mi., must be seen, excel. cond., $7,900. Dan, Ext. 5177 or 689-5152.

86 HONDA CIVIC - h/b, red, 5-spd., sunroof, am/fm cass., 113k mi., good cond., $2,100. Kevin, Ext. 2963 or 744-0871.

85 PONTIAC 6000 - white, 4-dr., new tires, brakes, rear shocks, 98k mi., a/t, p/s, fully tuned, minor rust, $1,400. Rick, Ext. 3932 or 472-9789 after 5:30 p.m.

85 COUGAR LS - 3.8L, V-6, full power, gray, good cond., $1,500. Frank, Ext. 4220 or Vita, 277-0464.

85 TOYOTA CAMRY - 4-dr., 5-spd., ac, maint. cond., orig. owner. Ext. 4342 or 924-3066.

85 FORD ESCORT - $500. Shane, Ext. 5900/2442.

85 DODGE DAYTONA - black, sunroof, 5-spd., 30k mi. on rebuilt eng., new tires & clutch, best offer. Ext. 2862.

85 HONDA ACCORD - white, 4-dr., 5-spd., CD, stereo, cruise, p/s, $2,300 neg. Alan. Ext. 2840.

85 CORVETTE - a/t, full power, ac, red, 2 alarms, 29k mi., excel. cond., asking $14,000. Tom, Ext. 5899.

84 CADILLAC ELDORADO - clean, runs well, low mi., reasonable, 585-8590.

83 CAMARO - 4-spd., sunroof, rebuilt engine, new struts, clutch, windshield, radiator, exhaust system, radio, asking $1,750. 325-0563.

83 TOYOTA CELICA GT - biege, high mi., well maint., p/s, p/b, cruise, am/fm cass., no rust, $1,200. Ext. 4340.

83 MAZDA PICKUP - 5-spd., new brakes & clutch, good tires, bed cover & carpeted, toolbox, radio, tune-up, $1,200. Dick, Ext. 4640.

80 TOYOTA TERCEL - 3-dr. h/b, 5-spd., ac, am/fm, red, 138k mi., no rust or dents, looks great, runs well, $850. Brian, Ext. 3102 or 821-4530.

80 TOYOTA TERCEL - 5-spd., needs head, $100. Rich, Ext. 3354 or 589-9103.

79 OLDS DELTA 88 - runs well, needs work, $200. Mauro, Ext. 4234.

76 VOLVO 242 DL - s/t, runs well, $900 neg.; '77 244 DL parts car, not running, good body, $300 neg. Steve, Ext. 3018 or 369-5181.

66 NOVA RACE CAR - $25,000 invested, $10,000 firm; '72 SS Chevelle big block, red & black, mint cond., $7,500. Ext. 3849.

SLIDE-ON CAMPER - 11½', self-contained, shower, all systems work, $1,000. 286-8166 after 6 p.m.

CAR RAMPS - heavy-duty steel, holds to 7k lbs., excel. cond., $35/pr. Joe, 467-8185.

TIRE - Fulda Y-2000 245/45VR16, good cond., $35. Tirre, Ext. 3288 or 281-0360 after 6.

Furnishings & Appliances

BEDROOM SET - 3-piece, early Amer., $250. 329-1277.

CHAIRS - Ethan Allen, new, 4 side, solid cherry, Windsor style, orig. $800, now $475/all. Eric, Ext. 5875.

COUCH - w/matching recliner, like new, $300. 289-8105.

COUCH - 7', floral tan fabric, $110 neg. Tom, Ext. 5899.

CRIB - v.g. mattress, $20; car seat, Fisher Price, $10. Jia, Ext. 2515 or 751-1867.

DINING ROOM SET - 6 chairs, 84"x42" table, 66"x79" hutch, excel. cond., $450; sewing machine, Singer, heavy-duty, still in box, $150. 924-0960.

DINING ROOM - 40"x60", walnut table, 12" leaf, 4 chairs, china closet, Broyhill, excel. cond., $250. Rich, Ext. 7013.

DISHWASHER - Westinghouse deluxe, Potscrubber, full controls, black reversible panels. Frank, Ext. 4220 or 277-0464.

MATTRESS - boxspring, frame, queen size, $230; 2 sofas, $70 & $90; storm door, $60; all v.g. cond. Ext. 3842 or 929-6925 after 7 p.m.

MATTRESS & BOXSPRING - queen size, good cond., $300/for both. 475-8473.

MICROWAVE OVEN - 0.6 cu. ft., brand-new, apt. size, white, $75. 475-3612.

PIANO - full size, upright, oak, ivory keys, very old, needs tuning, $400 neg. Frankn D., Ext. 2022 or 399-4480.

REFRIGERATOR - 17.5 cu. ft., white, 7 yrs. old, $100; dishwasher, GE, under-the-counter, $50. Tony, 736-7942.

TABLES - coffee & 2 matching lamp tables, Colonial pine, $200. John, Ext. 2788.

TABLES - 2 end, 1 coffee, wood, v.g. cond., $50/all. Tom, 434-9345.

Tools, House & Garden

ANNUALS - flowers, $10/flat. Ray, 727-6818 after 4 p.m.

CACTUS - 4½', plus planter, outside in summer, inside in winter. Ginny, 727-5194.

CANNA BULBS - giant red, $1/three; fig trees also available. Jim, 325-9293.

DAHLIAS - whole root clumps, mostly white, $1/ea. Joe, Ext. 2898.

HYDRONIC UNIT HEATERS - horizontal delivery, 100k Btu, new, $500/pair. 329-1277.

LATHE - metal, 6" swing, 48" bed w/access.; motors, up to 1-h.p., 331-2298.

LAWN MOWER - push-type, like new, best offer. 286-3742.

MACHINIST TOOLS - D'Andrea mod. TA 120, Boring & Facing HD, Dumore tool post grinder, 3"-7" micrometers, many more items. 298-3855.

TREES - Japanese maples, $10-$45+, 265-6542.

WATER HEATER - Sears, elec., 30-gallon, new, still in box, $150. Roy, 727-6714.

WINDOW - steel casement, 37"x50", industrial type, $25. Connie, 727-1483.

Sports, Hobbies & Pets

AQUARIUM - 10-gallon, cover, light, heater, gravel, extras, $15. 473-6546.

BIKES - small, child's, w/fixed wheel brake, training wheels, $10; young woman's bike, $15. Peter, Ext. 5983.

BIKE - ATB, GT Tierra, 21-spd., great cond., 16" frame, $120; 2 wicker chairs, brown, w/cushions, $25/pr. or $15/ea. 584-3930.

DARKROOM EQUIPMENT - easel, safelights, etc. Ext. 7706 or 744-7508.

HELMET - motorcycle, size medium, w/2 face shields, good cond., white, $20. Victor, Ext. 2395.

KAYAK - Sea Otter, midsize, touring, 16'4", red & biege, rudder hatches, compass, new cond., 52 lbs., $1,100. Ernie, Ext. 7859.

PING-PONG TABLE - regulation-size, almost new, $50; toboggan, 3-person, $35. 329-1277.

POOL - Wedgewood, 12'x24', access., you take down, $200; elec. stove, $100; RCA air conditioner, $250; changing table, $30. Nick, 821-3721.

PUPPIES - yellow Labrador retrievers, champion lines, avail. 6/1, deposits being accepted. 924-5505.

PUPPY - pure breed Australian Caire dog, has all shots, needs good home, $100 neg. John, 363-8206.

SWIMMING POOL - 16'x30', above ground, all access., best offer. Edward, Ext. 7502.

Audio, Video & Computer

COMPUTER - 286, 5¼" & 3½ drives, color VGA mon., business & educational software, games, manuals, $500. Peter, Ext. 5983.

COMPUTER - 386SX, 2MB RAM, 60 MB HD, 5¼" floppy, mouse, monitor, $275. Tom, 434-9345.

FAX MACHINE - used; copier, used; best offer. 286-3742.

MODEM - Cardinal, brand-new, 14.4/19.2, Windows, accelerator, fax/modem, incl. software, orig. $75, ask. $65. Wang, 924-9142.

MOTHERBOARD - 386 DX/33, w/4 MB RAM, $140; SVGA card w/512K ram, $40. Ext. 3207.

PRINTER - Panasonic KX-P1124, emulator, Epson LQ-2500, pro printer X24, 2 new ribbons, $60; bonus 1,000+ sheets of paper free. Paul Michael, Ext. 2264.

PRINTERS - Panasonic KXP1592, Okidata Microline 391, TI Omni 800 model 855, $50. Bill, 878-4356.

TV - Mitsubishi, 46" projection screen, oak wood case, $400. 363-7633 after 5 p.m.

Miscellaneous

AIRLINE VOUCHER - American Airline, exp. 6/19/95, worth $220, sell for $110. Ext. 7505 or 689-8605.

DRAFTING EQUIPMENT - 54"x38", w/desk, adjustable; Mutoh machine; 5-drawer E size flat dwg. file cabinet; print machine; exec. desks. 298-3855.

LIMITED EDITION PLATE - *Aida,* LaScala Grand Opera Collection, 1st ed. 1979, ivory alabaster, $45. Pat, Ext. 2452.

LUGGAGE - 4-piece, Samsonite, leatherette, good cond., $50. Helga Pirozzi, Ext. 2381.

LUGGAGE SET - 4-piece, excel. cond., grey, heavy-duty nylon, 5 yrs. old, 15 yr. warranty, 30", 27", 25" & carry-on, $125/all. Lisa, 467-8185.

PROM DRESSES - peach, satin, Gunne sax size 11; floral chintz, ruffled off-shoulder, new, size 12; red satin, size 13; excel., $20/ea. 473-6546.

RAIN COAT - Misty Harbor, orig. $79, sell for $40. 924-0960.

TICKETS - 2, *Phantom of the Opera,* Majestic Theater, 2:00 pm, Wed., 7/12/95, $55/ea. Ext. 2862.

Yard & Garage Sales

DIX HILLS - 5/20-21, 9 a.m.-5 p.m., collectibles, clothes, furn., books, games, typewriters, electronics, housewares, lamps, etc. 112 Village Hill Dr.

EAST QUOGUE - Sat., 5/20, 9 a.m.-4 p.m., china, housewares, typewriters, linens, etc. 4 Beachland Ave., off Forest Rd. in Pinesfield.

MANORVILLE - 5/20-21, appl., antiques, prom/communion dresses, books, exercycle, 78s & 33⅓s, more. 47 Silas Carter Road.

MEDFORD - 5/20, rain date Sun., 5/21, baby's items, baseball cards, household wares, dinette set. 215 Mt. Vernon Ave.

Lost & Found

FOUND - 5/11, short chain w/attached jewelry, on Bldg. 902/197 circle. J. Curtiss, Ext. 3635.

Car Pools

LIE EXIT 36 - fourth needed. John, Ext. 5181.

Wanted

BABY-SITTER - to care for 8-mo.-old baby, my home or yours, on-site preferred, 8:30-5:30, M-F, Yue, Ext. 3396 or 341-1063 eves.

BOX SLEEVES - for Dept. 56 Snow Village collectibles, various sizes. Pat, Ext. 2452.

CAMERA - any kind of used automatic camera, not too expensive. Hodé, Ext. 7097.

DOG CARRIER - for 27-lb. large dog, must be airline approved; electronic organizer, Wizzard, Sharp OZ-7000 and/or IC cards for same. Tom, 744-3024.

JUNK CARS - trucks, machinery, alum. boats, removed free. Rich, Ext. 3354 or 589-9103.

LACROSSE EQUIPMENT - helmet and various padding for 14-yr.-old. Maria, Ext. 2301 or 924-3756.

NISSAN PULSAR - 1986 or earlier model, for parts. Carl, Ext. 4783 or 929-5781.

PARENTS - in need of summer care for your kids, so am I, let's come up w/reasonably priced, safe & fun solutions. Susan, Ext. 7414.

POP-UP CAMPER - early to late model, good cond., no rips in canvas, elec./gas, must work, reasonable price range. Darren, 325-0563.

MOTORCYCLES - bent or broken, any age or cond. Kevin, 281-8031.

MOVIE VIEWERS - to see *What Happened Was,* 1994 Sundance Film Festival winner, Theatre Three, May 22, 8 p.m., starring Karen Sillas. Janet, 929-3910.

SUZUKI SAMURAI - in good shape. Liz, Ext. 2346.

In Appreciation

A heartfelt thank you to all my friends at SEP for your concern and support during my time of loss.

— Paul Zahra

Many thanks to the BNL police and Fire/Rescue staff who responded to my accident on March 1.

— James Waters

Classified Ad deadline is 4:30 p.m. Friday for publication Friday of the next week.