BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

BNL to Work With Industry on Three New CRADAs

BNL's Office of Technology Tranfer is humming with activity, as it has recently completed negotiations on three new Cooperative Research and Development Agreements (CRADAs) signed by BNL and three separate companies — following three others reported in the Bulletin last month.

CRADAs promote the transfer of scientific expertise and technology from federal laboratories to industry. From cleaning up fossil fuel wastes to making new compounds for medical research to designing innovative radiation detectors, these new CRADAs reflect the scope of Brookhaven's wide-ranging research.

• EER Labs, Inc. — Biochemical production of valuable materials from fossil fuel wastes

Mow Lin, a biochemist in the Department of Applied Science (DAS) and principal investigator in this CRADA, assisted by DAS researchers Jeffrey Yablon, Eugene Premuzic and Ludmila Shelenkova, is working with EER Labs, Inc., an environmental remediation company based in Altadena, California, to convert toxic oil wastes, such as oil spills and used motor oil, into useful products.

When the researchers mix these wastes with selected bacteria under optimal temperature and oxygen conditions, they can be biochemically changed to several environmentally safe products, including industrially useful bioadsorbants, biopolymers and surfactants. Bioadsorbants are used to remove toxic metals, including radionuclides, from contaminated water.

"One gram of dry bioadsorbant can absorb its own weight in heavy metals," Lin said. "Also, we designed the bioadsorbants to be selective, so that the toxic metals will be removed from the waste."

Biopolymers can plug cracks in oil reservoirs, and surfactants also enhance oil recovery by acting as emulsifiers, making it easier to bring up crude oil from deep wells. Furthermore, surfactants can be used to make detergents and soaps, as well as other marketable products.

Roger Stoutenburgh

In their Department of Applied Science laboratory, (from left) Ludmila Shelenkova, Mow Lin and Jeffrey Yablon work on a bacterial strain for use in oil waste.

The DAS team will scale up the most promising biochemical process for engineering and marketing studies. Also, an economic study will be drafted as a marketing proposal for prospective investors. This novel project has a double economic benefit — it both reduces fossil fuel wastes that are extremely expensive to dispose of and converts them to marketable products.

• Boron Biologicals, Inc. — Medical applications of gadolinium and boron-labeled pharmaceuticals

Collaborating with Boron Biologicals, Inc. (BBI), a small company based in Raleigh, North Carolina, Jeffrey Coderre, principal investigator from BNL in this CRADA, is being assisted by Jacek Capala and Michael Makar, all from the Medical Department, in screening a series of boron compounds to determine the most suitable for boron neutron capture therapy (BNCT), a promising experimental cancer therapy developed at Brookhaven. Also, in collaboration with the State University of New York at Stony Brook, the BNL researchers will test gadolinium-labeled compounds to find which would be the most promising contrast-enhancement agent to image and diagnose brain tumors using magnetic resonance imaging (MRI).

This CRADA is a spin-off of a previous one signed with BBI over a year ago to develop boron compounds for BNCT. Under the new CRADA, BBI will synthesize both boron and gadolinium compounds, and Brookhaven will determine their toxicity and selective uptake both in cell cultures and in animal tumors. Also, the BNL researchers will evaluate each boron compound's efficacy in BNCT. Based on Brookhaven's tests, Stony Brook researchers will choose certain gadolinium compounds to evaluate their potential usefulness as MRI contrast agents.

• II-VI, Inc. — Designing radiation detectors made from cadmium, tellurium and zinc

Brookhaven has signed a second CRADA with II-VI, Inc., of Saxonburg, Pennsylvania, to work on a single project — improving the efficiency and economy of radiation detectors made of cadmium, zinc and tellurium (CdZnTe).

According to BNL's coinvestigators in the CRADA, Kelvin Lynn and Csaba Szeles, both from the Physics Department, unknown defect properties in these crystalline materials are the greatest obstacle to further commercialization of these innovative detectors, which have varied applications, from monitoring air or liquid effluents from power plants, to medical imaging and space research. The BNL researchers are using a novel thermoelectric effect spectrometer to detect and characterize the defects.

Detectors made of CdZnTe have two major advantages over other types of photon detectors — they are not sensitive to magnetic fields and they work efficiently at room temperature.

By minimizing defects in the CdZnTe crystals and improving their growth, the researchers expect to decrease the cost of these highly efficient detectors so that they will be extremely competitive in the worldwide detector market.

— Diane Greenberg

RHIC Magnets Held Together by Interdepartmental Cooperation

It's a different world at 4 kelvins (K). At this temperature, so close to absolute zero, nearly everything stops moving — except the flow of electricity through metals known as superconductors.

While this is a desired effect in the superconducting magnets that will bend and focus beams of speeding ions in BNL's Relativistic Heavy Ion Collider (RHIC), some metals undergo unwanted changes at supercold, or cryogenic, temperatures.

Take, for example, the alloys traditionally used in welding at room temperature. The deep freeze puts many of them in deep trouble, creating the possibility for welds to crack uncontrollably.

But RHIC magnets need to be held together somehow. And, since hundreds of them will be made, the need for a proper welding material is accompanied by a need for a welding machine capable of turning out many precision-welded magnets on schedule.

Faced with these demands, an interdepartmental cooperation has arisen involving the Department of Applied Science (DAS), the Weld Shop of the Central Shops Division, the RHIC Project, and the Safety & Environmental Protection (SEP) Division.

Last month, the collaboration's efforts paid off, as the first BNL-built RHIC magnets were welded using both a special welding alloy and a welding machine designed specifically for that purpose.

These BNL-produced Corrector-Quadrupole-Sextupole (CQS) magnets are the first of 508 RHIC magnets that will be produced at BNL and welded using the special weld alloy and new machine. Northrop Grumman Corporation is using the same special weld alloy, but a different weld process, to fabricate RHIC dipole magnets at its Bethpage facility.

Alchemists' Alloy

To make strong welds for cryogenic applications requires an alloy made of an alchemist's blend of elements — a little of this for strength, a little of that to resist cracking. The alloy must be compatible with metals used for cryogenic purposes and, in the case of RHIC magnets, tough enough to meet boiler code safety standards at its operating temperature of 4 K.

The original idea for an appropriate alloy, containing high concentrations of nickel and chromium enhanced with manganese and nitrogen, came from a scientist at the National Institute of Standards and Technology. At BNL, Steven Kane, an SEP safety engineer, obtained several samples of variations of this alloy and oversaw their testing for weldability and impact resistance.

For example, even though RHIC magnets will probably never be hit by an impact energy of 32 joules, the welded seams must be designed to

(continued on page 2)

Roger Stoutenburgh

As Steven Kane, Safety & Environmental Protection Division, examines the special welding alloy he developed for RHIC magnets, a magnet in the custom-built welding machine is inspected by: (rear, from left) Raymond Ceruti, Relativistic Heavy Ion Collider (RHIC) Project; Gene Sorensen, Central Shops Division (CSD); Charles De La Parra, RHIC; and, behind magnet, Charles Vogel, CSD; and Francis Skidmore, RHIC.

SEP Instructor Philip Harrington Is Guide to the Stars

"All of a sudden something clicked," recalled Philip Harrington about watching an eclipse of the moon for a sixth-grade class assignment. "A lifelong love of astronomy was born in me that night."

That's how Harrington, a staff specialist in the Safety and Environmental Protection (SEP) Division's Environmental Management Section, became a connoisseur and consumer reporter of the heavens.

He is the author of *Touring the Universe Through Binoculars,* published in 1990, and his latest book, *Star Ware: The Amateur Astronomer's Ultimate Guide to Choosing, Buying, and Using Telescopes and Accessories,* is now available in bookstores. Both books are available through John Wiley and Sons publishing company.

"One of the first questions people ask when they want to get into astronomy is 'What telescope do I buy?' " Harrington said.

Educating yourself about how to choose stargazing equipment is a good idea, he advises, because a high price tag on a telescope doesn't necessarily mean good quality.

"The purpose of the new book is to help people know where to look for telescopes and evaluate which one suits their needs," he said. "It also tells people how to use the equipment. No other book evaluates the equipment scene as thoroughly as this one does."

In addition to telescopes, the book covers binoculars, star atlases, astronomy publications, astrophotography, which is the art of capturing telescope images on film, and how to build a backyard observatory.

Roger Stoutenburgh

Phil Harrington is reflected with the stars that he studies in two mirrors of the telescope in the Lab's observatory.

Among the Stars

Harrington's motivation for studying and writing about the heavens is pure enjoyment.

"I call myself an amateur astronomer," Harrington said. "The word 'amateur' is derived from the French word 'amare' meaning 'to love.' I'm doing it for the love of it and not for money."

After the stars in his eyes had settled permanently in his heart during the sixth grade, Harrington began hanging around the planetarium in his hometown of Rowayton, Connecticut.

In planetariums, images of celestial bodies in their courses are projected onto the inner surface of a hemispherical dome. Therefore, visitors can observe planets and stars orbiting above them on the ceiling as if they were looking at the nighttime sky. But you don't have to go to a planetarium to enjoy astronomy.

"That I can see things two billion light years away is one of the most fascinating aspects of astronomy," Harrington said. "I can actually detect something whose light left before the dawn of life on Earth, and I can see these things from my own backyard."

While earning his degree in science education at Wagner College on Staten Island, Harrington worked at the college's planetarium and earned what would today be the equivalent of a minor in astronomy and planetarium science.

After graduating from Wagner in 1979, he interned for two years with the Hayden Planetarium in Manhattan, helping put together sky theater shows. He then earned a bachelor's degree in mechanical engineering from New York Institute of Technology, and came to work for BNL in 1992. He is currently a member of the procedures and training team at SEP's Hazardous Waste Management Facility.

Harrington has been teaching adult education classes at the Vanderbilt Planetarium in Centerport since 1982. These courses include introductory astronomy, observational astronomy, telescopes and equipment, and astrophotography. His introductory astronomy course will start again this October.

Seeing Is Believing

At first, what a beginner sees through a telescope may not be obviously identifiable or immediately exciting, Harrington said.

"If you study long enough, you'll learn to appreciate what you're looking at," he said.

His third book, *Astronomy For All Ages,* co-authored with Edward Pascuzzi, a teacher at Glen Cove High School, is expected out in August.

"It's for adults and kids who want to learn about the sky together," Harrington said.

The book's activities include a guided tour of the nighttime sky for each season, how to observe eclipses, and make a sundial or a telescope.

For Trekkies who desire to be closer to the heavens, the authors describe how to capture tiny bits of meteorites called micrometeorites: Place a pie tin with a shallow layer of water in it on a high place such as a roof for several days. Then, run a magnet through it: The small black pieces you collect on the magnet are micrometeorites.

"The Earth is bombarded with tons of this stuff every year," Harrington said. Of course, that's nothing compared with the bombardment that the planet Jupiter received this week from fragments of Comet Shoemaker-Levy 9.

"In the quarter century I've been doing this, it's one of the most dramatic sights I've ever seen," he said about observing the aftereffects of the event from his backyard. "I saw two dark ovals like eyes where pieces of the comet hit Jupiter. They are individually larger than the size of the Earth, but they were caused by the impact of comet pieces only about two kilometers across. So there was an awful lot of energy being released there."

We can also expect more celestial guidance from Harrington in the future, as he expects to release *Harrington's Handbook of the Heavens* sometime next year, followed by a book in 1997 detailing when, where and how to observe solar and lunar eclipses occurring from 1997 to 2017.

Meanwhile, if you are interested in putting an eye on the sky, contact Vanderbilt Planetarium, 854-5560, or the president of BNL's Astronomy Club, Keith Power, Ext. 7772. The rewards are heavenly, according to Harrington.

"There's something very serene about going outside in the dead quiet and looking at the stars," he said. "You're in communion with the universe, and you can leave earthly concerns behind." — Georgia Moore

Reports Available

The following reports are available to Lab staff and affiliates of DOE, AUI and NRC. Others may purchase them from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. Staff members should call the designated contact.

BNL-NUREG-52380
NUREG/CR-6053
Contact: B. Kponou, Ext. 5104
Comparison of MACCS Users Calculations for the International Comparison Exercise on Probabilistic Accident Consequence Assessment. L. Neymotin

BNL-NUREG-52385
NUREG/CR-6086
Contact: P. Ennis, Ext. 7632
Selected Fault Testing of Electronic Isolation Devices Used in Nuclear Power Plant Operation. M. Villaran, K. Hillman, J. Taylor, J. Lara, W. Wilhelm

BNL-NUREG-52406
NUREG/CR-6169
Contact: M. Chaloupka, Ext. 2746
Relay Test Program: Series II Tests: Integral Testing of Relay and Circuit Breakers. K.K. Bandyopadhyay, C. Kunkel, S. Shteyngart

BNL-52408
Contact: A. Constantini, Ext. 2274
Summary of Particle Bed Reactor Designs for the Space Nuclear Thermal Propulsion Program. H. Ludewig

BNL-NUREG-52409
NUREG/CP-0135
Contact: A. Fort, Ext. 2114
Workshop on Environmental Qualification of Electric Equipment. R. Lofaro, W. Gunther, M. Villaran, B.S. Lee, J. Taylor

BNL-52411
Contact: B. Cox, Ext. 3381
Site Environmental Report for Calendar Year 1992. J.R. Naidu, B.A. Royce, R.P. Miltenberger

RHIC Welding (cont'd)

hold up under that energy, according to the safety standards to which the magnets are being held.

So, Kane took two-inch samples of prospective alloys to Donald Horne and Robert Sabatini, in the Materials Science Division of DAS. The samples were notched in the middle, creating a weak point to simulate a flaw in welding, and cooled to 76 K.

Horn placed each sample in an impact-testing machine, which uses a pendulum-like hammer arm to break the sample. Then, Sabatini examined the breaks, looking for telltale signs of weakness: The more energy a sample absorbed before breaking, the better the alloy. The alloy chosen was able to stand up to 209 joules of impact energy, far exceeding standards.

A Weld-Built Machine

While the selected alloy was tested and custom-made for BNL, a design team led by Eugene Kelly and including Melvin Lindner and Steven Mulhall in RHIC's Magnet Division was busy designing a state-of-the-art welding station and process in which to use the new material.

The station's mechanical components were designed and built at BNL, and an outside company was contracted to supply the automated welding equipment to BNL specifications, said production engineer Mulhall. The machine was then assembled and tested in Bldg. 905.

The task of welding magnets is a precise one. BNL's machine utilizes the metal-inert gas (MIG) method of welding, which is fast and efficient, yet introduces very little weakness-inducing oxygen to the weld. Welders must be very careful to keep stresses on the magnet shell symmetrical, in order to keep the magnets underneath from distorting.

Since welded seams are stronger if they are continuous, the BNL machine moves the weld heads along the magnet as the thin (0.014 centimeter) alloy wire is melted into the seam between upper and lower helium containment shells. A thick curtain encloses the welding area, shielding onlookers from the bright sparks. Weld operators watch a video camera's view of the process on monitors.

With this machine, its builders say, BNL has advanced the state of the art in cryogenic welding.

"BNL is the first to go into mass production using this process," Mulhall said. "Based on our success, this approach could become a standard for cryogenic welding."

To date, one test and two actual RHIC CQS magnets have been welded using the new machine, and more lie in wait in Bldg. 905, along with 20,000 pounds of welding material. "We're getting there slowly but surely," said Kane — there are 506 magnets yet to be welded.

Even if almost everything else stops at 4 K, the cooperation that led to this point doesn't. — Kara Villamil

More $ on Payday? Here's Why . . .

Each pay period, 6.2 percent of an employee's gross salary is deducted to pay Social Security tax — until that employee has reached the taxable wage limit and paid the maximum tax for that year. In 1994, the wage limit was raised $3,000, to $60,600, for a maximum tax of $3,757.20.

BNLers who reach these limits will be receiving more take-home pay since Social Security tax will no longer be coming out of their paychecks.

However, this year for the first time, there is no ceiling on the Medicare Tax, which is deducted at a rate of 1.45 percent.

Regards to Broadway

Give your regards to Broadway this fall, when you take the BERA-sponsored trip to NYC to see one or two hit shows — *Showboat* and *Beauty and the Beast.*

The dates are as follows: *Showboat,* Saturday, October 15; and *Beauty and the Beast,* Sunday, November 20.

For *Showboat,* weather permitting, there will be a short stop at South Street Seaport for shopping, browsing or a snack. Dinner will be at La Maganette, a restaurant in the theater district.

For *Beauty and the Beast,* there will be a short stay at Rockefeller Center and midtown 5th Avenue. Dinner will be at Cafe 44.

Each trip includes orchestra or mezzanine seats for matinee shows, full-course dinner, round-trip motorcoach service from the Brookhaven Center, and all taxes and tips, for $121 per person.

A $50 deposit to reserve the theater tickets is due immediately. Reservations will be taken at the BERA Sales Office, Berkner Hall, Monday through Friday, 9 a.m. to 1:30 p.m. If you have any questions, call Andrea Dehler, Ext. 3347, or M. Kay Dellimore, Ext. 2873.

Amateur Radio

The Amateur Radio Club will next meet on Thursday, July 28, at noon in Room D, Berkner Hall.

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

Don't Nix Summer Pix!

If you're a student or teacher learning on site this summer, come to Berkner Hall on Thursday, July 28, at 1:30 p.m. You'll be included in a giant photo to be published in the August 5 issue of the Brookhaven Bulletin, which will be devoted to summer educational programs at BNL.

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Pianist Gilbert Kalish Starts 1994-95 BERA Concert Series

Gilbert Kalish, an internationally acclaimed pianist who is currently an artist-in-residence at the State University of New York (SUNY) at Stony Brook, will start the 1994-95 BERA concert series on Wednesday, July 27. The program will be held in Berkner Hall, beginning at 8 p.m.

Gilbert Kalish has been praised for his virtuoso piano performances, particularly of music spanning the 18th century to the present. A native New Yorker, Kalish is a graduate of Columbia University. He has been a member of the Contemporary Chamber Ensemble and the Boston Symphony Chamber Players.

The Washington Post has praised Kalish, saying, "To select a single recording as the most important one produced this first 100 years, Gilbert Kalish's Haydn sonatas would be a reasonable nominee. . ." Kalish currently has a list of 80 recordings, including five volumes of Haydn sonatas.

The BNL concert is part of a Brookhaven Town-wide "Haydn in July" festival. The program for this concert will include two Haydn sonatas, No. 53 in E minor, Hob. XVI:34 and No. 62 in E flat, Hob. XVI:52; contemporary composer Sheila Silver's "Preludes," and the modern composer Leoš Janácek's "On an Overgrown Path." Silver will be at the concert to introduce her music.

The other featured concert in the BERA concert series will take place on Wednesday, December 7, with a performance by the Ravinia Trio, a young ensemble from Germany with a rapidly growing international reputation.

Gilbert Kalish

Tickets for the Gilbert Kalish and Ravinia Trio concerts are $14 for general admission, and $9 for students and seniors, for each performance.

In addition, six special concerts will be offered as part of the series, including one to be given by the Vanguard Chamber Players on Tuesday, September 27.

The remaining special concerts will be given by promising young performers who study in the music department at SUNY Stony Brook. These special young artists' concerts will be held on the Wednesday evenings of October 12, November 9, and, in 1995, February 15, March 15 and April 12. The suggested donation for each of these special concerts is $6.

All concerts in the series begin at 8 p.m. in Berkner Hall, and tickets can be purchased at the door. For the Gilbert Kalish and Ravinia Trio concerts, tickets may also be purchased in advance from M. Kay Dellimore, Bldg. 185, Ext. 2873.

Hear Your Applause On *Performance Today!*

Gilbert Kalish, next Wednesday's piano soloist, has attracted the attention of music critics and audiences — and of National Public Radio's *Performance Today (PT).* The show, which features recordings of recent classical music concerts, has requested a tape of Kalish's BNL appearance for possible future broadcast.

The tape will be made by George Walczyk, Instrumentation Division, and sent to WSHU in Fairfield, Connecticut, which will send it on to *PT* and which broadcasts *PT* weekday evenings from 8 to 10 p.m. on both 91.1 FM and 105.7 FM.

This is a chance to hear your hands clapping on national radio, and, since concert acoustics are better when there are more bodies to absorb the sound, you have yet one more reason to attend the concert in Berkner Hall!

Inside Info

Technical Collaborator **Carol Hirschmugl**, who on March 1 defended her Ph.D. thesis at Yale University based on research she conducted at the National Synchrotron Light Source (NSLS), has been awarded a Humboldt Research Fellowship. It is one of 500 given out worldwide this year to scholars of all disciplines by the Alexander von Humboldt Foundation, Germany.

The fellowship will enable Hirschmugl to spend at least one year at a German research institute of her choice: She will leave in June for the Fritz-Haber Institute in Berlin. There, she will use high-resolution electron energy-loss spectroscopy to measure hydrogenation reactions on metal surfaces. In addition, she will look at the same reactions using photoelectron defraction at the German synchrotron center, BESSY.

Established in Berlin in 1860 in memory of scientist and explorer Alexander von Humboldt, the Foundation has sponsored more than 15,000 scholars in the natural sciences, humanities, social sciences and engineering from 120 countries since it was reestablished in 1953.

Hirschmugl first came to the NSLS in August 1986 as a guest research assistant, working at NSLS beam lines U15 and X21 as an undergraduate physics major at the State University of New York at Stony Brook. Joining the NSLS staff, she served as a physics associate from June 1987 through August 1989, working with **Gwyn Williams** to build and commission the world's brightest broad-band infrared source, the U4IR beam line.

That September, Hirschmugl assumed her present position, when she became a graduate student at Yale University. After two years at Yale, she returned to the Light Source to complete her thesis, using U4IR under Williams' direction to study vibrational dynamics and bonding of carbon monoxide on copper. Her thesis research was supported by the NSLS with U.S. Department of Energy funds; in exchange, Hirschmugl served as the beam line's steward, assisting its other users in setting up and running their experiments.

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Diatech, Inc., a New Hampshire pharmaceutical company, has signed an agreement with **Associated Universities**, Inc. for exclusive worldwide rights to develop and market tin-^{117m}DTPA, a radiotheraputic agent developed at BNL.

Without damaging normal tissues, including the radiosensitive bone marrow, the compound eases the pain of cancer that has spread to the bones. Approximately 400,000 new cancer patients annually in the U.S. and close to over 3 million people worldwide are candidates for bone pain palliation therapy.

The development of tin-^{117m}DTPA by a Medical Department team led by Senior Scientist **Suresh Srivastava** was described in the Special Edition of the Brookhaven Bulletin, March 1994, and the 1993 Brookhaven Highlights.

The rights agreement was finalized in May, and BNL researchers, in collaboration with others at the University Medical Center at Stony Brook and the University of Arizona, will continue extended Phase II clinical therapy trials of the compound until next spring, Srivastava said. Diatech will then take over and sponsor a multi-institutional Phase III clinical trial with scientific and technical support from BNL.

In addition to Srivastava, key personnel involved in this research are: **Leonard Mausner**, **Harold Atkins**, **George Meinken** and **Beatrice Pyatt** of BNL's Medical Department, and others from the State University of New York at Stony Brook, the North Shore University Hospital and the University of Arizona.

ANSYS Training

If there is enough demand, an advanced ANSYS training course may be offered in October on site by the Computing & Communications Division. Subjects to be covered by the course include heat transfer, dynamics and fluid flow.

Each participant will be charged a fee. For more information, call Bob McGonigle, Ext. 3299, or E-mail MAGOO@bnl.gov.

WordPerfect Users

The next meeting of the WordPerfect Users' Group will take place on Tuesday, July 26, from 10 to 11 a.m., in the seminar room, Bldg. 515.

The topic is "WordPerfect 6.0a for Windows...What's New?" In addition, more tips and tricks will be discussed.

Seating is limited, so call the group's moderator, Pat O'Connor, Ext. 7341, to confirm your attendance.

Arrivals & Departures

Week of June 27

Arrivals

Bandana Khandelwal ..... App. Science
Frank J. Masia ..... Plant Eng.
Regina Paquette ..... Personnel

Departures

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

John Featherly ..... Physics

Week of July 18

Arrivals

David S. Ellsworth ..... App. Science
Shengke Wang ..... App. Science

Departures

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

Eric J. Voss ..... Chemistry

More Pledges Needed For Swimarathon'94

It is not too late to make a tax-deductible contribution to the Long Island Division of the American Cancer Society by pledging to sponsor swimmers participating in tomorrow's Swimarathon'94.

From 8 a.m. to 9 p.m. at the BNL pool, individual and team swimmers will be putting in as many laps as they can for this good cause in the fifth BNL Swimarathon sponsored by the Brookhaven Employees Recreation Association. As well as supporting basic and clinical cancer research, the dollars raised will go toward such patient-support programs as Camp Adventure, a sleep-away camp in Wading River for Long Island and New York City kids who have cancer and for their siblings.

Even if you can't make it to the pool to swim, help out or watch the event, you can still make either a per-lap pledge or a flat contribution by calling Karen Savino, Ext. 7250.

Wanted:

Private Eyes

The Brookhaven Bulletin needs the help of students, advisors and employees in making the upcoming Summer Student Edition exciting and informative. Please call Georgia Moore at Ext. 5657 or send E-mail to gmoore@bnl.unix1.bnl.gov by July 25 with suggestions for stories with an emphasis on research and information about the activities of students and teachers on site this summer. Don't forget photo opportunities!

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, July 25, at 6 p.m., in the Knights of Columbus Hall, Railroad Avenue, Patchogue. There will also be an afternoon meeting at 2 p.m. for shift workers in the union office at 31 Oak Street, Patchogue.

The agenda includes regular business, committee reports, the president's report, and a report by the Negotiation Committee. A strike vote will be taken.

Cafeteria Menu

Monday, July 25	
Soup: Chicken noodle	.90/1.20
A la Carte: London broil w/mushrooms	3.85
Fitness: Italian calzone	3.50
Deli: Pastrami	3.20
Grill: Reuben	3.30
Tuesday, July 26	
Soup: Cream of broccoli	.90/1.20
A la Carte: Liver & onions	3.50
Fitness: Pasta marinara	3.50
Deli: Virginia ham	3.20
Grill: Western omelet w/fries	3.30
Wednesday, July 27	
Soup: Bavarian lentil	.90/1.20
A la Carte: Pork chops	3.65
Fitness: Vegetable lasagna	3.50
Deli: Roast beef	3.20
Grill: Italian cheesesteak	3.30
Thursday, July 28	
Soup: Beef vegetable	.90/1.20
A la Carte: Deviled hens	4.00
Fitness: Spinach & feta quiche	3.65
Deli: Corned beef	3.20
Grill: Ham & cheese	3.30
Friday, July 29	
Soup: Seafood chowder	.90/1.20
Display Cooking: Oriental entree	4.25
Fitness: Baked flounder d'Uxelles	3.95
Deli: Turkey	3.20
Grill: Fried shrimp boat	3.30

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.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

DD 2881. ENGINEERING POSITION - (term appointment) Requires a BS in engineering with substantial mechanical/structural engineering experience. Familiarity with nuclear safety criteria, codes and standards applicable to DOE facilities also required, as are excellent communication skills. Experience in the preparation of modification packages for DOE reactors highly desirable. Will oversee all phases of a project to modify BMRR reactor systems in support of a research program. Must be able to obtain and maintain a security clearance. Reactor Division.

NS 5270. ENGINEERING POSITION - (term appointment) Requires an MSEE and a high level of competence in IC packaging, printed circuit-board design and electronic test procedures, with strong emphasis on high-speed precision measurements, semiconductor-device characterization and modeling. Experience programming for data acquisition and analysis using LabView, Visual Basic and Microsoft Excel is necessary. Background in the development of custom test logic using complex programmable-logic devices and field-programmable gate arrays also required. Instrumentation Division.

DD 2557 TECHNICAL POSITION - Requires an AAS degree with a NRRPT certificate, or a BS degree, and substantial experience working as a health-physics technician. Excellent communication skills and prior technician supervisory experience is necessary. Requires participation in respirator-training program. Safety & Environmental Protection Division.

Motor Vehicles & Supplies

93 HYUNDAI SONATA - black, V-6, anti-lock brakes, p/sunroof, anti-theft stereo, tinted windows, 4 yrs. on ext. warr. April, Ext. 2459 or 287-3262 after 5 p.m.

92 BUICK LESABRE LIMITED - burgundy, V-6, ABS, full power, climate control, 29k mi., $16,000. Richard, Ext. 3804 or 286-3471.

90 SENTRA - 2-dr., gray, 64k mi., excel., a/c, am/fm cass., new brake pads, $4,700. Masaharu, Ext. 1062.

90 GEO STORM GSI - 5-spd., p/s, p/b, stereo, 48k mi., tinted windows, mint, $7,000, neg. Pat, Ext. 7127.

89 JEEP WRANGLER - blue, 5-spd., 6-cyl., 4.2L, 71k hwy. mi., hardtop, am/fm cass., excel. cond. Joan, Ext. 3305.

88 SUBARU GL - red, hatchback, a/t, am/fm stereo, asking $1,500. Ajit, 689-5251 or 632-7433.

87 PLYMOUTH VOYAGER MINIVAN - 4-cyl., a/t, a/c, cruise, folding bed, new tires, battery, brakes, catalytic etc., $3,900. Bob, Ext. 4637.

87 TOYOTA SUPRA - loaded, excel. cond., best offer. Raymond, Ext. 3695, leave message.

86 HONDA CIVIC - 3-dr., hatchback, new exhaust, brakes, clutch, 4-spd., 73k mi., mint cond., $2,800. Andrew, Ext. 2265 or 698-3908.

85 CUTLASS CIERA - 4-cyl., 100k mi., dependable transportation, needs minor mech. work, asking $1,100. Joe, Ext. 5139.

84 NISSAN SENTRA WAGON - 5-spd., am/fm cass., 90k mi., excel. cond., must sell, asking $1,700. Zoltan, Ext. 5341 or 341-1021.

84 OLDS DELTA 88 ROYALE - 4-dr., V-8, a/t, p/s, p/b, a/c, cruise, new exhaust, blue, good cond., $1,700 or best offer. Zhongwei, Ext. 4331 or 924-5181.

84 MERCURY MARQUIS - a/t, p/s, p/b, p/w, reblt. eng., tran., brakes, $1,050. John, 878-4882.

83 YAMAHA VIRAGO - 750cc., cherry red, windshield, backrest, back carry case. 8k mi., w/helmet, mint., $1,900. Andrew, Ext. 2265 or 698-3908.

81 CADILLAC COUPE DE VILLE - 89k mi., excel. cond., must sell, asking $1,500. Brot, Ext. 1063.

81 NISSAN MAXIMA - $450, good transportation. Marty, Ext. 2214.

81 CHEVY PICKUP - no rust, bedliner, good cond., $1,850. Jim, Ext. 5400 or 878-6098.

78 MUSTANG II - 70k mi., good parts car, $600. Frank, 744-7607.

78 BMW 320i - new tires, struts, brakes, radio, burgundy, sunroof, 120k mi., $1,200. Bob, Ext. 2144.

78 OLDSMOBILE - a/c, p/s, p/b, am/fm cass., runs very well, needs minor body work, $400. Jaime, 341-1020 or Ext. 4830.

INSTANT GARAGE - Cover It, 22' x 24' x 10', tan, three-zipper door, clear top panel, hardly used, orig. $2,000, asking $800. Wayne, Ext. 7238.

NOSE - for '74 Chevy Monte Carlo, complete, asking $175. Bill, Ext. 2214.

TIRES - P225x75R14, 2, excel. cond., $35/ea.; P225x75R15, brand new, $35/ea. Tony, 698-9274.

CAP - Winnebago for full-size pickup, good cond., $125. Joe, 929-8321.

WINDOW - for '91 Honda Civic h/b, driver's side door, $15. Skalyo, 878-4882.

Boats & Marine Supplies

32' LURHS - fb/sf, t-318[s], f.w.c., loran fish finder, low hours, sleeps six, dinghy needs t.l.c., asking $8,400. Pam, Ext. 4884.

29' THOMPSON - '87, sleeps 6, radar, loran, loaded, excel. cond., $25,990. Arlene, Ext. 3428 or 878-6007.

19' SS CAT GAFF RIG - vintage, glassed wood hull, jib genoa main, good cond., asking $500. Bob, 874-3146.

19' LIGHTNING SAILBOAT - trailer, cover, mooring, full sails, good cond., $2,500. Marcia, Ext. 7129.

17' GRUMMAN CANOE - with outrigger and sail, $595. Jack or Joan, 744-3919.

16' STARCRAFT - 35-h.p., Evinrude, Cox galvanized trailer. Michael, 325-0447 after 6 p.m.

12' SEA EAGLE - '93 inflatable, hard floor, wooden transom, will take up to 15-h.p. motor, used twice, trailer, orig. $750, now $625. Robert, 732-9118.

MARINE 12V BATTERIES - 2, in plastic containers, 525-amps, cold cranking 600 marine, $95. Marty, Ext. 2214 or 286-2964 after 6 p.m.

OUTBOARD MOTOR - '47, 4-h.p., Scott Atwater, first shift outboard made, $175. Gene, 363-9527.

Furnishings & Appliances

AIR CONDITIONER - Carrier, 7,500 Btu, window unit, $65. Carol, Ext. 2474 or 475-7454 evenings.

AIR CONDITIONERS - 32,000 Btu, new, $800; 5,000 Btu, new, $200. Beth, Ext. 4120.

BEDS - 2, twin, no frames, $10/ea.; dining table, oval, $10; iron board, $5; iron, $5; 3-drawer chest, $5. 924-5181.

BEDROOM SET - king headboard, dresser w/mirror, 2 night tables, chest, $500; king Somma waterbed, pine, 2 drawers, $400. Jeanne, 286-1290.

BEDROOM SET - adult/teen, light wood, triple dresser, night table, more, '50s style. Doreen, 395-0584 eves., messages.

BUNK BEDS - light stained pine, 1 mattress, $60. John, 475-6981.

CHAIRS - 2, Danish modern, rust upholstery, $50; colonial sofa/chair, wood frame, rust/brown upholstery, $75. Harry, 589-4363 after 5 p.m.

CHEST OF DRAWERS - $20; fan, $10; patio umbrella, $18; 38½" storm door; umbrella stand, $10; swivel TV table, $10. Kathy, 744-2203

COFFEE TABLE & 2 END TABLES - $50; rocking chair, $20. Arup, Ext. 3974 or 744-6962.

DINING ROOM - oak, sq. table, w/6 tapestry covered oak chairs, excel. cond., $600. Sheila, Ext. 3144.

DRYER - Maytag, apt.-size, $50; Sears, apt.-size washer & dryer, like new, $400. Mauro, 265-6542.

KITCHEN SET - your grandmother's yellow Formica and chrome, w/4 chairs, $65. Gene, 363-9527.

LOVE SEAT - Jennifer conv., like new, single bed pullout, $125. Marty, 286-2964 after 6 p.m.

LOVE SOFAS - 2, Ethan Allen, like new, $100/ea. Marty, 286-2964 after 6 p.m.

MICROWAVE OVEN - $100; 2 futons, ask. $1,000; computer desk, $75; hutch & dining room table, $1,400; bedroom set, $300. Harvey, 821-1726.

TABLE - dining room, white Formica w/drop-in leaf, 6 swivel arm chairs, $200 neg. Don, Ext. 7237 or 744-2921 after 5:30 p.m.

REFRIGERATOR - compact, large-size, used one year, $120. Pam, Ext. 7286 or 581-7656.

SKILLET - elec., Warever, stainless steel, 12" dia., dome top, like new, $25. Nick, Ext. 7307.

Tools, House & Garden

AIR HANDLER - Trane, w/heat exchange, model #BPCB302C-A, new, never used, was $1200, sell for $700. Harvey, 281-7568.

BARBEQUE TANKS - new, w/20 lbs. of gas, $20/ea. Joe, Beeper 0562, leave name and number.

CHARCOAL GRILL - w/cover, $10; set of 4 chair pads, $10; infant bike helmets, $2. Fran, Ext. 2092.

ELECTRIC GRILL - outdoor, Charbroil w/cover, lava rocks, like new, $100. Claire, 325-8116 eves.

FENCE - 75' chain link, gate, poles, $200; roller skates, girl's size 3, $10; boy's size 5, $10; 9 lite, X-buck door, w/storm, $35. Rodney, 751-7023.

GARDENIA PLANT - large, bush-type in clay pot, $100. Claire, 325-8116.

LAWN MOWER - Snapper, 2 yrs. old, excel. cond., $175. Dan, Ext. 4677.

PATIO FURNITURE - redwood, 52" table, 4 benches, 2 chaises, chair, rocker, ultra-plush cushions, minimal repair, $100. Barry, Ext. 4118.

PATIO UMBRELLA - 72" dip, heavy vinyl cloth, gold top, hand crank up/down, $40. Nick, Ext. 7307.

VANITY - 2, oak bathroom vanities, w/clam shell sink, faucet, like new, orig. $450, now $100. Will, 289-8105.

Sports, Hobbies & Pets

BICYCLE - men's Panasonic 3000DX, 18", like new, ridden less than 400 mi., new $400, asking $300. Marcia, Ext. 7129.

BICYCLES - women's 26", 3-spd., need brakes, $15; boy's 20", $20; tennis balls, like new, $3/dozen. Ext. 7505.

EXERCISE BIKE - Schwinn Airdyne, w/monitor, like new, paid $740, asking $450. Pamela, Ext. 4884.

EXERCISE BIKE - Voit CX200 ergometer, calculates distance, calories, time, etc., excel., $50. Kathy, 821-1252.

FISH TANK - 55-gal., no access., $60. 732-9118.

GOLF CLUBS - 1 & 3 metal woods, 3, 5, 7, 9 irons, putter, bag, balls & tees, $75. Dan, Ext. 4605 or 475-3527 after 5 p.m.

GYM EQUIPMENT - Hack squat, leg press, calf machine, and Preacher curl, $350 takes all. John, 696-5490, leave message.

HOME GYM - Weider, full workout bench, $50, rower, $15, all v.g. cond. Leonard, 472-3254.

ORGAN - Hammond, Pipper II, w/bench, $50 neg.; antique dresser, $100 neg. Diana, Ext. 5735.

PIANO - baby grand, Baker, needs tuning, ivory keys, must sell, good for practice, you move, $75 neg. Lora, 758-5957.

SEWING MACHINE - Sears, elec., w/zig zag, $50. Cindy, Ext. 3461 or 874-3652.

SKIS - Olin, 180 cm, w/Salomon 444 bindings, runaway straps, $20 neg. Don, Ext. 7237 or 744-2921 after 5:30 p.m.

TREADMILL - new, w/service contract from Sears, orig. $660, asking $500, extended stride, programmable, 8 mph. Danielle, Ext. 3070, 369-0904.

Audio, Video & Computers

CD PLAYER - Kenwood, 10 disc change for car, FM adapter, wireless remote, 3 mos. old, $350. Bob, 929-3325.

COLOR TV - 19", Zenith, brand new, still in box, never used, was $220, will sell for $150. Jeff, Ext. 2551.

COMPUTER - Amiga 500, monitor, second floppy disk, software, $275. Richard, Ext. 7185.

SPEAKER PHONE/ANSWERING MACHINE - AT&T, 2 yrs. old, $40. 968-5251

TV - Toshiba, color, 19", remote, $120; VCR, remote, $130, both like new, or $240 for both. Zhongwei, Ext. 4331 or 924-5181.

TV - color, 19", $150; VCR, 4 heads, $150. Brot, Ext. 1063.

Miscellaneous

BUG ZAPPER - Forward Thrust shoes, 7½; women's sandals, size 8; summer dresses, floral print, size 14; diamond pyramid ring, size 7, $600. 751-7023.

CAR SEAT - Kolcraft, $30; Graco swing, $30; Jolly jumper stroller, $90; walker, $15; bathtub, $10; v.g. cond., orig. boxes. Ext. 1020.

COAT HANGERS - wooden, for men's suits or jackets, $1.50 ea. Nick, Ext. 7307.

PLAY PEN - hardly used, $40; exercycle, like new, $50. Yael or Israel, Ext. 4830.

PLAY PEN - $15; bassinet, $10; walker, $5; play desk, $2; double stroller, $5; proceeds to benefit Upton Nursery School. Sue Ellen, Ext. 3394.

SERVICE MANUAL - 1990 Mazda 626, $20. Ext. 5054.

STROLLER - Century Royale, excel. cond., $50. John, Ext. 3422 or 929-4101.

TICKETS - 2, Rolling Stones, at Giants Stadium, Fri., 8/12, sec. 311, $60 ea. John, Ext. 2160.

TICKETS - 2, Billy Joel - Elton John, Fri., 7/29, sec. 127, trade for another night or sell. Liz, Ext. 3348.

TICKETS - 3. Rolling Stones, 8/14, sec. 128, 7th row, at Meadow Lands, $60 ea. Vicki, 447-9519.

Free

BOAT - 23' Thunderbird, excel. fg hull, cuddy cabin, no motor/trailer, you haul away. 281-1832 eves.

DOG - 3 yr. old, male, German shepherd, needs good home, good temperament. Brian, 821-4234.

KITTENS - 4, born in sewer drain 6/1/94 on our street, Town of Brookhaven pound will kill them, please adopt. Bob, Ext. 3509 or Laura, 289-9533.

KITTENS - 4, born 6/1, need a loving home, adorable, first come, first pick. Laura, 289-9533.

KITTENS - 3 Calico, 1 Morris-type w/white collar around neck, 7 wks. old. Dan, Ext. 4677.

Yard & Garage Sale

SHOREHAM - Sun., 7/24, 10 a.m. - 4 p.m., household items, furniture, jewelry, 18 Circle Dr., follow signs. Len Emma, Ext. 3334.

Car Pools

PLAINVIEW - LIE Exit 43, 4th driver needed. Elliott, Ext. 2495.

LIE EXIT 36 - need 4th for car pool. John, Ext. 5181.

Wanted

ANTIQUE PAINTINGS - old or unusual, any condition, cash. Ron, Ext. 5371.

BASEBALL CARD SETS - 1970s, Topps; alum. boat, 12', for three people. 718-721-4271 weekdays or 821-6698 wknds.

BASS GUITAR - electric or acoustic, good cond., reasonable price. Ext. 7657 or 298-9560.

BOAT TRAILER - 14'-16', in decent cond. Ed. Ext. 5529.

FEMALE - share house, kit., l/r, yard., priv. bdrm., bathrm., & ent. 395-0584 eves., leave message.

FEMALE -share house, Center Moriches, 10 min. to Lab, walk to town, beach, quiet, lovely neighborhood. Marilyn, Ext. 2259 or 878-0939.

HOUSE TO RENT - in SWRSD, 3-4 bdrm., by responsible former owners, nonsmokers w/no pets. Ext. 3698 or 821-4326.

HOUSE TO SIT - free, caring, experienced, any duration after July 22. Jack Allentuck, Ext. 2412.

KILN - small for home use, firing ceramics, low price. Ext. 2180.

PRESCHOOLERS - Upton Nursery School is still accepting applications for fall classes, 3 & 4 yr. olds, M, Tu, Th, 8:30-11:30 a.m. Sue Ellen, 929-3732.

PUPPY - call us before the shelter. Jeff, Ext. 2959.

MOTORCYCLES/MOPEDS/SCOOTERS - bent or broken, any age or cond. Kevin, Ext. 3082 or 281-8031.

ROOM - for month of August for college woman. Shelly, 821-1726.

SPOILED HAY OR STRAW - free or cheap, for Boy Scout organic garden. Rich, Ext. 3386.

VW BEETLE - w/good engine or just engine. Rich, Ext. 4289 or 929-8514.

Farewell Gatherings

RETIREMENT PARTY - for Anne & Charlie Flood, July 26, 5:15 p.m., Berkner Hall, $12/person, RSVP Ext. 7686/4901.

In Appreciation

Thanks to everybody in the ETD of DAT for the friendly atmosphere that I worked in during my fellowship.
– Zoltan Karsa

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