

IAEA Fellows: Partners in Research at BNL

For the past several years at BNL, it has become quite usual to hail Fellows and meet them. They are the International Atomic Energy Agency (IAEA) Fellows, here on site to study and research the peaceful uses of nuclear energy.

In the U.S., the Fellowship program, which is funded by the United Nations and IAEA Member States, is organized for the IAEA by the National Research Council. The Council submits the resumes of Fellowship nominees, with an outline of their desired training programs, to suitable host institutions.

At BNL, Anne Mauro, Senior Personnel Assistant in the Office of Scientific Personnel (OSP), is responsible for coordinating arrangements with the National Research Council

and keeping track of the Fellows who come to the Lab.

Since its inception in 1958, the IAEA Fellowship Program has placed about 2,500 Fellows all over the world, including some 130 at Brookhaven, where hosts have been found for program participants in a number of departments.

Gail Williams, OSP Manager and Foreign Scientist Advisor, noted, "It's impressive how much this particular program has achieved. Many countries that not so long ago were considered to be 'emerging,' and the beneficiaries of IAEA training programs themselves, are now regular hosts to trainees."

One of the IAEA Fellows, Cynthia Cruz, joined the Safety and Environmental Protection (S&EP) Division for

Trout Show Net Effect Of Water Treatment

If you are looking for (from left) Joseph Klemish, Safety and Environmental Protection (S&EP) Division; Cynthia Cruz, International Atomic Energy Agency Fellow (see accompanying story); or Jan Naidu, S&EP; you may find that they have gone fishing — as part of their day's work.

Their experiment, led by Naidu, tests the efficiency of the Lab sewage treatment plant. Sewage is treated in the plant, then passes through extensive sand traps for further purification. After these processes, the resulting water meets the federal government's stringent standards for release into the environment.

As an additional test, three weeks ago, these brown trout from a fish hatchery upstate were put in a 50-gallon aquarium located near the holding tanks of water that is to be released into the Peconic River. The aquarium was designed and equipped by Klemish to allow a constant stream of the treated water to flow through the tank at a rate of 50 gallons per hour.

It is too early yet to have obtained formal results from analysis of some of the fish that the experimenters have netted from the aquarium. "But," said Naidu, "one of the most important indications of their well-being is their energy in swimming around the tank, and, as we see already, they're very lively. That speaks highly for the quality of water being released into the Peconic river." — Liz Seubert



Mort Rosen

Studying data from ongoing research on nuclear powerplant safety are (from left) Robert Bari, Department of Nuclear Energy; and Hanming Xu and Yuanzhong Liu, International Atomic Energy Agency Fellows from China.



Photo by Mort Rosen

a year, beginning last December. At BNL, Cruz, an analytical chemist with the Philippines Atomic Energy Commission, works with Associate Chemist Sujit Banerjee, examining the water chemistry of reactor water by ion chromatography, and with Project Engineer Robert Miltenberger, using gamma spectroscopy to analyze environmental samples.

In one of the projects Cruz is working on with Ecologist Jan Naidu, also of S&EP (see accompanying story), she is helping to evaluate the possible movements of pollutants through the soil at the Lab's hazardous waste management site. Samples are taken using lysimeters, which are devices that collect moisture from the pores of the soil by suction.

"This technique gives us the chance to detect pollutants before they have time to reach the groundwater," explained Naidu. "Samples at appropriate depths will show the migration characteristics of a pollutant, including the rate at which it is traveling."

One difference between work at BNL and at home, Cruz has found, is that S&EP's research is often done in the field. "At home," she said, "I work indoors in the lab. In going to the different facilities at BNL, I see where the water or soil samples come from. It's especially interesting then to analyze them."

Another BNL department whose research groups regularly welcome IAEA Fellows is the Department of Nuclear Energy (DNE). Said Robert

Bari, DNE Associate Chairman, "It gives our staff the opportunity to see how safety issues are dealt with in other countries."

At different times, IAEA Fellows have been received at DNE from such countries as China, Hungary, Turkey and Yugoslavia. Bari added, "We find that some of the Fellows assigned to us can make immediate significant contributions to our reactor safety programs. Usually, we tend to get very good people, so even if they are unfamiliar with the work at first, they soon take an active part in the research."

An example of how this knowledge from outside sources can be useful came after the Chernobyl reactor accident in the Soviet Union in April 1986. An IAEA Fellow from Eastern Europe was familiar with the design of the Chernobyl reactor. When BNL was asked by the Nuclear Regulatory Commission to assist in tracking the accident, "His information was tremendously valuable," said Bari.

At present, there are three IAEA Fellows in DNE. Kadir Aliefendioglu is from the Turkish Atomic Energy Authority. He is working with Robert Fitzpatrick, leader of the Risk Evaluation Group, on the application of reliability and risk analysis to power plant technical specifications.

Hanming Xu, from the Institute of Atomic Energy in China, is one of the newest IAEA Fellows. He arrived at BNL one month ago and is working with Nuclear Engineer Kenneth Per-

(Continued on page 2)

Exploring Areas for Nuclear Safety Cooperation

A 14-member delegation of nuclear reactor safety experts from the Soviet Union visited BNL on Friday, October 23, as part of a tour of various U.S. nuclear facilities. Headed by Alexander Lapshin (front row, fourth from left), the USSR's Deputy Minister for Atomic Power, the delegation was in the U.S. to explore possible areas of nuclear safety cooperation between the two countries. Shown here with the members of the delegation are some of the BNL staff who hosted their visit and addressed them during the day on relevant topics: (back row, starting third from left) Herbert Kouts, Chairman, Department of Nuclear Energy (DNE); Deputy Director Martin Blume; Seymour Baron, Associate Director for Applied Programs; (starting seventh from right) DNE Associate Chairman Robert Bari; Wolfgang Wulff, DNE; Morris Reich, DNE; Alan Weiss, DNE; Trevor Pratt, DNE; and DNE Deputy Chairman Walter Kato.



Mort Rosen

IAEA Fellows (Con't)

kins, assessing severe accident management in different types of reactors and reviewing methodology used for individual reactor plant examination. Xu is very interested in the methodology review, which is concerned with probabilistic risk assessment, his research speciality at home.

Another IAEA Fellow, Yuanzhong Liu, also in DNE, arrived four months ago from China and has been working with Nuclear Engineer Mohsen Khatib-Rahbar on "source term" assessment.

Source term describes the radionuclides that are released from a reactor as the result of an accident—their amount and type and the time it takes them to reach the environment. Said Liu, "Knowledge of the source terms for different types of reactor and accidents is very important in planning reactor safety."

Liu is with China's Tsinghua University. Both he and Xu are among those planning two new Chinese nuclear reactors. Said Xu, "These will be the first full-scale power plants to be built in our country. Before, there have been only experimental reactors. The research we do here is necessary for the safety of all reactor plants, and our experience here will be useful on our return home." — Liz Seubert

In Memoriam

J. Lowell McLean, a former Associate Engineer in the Accelerator Department who retired in 1972, died on October 25. He was 69 years old.

McLean was one of the Lab's original employees, starting on July 7, 1947, as a Research Associate with the Nuclear Reactor Project, which became the Reactor Department in 1950 after the startup of the Brookhaven Graphite Research Reactor. McLean, who was named an Associate Engineer in July 1951, became a member of the Accelerator Department in 1957.

Lowell McLean was married to Ella McLean, a Senior Specialist in the Photography & Graphic Arts Division. As residents of East Patchogue, they lived next to Brookhaven Memorial Hospital (BMH), to which they donated an adjoining land parcel in 1967. Lowell McLean had been associated with the BMH advisory board since 1954, and joined the hospital's Board of Directors in 1970. He was also a charter member of the Brookhaven unit of the National Association for the Advancement of Colored People.

In addition to his wife Ella, McLean is survived by a daughter, Frances Wilkinson of East Point, Georgia; two sons, J. Lowell Jr. of East Patchogue and Douglas of Rocky Point; a sister, Sadie Burton of Fayetteville, North Carolina; two brothers, Charles of Winston-Salem, North Carolina, and Willie of Raleigh, North Carolina; and three grandchildren.

BNL's 10-Digit FTS to Be Discontinued

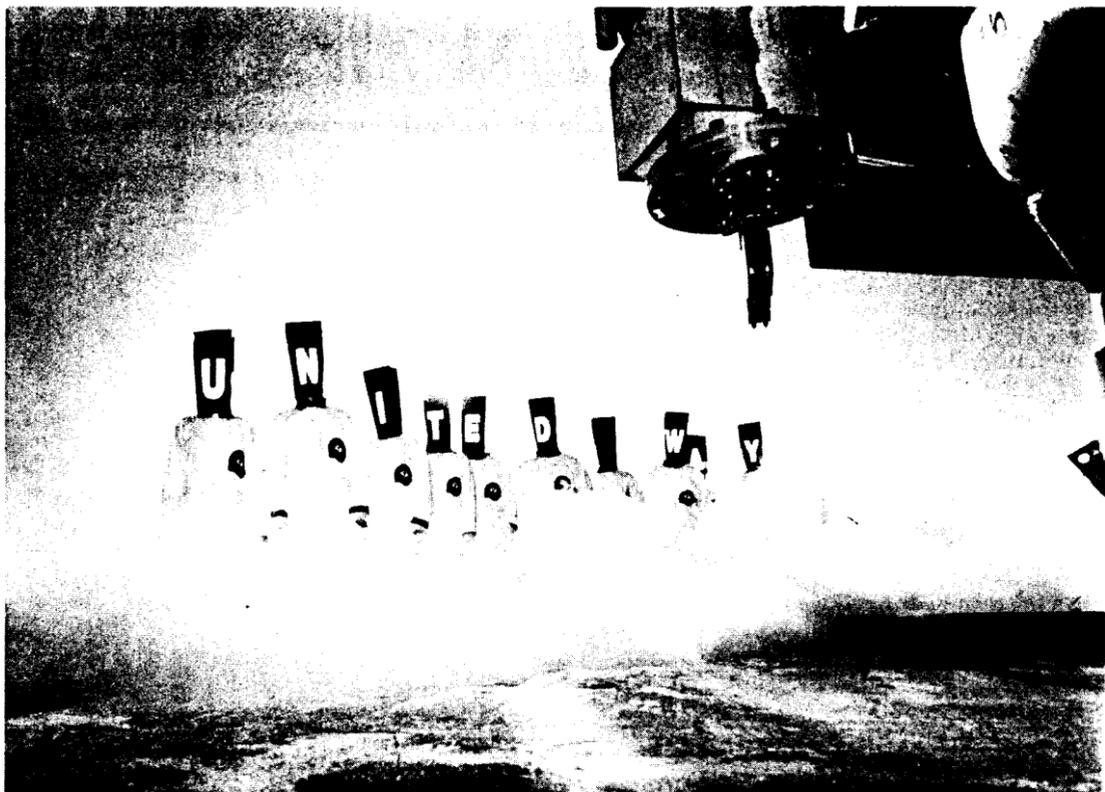
Many BNL phone users will have to break a long-standing habit within the next few weeks, when the Lab's ten-digit (off-net) FTS service is discontinued. After that, they'll have to use the prefix "9" to dial any ten-digit number; dialing the prefix "8" will yield only a recording instructing the caller to redial "9."

"We anticipate the cutover will occur on or about November 9, after the necessary trunk facilities have been installed," says Ralph Trondle, Associate Head of the Networking, Engineering & Telecommunications Division (NET) of the Applied Mathematics Department.

The change is a result of authorization from the Department of Energy to redirect off-net FTS traffic tempor-

UFOs Sited At BNL

Not every strange apparition at this time of year has to do with Halloween. Just out of their spaceship, these Unidentified Fundraising Organizers (UFOs) are here to help in BNL's United Way Drive. Next week, all the ghosts and pumpkins will have gone home. But the UFOs plan to stay till the BNL United Way goal is met — \$87,000 for 1987.



BNL's Fabulous Forty

This is one of a series of interviews with employees who observe their 40th service anniversaries during 1987, BNL's 40th anniversary year.

Some of the scientific apparatus at BNL is artwork — intricate glass sculptures, which have been created for scientists by the artisans who work in BNL's Glass Shop.

Paul Roman is one of those artisans, and he has been plying his craft at Brookhaven since 1947. He had



Paul Roman

learned the art of glassblowing some years earlier, during an apprenticeship at RCA in New Jersey.

During World War II, Roman worked for the Manhattan Project at Columbia University, with another young glassblower, Karl Walther. From Columbia, Roman went to Oak Ridge

National Laboratory, but when he heard about the new lab opening on Long Island, he put in an application, so he could move somewhat closer to his family. Roman began working at BNL on November 10, 1947, with life number 1,574.

As it turned out, Walther had also applied for a position at BNL. Both Roman and Walther are now celebrating their 40th year at BNL, and they still work together in the Glass Shop.

Today, the Glass Shop is located in Chemistry, Bldg. 555. But Roman recalls that they started out in the barracks that then housed Instrumentation, which was across from the Biology building.

The 1966 move to Chemistry was logical because Chemistry "has the greatest volume of glass users," Roman says. "But we work for all the disciplines here at the Laboratory, and we often go to other buildings to assemble our glass. You know the cliché 'Made in U.S.A.?' Well, we like to say, 'Have it made here at Brookhaven,' rather than having it made elsewhere."

How is the glasswork made? Typically, Roman explains, "The scientists give us a drawing, then we may make some suggestions. We try to be very synergetic working with them and try to anticipate their needs."

Much of the work Roman has done over the years has been prototypical. "When you come down to basics," he says, "if a prototype succeeds in glass, it may be made in metal. And if there's something they want to add, it can be modified much more easily in glass than if it were metal."

Roman's glass has found its way into a variety of research. In 1969, for example, one of his intricate assemblies of glass tubing and Toepler vacuum pumps was used to collect the gases generated by the melting of lunar rocks collected by astronauts during the Apollo 11 mission. In Raymond "Dutch" Stoenner's chemistry lab, another such vacuum line is currently used for carbon-14 age determinations.

Elsewhere in Chemistry, Robert Beuhler is using "lots of Paul's hard work" to analyze ion clusters. When a cluster ion beam strikes a target inside a glass container inside a small Cockcroft-Walton-type accelerator, voltages as high as 20,000 volts can be used to analyze the products. Because glass is a good insulator, it is the ideal material for this application.

Of course, part of Roman's art is

knowing what glass to use for the job. "When you talk about glass," he says, "most people think of one type, like pyrex. But we deal with 15 or 20 different types, and they all have different characteristics."

Of the changes he has witnessed over 40 years, Roman observes, "The biggest changes at BNL are physical. We came here when it was barracks, and, around the Lab, mostly farmland. It was pretty bucolic and hard to find places to live." Eventually, however, he and his wife Elizabeth settled in Patchogue, where they raised their daughter, Nancy Ann, and four sons, Paul Jr., Thomas, Kevin and Dennis.

Reflecting on his 40 years at BNL, Roman says, "They have been educational, informative and very enjoyable. I don't do the same thing over and over. It never gets boring." For at least the next few years, he's planning to continue mixing art and science by creating glass artworks for BNL's scientific experiments.

Inside Info

To honor BNL's fourth Director, the late **George H. Vineyard**, his family and friends are establishing a professorship bearing his name at the University of Missouri-Columbia (UMC). A native of Missouri, Vineyard was a faculty member in the Department of Physics at UMC from 1946 to 1954, when he came to BNL. He died in February at the age of 66.

The George H. Vineyard Distinguished Professorship in Theoretical Physics will be established as a permanent position within UMC's Department of Physics. A national search will be conducted to identify an appointee with an exceptionally outstanding record in theoretical physics and who has high potential for sustained excellence as a research scientist and teacher.

The amount required to establish the professorship is \$110,000. Contributions may be sent to the Department of Physics and Astronomy, University of Missouri-Columbia, 223 Physics Building, Columbia, MO 65211. For more information, call the Department of Physics, (314) 882-5502.

Arrivals & Departures

Arrivals

Luerine E. Allen Staff Serv.
Steven C. Farrell Cent. Shops
Barbara J. Pierce DAS
Arthur J. Piper Accel. Dev.
Margareta L. Rehak Accel. Dev.

Departures

This list includes all employees who have terminated from the Laboratory, including retirees:
William E. Kilmartin Sfgs. & Sec.

To Your Health

Want to be fit after 40, manage your stress, participate in the Great American Smokeout, but don't know how? You can find out by taking part in these and other Positive Approaches to Health (PATHWAYS) programs offered by the Health Promotion Program of the Occupational Medicine Clinic.

In addition to the monthly PATHWAYS newsletter, which features the latest information and tips for good health and fitness, look for the new PATHWAYS calendar, coming to your mailbox soon. It will be a monthly listing of the Health Promotion Program offerings at the Lab.

All film badges will be changed tomorrow. Please place your badge in its assigned rack space before leaving work today.

Holiday Party Reservations

Recreation Building

Laboratory organizations and BERA activity groups interested in reserving the Recreation Building in the apartment area for holiday parties are invited to send representatives to a meeting on Friday, November 6, at 1:30 p.m., in the conference room of Bldg. 185A.

As in past years, reservations will be made in the order determined by a lottery, which will be held for those attending the meeting. As long as dates are still available through Friday, November 13, subsequent reservations may be made by contacting the Recreation Office, Ext. 2873.

Brookhaven Center

Reservations for parties at the Brookhaven Center may be arranged by calling Jean Byrne, Staff Services, Ext. 2553.

BERA Concert: Cremona Arts Trio

The Cremona Arts Trio will give the next BERA concert on Thursday, November 5, at 8:30 p.m., in Berkner Hall.

The Cremona Arts Trio is noted for ensemble performances that retain the distinctive solo qualities of each instrumentalist, in the tradition of the great trios of the past.

Members of the trio are violinist Setsuko Nagata, cellist James Kreger and pianist Bernard Rose. Graduates of the Julliard School, all three artists spent several summers at the distinguished Accademia Chigiano in Siena, Italy, where they first worked together.

Performing as a group since 1981, the trio has had engagements throughout the country, earning renown as an ensemble that delivers a matchless combination of individual virtuosity and unified music-making.

On their program of November 5 will be the Haydn Trio in A Major, Hob. XV:18; Beethoven's Trio in D Major, Op. 70, No. 1, "Ghost"; and the Mendelssohn Trio in C Minor, Op. 66.



The Cremona Arts Trio

Tickets can be purchased at the door the night of the performance. Prices are \$9 for general admission, \$6 for students and those over age 65, and \$5 for those under 18.

Speaking Out: About the Stock Market

Reporter: Anita Cohen

Photographer: Peter Horton

On Monday, October 19, the New York Stock Exchange plummeted 508.32 points to 1,738.41. On Tuesday and Wednesday, it rebounded 102.27 and 186.84 points, respectively. But Thursday saw a 77.42-point drop, and Friday the market was up only 0.33 points. On Monday, October 26, while the stock market was in the midst of a 156.8-point plunge, we asked: What is your reaction to this week of changes in the stock market?

Tony Salvo (Contracts & Procurement) — I've been expecting it to happen. I just felt that the market was over-inflated without any kind of real basis for such a tremendous rise. So I expected that it would get back to some form of reality. Soon I think there will be a stabilizing. Then I believe it will begin to rise again, but slowly, not at the tremendous pace that it was going at.



Shawn Smalls (Reactor) — I think the stock market is just reflecting the general consensus around the world about the large trade and budget deficits in this country. Until the Congress and the President address this problem, I think the market is going to maintain the same volatility as right now.



Bernard Manowitz (Applied Science) — I'm concerned, but on the other hand, I still have faith that the system is going to right itself, so I'm cautiously optimistic. It was a surprise that it happened now, but on the other hand, you could sort of anticipate that something was going to happen because the market just seemed to be going up and up and up.



Tony Muscarella (Accelerator Development) — Hurt! It was costly for me. I just didn't get out fast enough. And I think it's still going to go down today. I don't know what the answer is.



Denise Monteleone (Biology) — It hasn't hurt me. I wish I had more money so I could get in on some of the low prices right now. I don't think it's going to be solved overnight, but I think I'm like every one else — I'm really wondering what caused it. No one seems to know. You listen to all the different views on the radio and TV, and they really don't tell you anything.



Mike Hickey (Plant Engineering) — It's serious because it's worse than the crash we had in 1929. I just hope that we can get out of it, that the economy will get better and that the stocks will start to rise.



Gayanath Fernando (Physics) — My feeling is that it's certainly an indication of the unstable economy and certainly something has to be done because, if not in the near future, the next generation will have to pay for it.



Rhea Robinson (Technical Information) — I am really very upset because my husband and I are at the age where we have planned very conscientiously for our retirement, and we hate to think about anything happening to our stocks, our jobs, our home and our investments.



Swim Club

The Swim Club is having its first meeting of the 1987-88 indoor season on Thursday, November 5, at 5:15 p.m., at the BNL pool. After organizing our schedule for the season, we will hold a short, easy practice. Advanced beginners through competitive swimmers are invited to join us. For more information, contact Marsha Belford, Ext. 5053, or Peter Heotis, Ext. 2304.

Bowling

Red/Green League

A. Warkentien rolled a 235/611 scratch series, P. Ouvrard 216, C. Scarlett 208/205, A. Pinelli 207, N. Parrinello 205, R. Mulderig 201.

Purple League

Sharon Smith had games of 215/202/196 for a 613 scratch series, Steve Gushue 208, Renee Flack 192, Caryl MacDougall 187, Mary Grace Meier 182.

Pink League

Sandy Asselta bowled a 193/188, Betty Jellett 177, Maryann Reynolds 173, Anne Ostermeyer converted the 1/5/7 split.

Cafeteria Menu

Week of November 2

Monday, November 2	
Pork & cabbage soup	(cup) .75 (bowl) .95
Turkey broccoli Mornay w/1 veg.	2.95
Swedish meatballs over rice	2.85
Chef's salad plate (lite-weight)	2.25
Hot deli: Pastrami	(bread) 2.65 (roll) 2.75 (hero) 2.85
Tuesday, November 3	
Navy bean soup	(cup) .75 (bowl) .95
Top round of roast beef au jus w/1 veg.	2.95
Deluxe sausage pizza	(slice) 1.10
Shrimp-stuffed tomato plate (lite-weight)	2.25
Hot deli: Baked ham	(bread) 2.65 (roll) 2.75 (hero) 2.85
Wednesday, November 4	
Southern vegetable soup	(cup) .75 (bowl) .95
Veal scaloppini w/1 veg.	2.95
Shrimp fried rice	2.85
Sliced turkey cold plate (lite-weight)	1.95
Hot deli: Grilled Reuben	2.75
Thursday, November 5	
Lentil soup	(cup) .75 (bowl) .95
Manicotti w/sauce & garlic toast	2.85
Paprika veal stew over noodles w/1 veg.	2.95
Cottage cheese & fruit plate (lite-weight)	1.95
Hot deli: Roast beef	(bread) 2.65 (roll) 2.75 (hero) 2.85
Friday, November 6	
Seafood gumbo	(cup) .75 (bowl) .95
Baked macaroni & cheese w/1 veg.	2.85
Sweet & sour pork over rice	2.95
Fried fisherman's platter	3.15
Hot deli: Corned beef	(bread) 2.65 (roll) 2.75 (hero) 2.85

Social Club

The Social Club can help you plan a winter vacation to help beat the after-the-holidays doldrums. Make your reservations now for a trip to Badgastein, Austria, February 19-27. The cost of \$900 per person includes: round-trip airfare via Lufthansa, from JFK airport to Munich, Germany; ground transportation to the Hotel Savoy in Badgastein; eight days and seven nights in a double room; breakfast and dinner each day; all local taxes and hotel gratuities. A \$200 deposit is due by November 3, and the balance is due by December 30. The trip is not limited to BNL employees, so call your friends and invite them along. For more information, call Doris Terry, Ext. 2228, or stop by Bldg. 197C and see pictures of the Gastein Valley.

Football

Week of October 13
Scores not available

Week of October 19
Raiders 12 — The Other Guys 6
Untouchables 13 — Roga 12 (OT)
Roga 12 — The Other Guys 0
Raiders 28 — Rangers 0

Final Standings	W	L
*Untouchables	8	0
Raiders	6	2
Roga	4	4
The Other Guys	2	6
Rangers	0	8

*League Champions

The Football League Party will be held Friday, November 13, at 5:15 p.m. in the Recreation Building.

Hospitality News

Six solo performances will highlight the concert that will be featured at the next Hospitality Committee get-together. The soloists on Tuesday, November 3, will be: Takako Inagaki, pianist; Ryoko Ishigami, vocalist; Noemi Katz, guitarist; Meda Long, pianist; Liuri Owen, cellist; and Jan Rohrer, pianist.

The concert, which will begin at 9:30 a.m. at the Brookhaven Center, is expected to last until noon. All spouses of BNL employees and guests are welcome. Bring the children; babysitting will be provided free of charge. Coffee, tea and danish will be served.

Missing Tapes

Anyone knowing the whereabouts of a set of five "Using VAX/VMS" video training tapes belonging to the Central Scientific Computing Facility, please contact Frank DeVito, Ext. 2368.

BROOKHAVEN BULLETIN

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

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Volleyball

Standings as of October 23

League I	
	W-L
Upfagrabs	3-0
Xrayted	3-0
Dinkers	2-1
Poubars	1-2
Bumpers	0-3
Cannonballs	0-3

League II	
	W-L
Set-Ups	3-0
Chunga's Revenge	2-1
Fossils	2-1
Nuts & Bolts	1-2
Slammers	1-2
Upton Ups	0-3
Photons	0-0

League III	
	W-L
Printouts	3-0
Renegades	3-0
Sourcerers	3-0
Screwballs	2-1
Airheads	1-2
Good Times	0-3
Misfits	0-3
Spikes	0-3

Open League	
	W-L
Dakota	3-0
Phoenix	3-0
Serendipity	2-1
Not Too Bad	1-2
Rowdy Radicals	0-3
Duituits	0-3
Leftovers	0-0

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position, with consideration given to candidates in the following order of priority: (1) present employees within the department and/or appropriate bargaining unit, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants. In keeping with the Affirmative Action plan, selection decisions are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment.

Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Employment Manager, Ext. 2882.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

2713. DATA SERVICES POSITION - Requires AAS in data processing or equivalent experience and accurate keyboard skills. Will provide varied support services in the computer systems group. Responsibilities will include preparing and entering data, running established programs and maintaining files and records. Data base experience desired. Safety and Environmental Protection Division.

2714. DATA SERVICES POSITION - Requires AAS in data processing or equivalent experience, as well as familiarity with data base and spread sheet concepts, PCs and VAX/VMS. Responsibilities will include preparing and entering data, writing new report procedures and maintaining files. Accelerator Development Department.

2715. CLERICAL POSITION - Requires excellent record-keeping and computation skills. Will prepare and process vouchers for payment, mail vendors' checks and maintain data regarding payments. Experience with typing and use of calculator required. Fiscal Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2716. ENGINEERING POSITION - Requires an MS in radiation physics or a related field with strong instrumentation interests. Will be responsible for establishing calibration systems for external radiation measurements, developing new measurement capabilities and establishing a quality assurance program for dosimetry. Experience in measuring mixed radiation fields including high energy neutrons is desirable. Safety and Environmental Protection Division.

2717. TECHNICAL POSITION - Requires an AAS degree in electronic technology or equivalent, with experience in troubleshooting and building of analog and digital equipment. Will troubleshoot and repair high current power supplies and related equipment. Must be able to set up and use various test equipment and work from electronic schematics, verbal instructions and rough sketches. Computer experience helpful, but not required. Will be working a rotating shift schedule. Alternating Gradient Synchrotron Department.

Motor Vehicles & Supplies

85 YAMAHA YZ125 - 86 Suzuki RM125, both good cond.; 82 Toyota Corolla SR5, 89k mi., am/fm tape, excel., \$3,100. 585-4176.

80 VW RABBIT - 4 speed, great run-around car, \$600. 567-9362.

78 DIPLOMAT - 8 cyl., good cond., reliable, \$500. 286-9426.

80 TRANSAM - custom pinstripe, maroon, clean in/out, runs well, asking \$6,000. 732-7723, 10 a.m.-6 p.m.

80 PONTIAC PHOENIX - 4 dr., 4 speed, 4 cyl., p/s, p/b, a/c, am/fm cass., 79k mi., new tires, good cond., \$1,500. 271-5774.

82 BUICK CENTURY - 6 cyl., 3.0, 4 dr., p/s, p/b, am/fm, a/c, vinyl roof, tilt, tinted glass, excel. cond., \$3,900. Ext. 2683.

76 JEEP RENEGADE - a/t, p/s, 8 cyl., new softop, brakes, alternator, shocks, steering stabilizer, voltage regulator, 2 tires, \$3,500. Ext. 4142.

77 LT CAMARO - for parts, red cloth seats, excel. cond., whole car, \$500 or best offer. 584-5933 after 6 p.m.

80 CHEVY CITATION - blue, 4 dr., a/t, runs hot, \$200. Bob, Ext. 5222 or 744-3289.

74 IMPALA - reliable, \$190; 78 Ford Fiesta, m/t, good mpg, reliable, \$370; 77 Honda Civic for parts. Jack, Ext. 3164 or 744-5954.

84 MONTE CARLO CL - deluxe int., p/s, p/b, p/w, a/c, am/fm stereo cass., 35k mi., \$7,500. 924-8260 eves.

82 CAMARO BERLINETTA - T-tops, p/s, p/b, p/w, a/c, am/fm stereo cass., 38k mi., \$6,200. 924-8260 eves.

79 HONDA WAGON - some new parts, good cond., \$600 or best offer. Tom, Ext. 3086.

FORD GENERATOR - 1958, 12 V, \$10. Frank Rumph, 588-3565.

82 FORD EXP - 4 cyl., a/t, 55k mi., new tires, red w/black, hatchback, louvres, radio/cass., excel. cond. Joan, Ext. 2266 or 331-9264.

TIRES - 4, Firestone ATX, P235/75R15, mounted on GM 6-hole rims, \$100. Bill, Ext. 2807 or beeper #923.

74 DATSUN 260Z - 4 speed, new tires, water pump, tune-up, \$800. Brian, Ext. 4939 or 234-9487.

FORD PARTS - 170 cu. in. 6 cyl. engine; 2000cc 4 cyl. engine; 75 LTD nose; assorted tires & rims. 929-3209 after 5 p.m. & wknds.

77 MUSTANG II - 4 speed, new brakes, clutch, good cond., runs well, \$900 neg. 758-5592.

68 NOVA - runs well, high mileage, body rust, good tires, \$350. 929-3209.

81 DATSUN 310GX - 4 speed, excel. in/out, engine needs work, \$500. Brian, Ext. 4949 or 234-9487.

77 MERCURY GRAND MARQUIS - 2 dr., 92k mi., garaged, very good cond., \$1,600 neg. 744-2805.

77 AUDI FOX - a/c, radials, runs well, 85k mi., \$1,150. Al, Ext. 4442 or 929-8411.

75 DODGE DART - runs well, good tires, 128k mi., \$300 or best offer. Ext. 4333.

TIRES - 4, 195X75-15MTS, low miles, best offer. 331-1572.

82 FIREBIRD SE - 2 dr., hatchback, p/s, p/b, a/t, a/c, am/fm, white/blue, new tires, battery, 51k mi., \$5,500. Ext. 2492 or 475-8658 after 7 p.m.

86 SUBARU GL - wagon, 5 speed, am/fm, cruise, p/s, p/b, p/w, 26k mi., excel., asking \$8,600. 395-4272.

83 MITSUBISHI STARION LS TURBO - 5 speed, a/c, loaded, 48k mi., \$6,600. Ext. 3341 or 981-9474.

75 CHRYSLER - 400 engine, needs tires, excel., \$200; 72 Cadillac, runs well, passed inspection, \$150. Bob, Ext. 5010 or 289-2986 after 5 p.m.

79 T-BIRD - full power, new exhaust, tires & more, needs engine work, \$800. 563-2751.

86 SUZUKI SCOOTER FA50 - bright blue, excel. cond., \$300. 821-0250.

85 CAMARO Z28 - 5 speed, am/fm cass., 14k mi., excel. cond., \$9,100. Barry, Ext. 5624 or 727-5956.

74 VOLVO - high mileage, engine replaced, runs well, reliable. Torsten, Ext. 3817 or 878-1210.

84 CHRYSLER LASER - a/t, a/c, excel., must see. Ext. 2446 or 924-1911 eves.

71 SUPER BUG - 4 speed, many new parts, red. Ray, Ext. 3536 or 289-7615.

79 FORD FAIRMONT - 2 dr., am/fm, 4 cyl., very good cond., asking \$1,500. Nestor, Ext. 3073.

78 CHEVY CHEVETTE - excel. in/out, needs engine work, good for parts, \$450. Ext. 4194.

81 CHEVETTE - 4 dr., a/t, sunroof, am/fm stereo cass., needs muffler, asking \$750. Joe, Ext. 3569 or 286-9560 after 6 p.m.

RIMS - Toyota GT, 14", \$10/each; F6015 Firestone tires, 2, \$50. John, Ext. 4034.

85 PLYMOUTH DUSTER TURISMO - a/c, p/s, am/fm cass., charcoal grey, red int., 37k mi., orig. owner, \$5,200 neg. 585-1656 after 1:30 p.m.

81 HONDA ACCORD - 4 dr. sedan, a/t, a/c, loaded, 96k mi., asking \$2,500. Walter, Ext. 3499 or 757-6392.

73 CHEVY CAPRICE HT - a/t, a/c, p/s, p/b, 60/40 seats, high mileage, runs, 400 cu. in. engine, new starter & distributor, \$325. Ext. 4030.

77 AMC HORNET - 4 dr., p/s, a/c, a/t, 64k mi. 928-6791 eves.

79 HONDA CIVIC - 80k mi., 4 speed, am/fm stereo cass., runs, \$300 or best offer. Ext. 3890 or 689-2773.

85 TRAVEL TRAILER - Layton 25', sleeps 8, TV antenna & amp., bath w/tub, \$9,000. 475-1548.

TRAILER - 5'x9', \$250. Ext. 3457 or 698-5701.

58 FORD F-600 DUMP TRUCK - 4wd, new brakes, good cond., \$1,750. Dean, Ext. 4677 or 286-1829.

85 TRAILER - Terry 28', awning, rear bedroom, bath w/tub, TV antenna, stereo, power jack, many extras, mint cond., \$11,850. 427-6895.

SUZUKI ATV - 90cc, blue/white, wide tires, licensed for road, good cond., \$249.95. Tony, Ext. 4095.

84 CHEVY TRUCK - 8 cyl., 12' enclosed box, hydraulic lift gate, a/c, p/s, p/b, 64k mi., \$5,200. Ext. 4846 or 363-6940 after 5 p.m.

78 FORD SUPERCAB PICKUP - 4 speed, 300 cu. in., tow pack, slotted wheels, more, excel. cond., \$3,300. Artie, Ext. 4987 or 325-0743 after 5 p.m.

BENCH SEAT - for 77 Chevy Suburban, excel. cond., may fit Blazer, \$75. 878-9418.

77 PLYMOUTH ARROW - 2000cc, a/t, moonroof, make offer. Ext. 2011.

76 JEEP CHEROKEE - 4wd, 6 cyl., 2 dr., 2 new tires, \$750. 744-8790 after 6 p.m.

85 KAWASAKI ATV - 110, low hours, new windshield, excel. cond., \$600. 727-0364.

77 FORD MUSTANG - low mileage, no rust, runs great, 4 speed, new clutch, muffler, best offer. 758-5592 eves.

RIMS - 13", 4 lugs; 14", 4 lugs; 14", 5 lugs. Ext. 2950.

TIRES - 4, radial X-c, 33x12.5x15, mounted on Chevy 6 lug rims, like new, \$300. Bob, 744-3289.

SPEAKERS - Clarion 830 Tri-axial, 100 watts, new, \$100. Ext. 2799.

DYNAHOE 190-4 - excel. cond., low hours, joy sticks, \$24,850. 286-1829.

Boats & Marine Supplies

19' BAYLINER CAPRI BOWRIDER - Volvo I/O, trailer, must see, mint, \$7,000. Ext. 2981 or 473-7809 eves.

22' BARNEGAT - fully equipped, Merc 260 I/O, excel. cond. 928-2663 or 821-2037.

17' ISLANDS 17 - multicolored sail, excel. cond., w/trailer. 878-9418.

21' BAYLINER - 1986, sleeps 5, I/O, canvas, radios, excel. cond., in water. 878-0480 eves.

19' BAYLINER CAPRI - 1985, cuddy, 125 Volvo Penta I/O, galvanized trailer, low hours, \$7,500. 286-5879.

34' ELCO - 1924, good for parts, possible restoration. Wick, Ext. 7749 or 758-1695 after 6 p.m.

Miscellaneous

MET OPERA TICKETS - 2, Fri, Nov. 6, Manon, front row balcony, \$30/pair. Elliot, Ext. 3947.

GREY PERSIAN LAMB COAT - full length, good cond., \$850; white fur & leather car coat, \$250. Ext. 3701.

XMAS TREES - new, in orig. boxes, 7 1/2 scotch pine, orig. \$200, now \$60. Tony, 698-9274.

STYROFOAM INSULATION - 2"x2"x8", \$3.50/each. 286-1829.

UNICEF XMAS CARDS - & gifts. Ext. 2022 around noon or 744-8386.

OAK DESK - \$50; folding dining table, \$25; chairs, \$15; floor lamp, \$10. Jerry, Ext. 5506.

CHILD'S CAR SEAT - stroller, high chair, exercise bike. Ext. 3803 or 467-1090.

IBM TYPEWRITER - electric, wide carriage, \$150; 12-speed bicycle, \$50; wallpaper, 5 rolls, beige pattern, \$15. Susan, Ext. 4267.

DRAFTING SET - K&E Jupiter, No. 9406B, 9-piece, like new. Dick, 878-1580 after 6 p.m.

WALL PHONE - AT&T, rotary, \$8; GE 5000 Btu air conditioner, \$50. Frank Rumph, 588-3565.

FISH TANKS - 6, 10 gallon, complete w/access., pumps, filters, gravel, heaters, light hoods. Ray, Ext. 3536 or 289-7615.

MODEM - 300 Baud Acoustic, make offer. Ext. 5144.

TEAK DINING ROOM SET - 7-pieces, tiled buffet, rolling bar, like new, asking \$1,950. Al, Ext. 4442 or 929-8411.

MATTRESS - long twin size, Stearns & Foster, \$15. Ext. 2981 or 473-7809.

LAWN MOWER - 21", good working cond., \$65; Melnor traveling sprinkler, \$30. Chuck, Ext. 4483.

XMAS TREE - 7 1/2', fireproof, good cond., \$25. Ext. 2052.

GO-CART - racing, w/all equip., 10 h.p., make offer; 2 new fiberglass tub encl. bone, \$20/each. Ron, Ext. 4715 or 289-1003.

XMAS TREE - 7', \$5; 3-piece outdoor nativity set, \$10; book shelf, 62" w x 30" h x 8" d, \$10. 878-6637.

GUITAR SPEAKER CABINET - 2 JBL 12" speakers, \$200; Fender Bassman amp & cabinet, 2, 12", good cond., 60's, tubes, \$225. Jim, Ext. 3084.

FIREWOOD - seasoned oak, delivered, \$130/cord. 732-2849.

DINING ROOM SET - dark pine, trestle table, 2 leaves, 6 chairs, hutch, buffet, very good cond., \$400. 698-7063 after 6 p.m.

KEROSENE HEATER - Corona 22,600 Btu/hr. Ext. 7603 or 821-0754.

STEREO - RCA console am/fm stereo w/phono-graph, \$50 or best offer. Kathy, Ext. 2267.

ANTIQUe TABLE LAMP - & shades, beautiful flowered design, \$10/each. 281-5532.

COUCH - & loveseat, neutral print, contemporary, excel. cond., like new. Roy, Ext. 2384 or 722-8736.

WEIGHT BENCH - Sears, 350 pound capacity; Heathkit H.F. ham station, MR-1, MX-1 & ac power supply, am & cw 80 - 10m. Jack, Ext. 7869.

SEARS UPRIGHT VACUUM - 5.2 amperes, 2-speed, \$25; girl's 16" Huffy bicycle, pink, \$40; boy's Ross BMX bike, hand brakes, \$75. 924-5419.

GO-CART - 5 h.p. motor, live axle, racing slicks, disc brakes, new paint, \$400 neg. John, Ext. 4034.

BASS GUITAR - w/case, great tone, excel. cond., \$125. Ext. 7652 or 758-9197.

PORTABLE TV - 5", brand-new, still in box, \$50. 878-2239.

SEWING MACHINE - heavy duty, electric; Westinghouse 1917 vintage, works, \$25. 475-1826 after 6 p.m.

GE REFRIGERATOR/FREEZER - 4 years old, 10.4 cu. ft., energy saver switch, tempered glass shelves, 3 drawers, \$300. 862-6075 after 6 p.m.

COAL STOVE - Sundial, model 713, 64,000 Btu, good cond. Mickey, Ext. 7971 or 286-3984 after 6 p.m.

KITCHEN TABLE - w/leaf & chairs, good cond. 325-0447 after 6 p.m.

COPIER - needs adjustment, \$15. Ext. 4192.

COUCH/LOVESEAT - velvet, w/wood trim, \$100; table, \$20; coffee table, \$35; wooden étagère, \$10; Oriental rug, 9x12, \$25. 689-7259 after 6 p.m.

HOSPITAL BED - manual, side rails, excel. cond. 325-0447 after 6 p.m.

GRAND PIANO - 6', Yamaha, walnut, 8 years old, \$5,500. 286-5879.

FIREPLACE - "O" clearance 24" logs, new s.s chimney, triple wall w/screen & access., \$350. 475-1548.

BICYCLE - boy's 10-speed, \$80; Yashica FX-70 35mm camera w/42-75mm F3.5-4.5 ML Zoom lens & CS-201 Auto Flash, \$250. 732-6838.

PANASONIC 200 CAMCORDER - 2 yr-old, 12 lbs., 3 lens covers, 2 batt., carrying case, \$550, neg. Tallon, 473-3987 or Ext. 4847.

ARROWS - 17-XX75-2216-32", 10-camo, 7-orang, \$35; 10 gamegetter 2018-30", \$10. Bill, Ext. 4434 or 399-6168.

CELLAR POSTS - (2) adjustable metal floor supports, \$8 ea, 2 for \$15. Joe, Ext. 2898.

ELEVATING TAILGATE - for stepside pick-up, make offer. Joe, Ext. 4527.

SONY BMC-550 BETAMOVIE - 2 battery cartridges, recharger, codura case, video light, \$350, all. Dominic, Ext. 5264.

BRONZE PLATE GLASS - 26" x 92" and 36" x 92", 5 pcs. each in metal frames. Ernie, 588-4987.

MOVING - must sell 2 cars, 3 bedroom sets, dining rm., lawn equip., 3 bikes, 2 desks, lamps, furs, etc. 277-4091.

SOFA, LOVESEAT, CHAIR - Colonial, good cond., \$200, will negotiate. 924-6571 after 4 p.m.

RADIO STEREO - with 1 cassette, 4 speakers, \$35; blender, 7 speeds, almost new, \$15; turntable stereo, \$30. Voytek, Ext. 2229 or 3220.

SEALPOINT SIAMESE KITTENS - blue eyes, lovable, \$150. 654-5298, leave message.

CHILDREN'S TABLE - mica top with 4 oak chairs, \$75. 878-9418.

WOOD STOVE - Scandia 200, airtight, cast iron, 50,000 BTU, free-standing, flue pipe, wood carriers, \$250. Gary, Ext. 4095 or 758-5592.

Free

FIREWOOD - you cut the trees, you keep the wood. Walt, Ext. 2907 or 698-0576 after 6:30 p.m.

73 DATSUN - driveable, 4 spd. Voytek, Ext. 2229 or 3220.

COLOR TVS - 19-inch, 2, Zenith, need repair, console and table models, 1970's; short block engine, 265 Chev, late 1950's. Dan, Ext. 3282.

ONE POUND COFFEE CANS - Charlie, Ext. 4758.

CHILDREN'S SWING SET - must pick up. Doreen, Ext. 2456.

SMALL BLACK & WHITE CAT - female, very affectionate, mellow. Help! Ext. 4262.