

CAP Meetings Explore Ideas For Future Accelerators

Switched Power Workshop

It was switched locations as well as switched power for some 30 physicists the week of October 17. Though the Switched Power Workshop they attended was hosted by BNL's Center for Accelerator Physics (CAP), the workshop was held at the Pridwin Hotel on Shelter Island.

While workshop attendees came from other labs, such as CERN, Los Alamos and Lawrence Livermore, and from industry, about one-third were from BNL. So workshop organizers Richard Fernow and Robert Palmer decided to hold the workshop off site to eliminate the on-site distractions that might have affected the group's concentration while discussing the possibility of using switched power to create a linear accelerator that could reach very high energies in a relatively compact design.

At present, the world's largest linear electron accelerator is the two-mile-long one at the Stanford Linear Accelerator Center, which accelerates electrons at an energy gradient of 20 million electron volts per meter. "With switched power," said Fernow, "in principle, you could get one billion electron volts per meter in a linear accelerator. You could make a very decent machine, perhaps in the tril-

lion electron volt range, and fit it on the BNL site."

The switched-power concept, in which the power of a laser is used to "switch" an electron current to generate accelerating fields, was first proposed by conference attendee William Willis of CERN in 1984. Though a linear accelerator using switched power is still far off, more modest uses of this technique are definitely within reach. Palmer cited the progress made by Triveni Srinivasan-Rao and Joachim Fischer, of Instrumentation, in obtaining a current density of over 60,000 amperes per square centimeter from an ultraviolet laser-illuminated photocathode.

"This is by far the highest current density ever switched by a laser," said Palmer, "and it makes us believe that a useful device is now possible."

In working group sessions, the attendees concentrated on designing a high-brightness electron gun that could be used at the Accelerator Test Facility (ATF) now under construction by CAP, to inject into the ATF to test advanced accelerators and to make free electron lasers. Different groups took different approaches.

Though all had questions yet to be resolved by week's end, Palmer said, "It was encouraging because it looks as though we might be able to build a



On the lawn of the Pridwin Hotel, overlooking the waters off Shelter Island, Switched Power Workshop coorganizer Robert Palmer (kneeling, right) used his trusty timer to take this photo of several conference attendees, including: conference secretaries Patricia Tuttle (left) and Kathleen Tuohy (kneeling, second from left); Claudio Pellegrini (fourth from right), who, with Palmer, coheads the Center for Accelerator Physics; Triveni Srinivasan-Rao (fifth from left) and Joachim Fischer (right), Instrumentation; and Richard Fernow (second from right), the other workshop organizer. In the water beyond the group can be seen Palmer's yacht, on which he sailed to the workshop and treated a group of attendees to a trip around the island.

gun two orders of magnitude better than any available now, including the gun now being built for the ATF, which will hold the world's record when it begins to operate later this year."

Accelerator Test Facility Review

The entire ATF should be ready for use by the end of 1989, depending on construction funding. That was the gist of the status reports given on Monday morning, October 24, to open the one-day review of the Brookhaven Accelerator Test Facility, for which the location switched back to BNL.

With an operating ATF a possibility so soon, the 30 potential users attending the review spent the balance of the day discussing the experiments they would like to do at the facility. These ranged from the Smith-Purcell and laser linac experiment, which would give the users a quantitative idea of how a laser linac will work, to using

(Continued on page 2)



photo by Roger Stoutenburgh

At the Accelerator Test Facility during the review were: (kneeling, front, from left) Harold Kirk, BNL; review organizer Juan Gallardo, BNL; Kirk McDonald, Princeton; Robert Palmer, BNL; David Sutter, U.S. Department of Energy (DOE); (kneeling, back, from left) Richard Fernow, BNL; Jack Sandweiss, Yale; Ernest Courant, BNL; Yusef Gursev, BNL; Gerald Peters, DOE; (standing, front, from left) Claudio Pellegrini, BNL; Norm Kurnit, Los Alamos National Laboratory (LANL); Zohreh Parsa, BNL; Jorge Fontana, University of California, Santa Barbara; Joachim Fischer, BNL; Martin Woodle, BNL; James Welch, Cornell; Arie van Steenbergen, BNL; Wayne Kimura, Spectra Technology; and Irving Bigio, LANL.

Coming Up

David Thouless, University of Washington Professor of Physics, will return to BNL the week of November 14, for his second visit as Haworth Distinguished Scientist in the Physics Department. He will present a colloquium on "Mesoscopic Physics: Physics on Submicron Scales," on Tuesday, November 15, at 3:30 p.m., in the Physics Department seminar room, Bldg. 510.

Nobel laureate Yuan T. Lee, Professor of Chemistry at the University of California, Berkeley and Principal Investigator in the Materials and Chemical Sciences Division of Lawrence Berkeley Laboratory, will be at BNL the week of November 14, for his first term as Haworth Distinguished Scientist in the Chemistry Department. He will present two lectures:

- Chemistry seminar — "Molecular Beam Studies of Primary Photochemical Processes," Tuesday, November 15, 11 a.m., Hamilton Seminar Room, Chemistry, Bldg. 555.

- Seminar of Lab-wide interest — "Molecular Collisions and Chemical Reactions," Thursday, Nov-

ember 17, 3:30 p.m., Berkner Hall; to be followed by a reception at 5 p.m.

Senior Chemist Joanna Fowler, Chemistry Department, will deliver the next Brookhaven Lecture on Wednesday, November 16, at 4:30 p.m., in Berkner Hall. She will speak about "Working Against Time: Using PET to Probe Human Biochemistry."

Judy Lloyd, an associate professor of chemistry at the State University of New York at Old Westbury who is now on sabbatical in BNL's Department of Applied Science, will talk about "Acid Rain Studies in the Laboratory," at the next Brookhaven Women in Science meeting, on Thursday, November 17, at noon, in Berkner Hall, Room B.

The Renaissance band Calliope will be featured in the next program of the BERA Concert Series, scheduled for Thursday, November 17, at 8:30 p.m., in Berkner Hall. Tickets, which are available at the door, are \$9 for adults, \$6 for students and those over 65 and \$5 for those under 18.

Doing Business With Small Business

Brookhaven is a national laboratory, and, in addition to experiments, it also does 62% of its total in business each year — about \$51 million — with small and disadvantaged companies. To help these firms learn how they can better do business with the federal government and its prime contractors on Long Island, including BNL, a Small Business Fair was held on site on Friday, October 28.

Attended by 160 business representatives, the workshop was opened with a speech by U.S. Congressman George Hochbrueckner. After two simultaneous workshops, one for small and disadvantaged companies and another for larger ones, the business people met with buyers and contract specialists from the Lab and other Long Island contractors.

Pictured talking to vendors are (from left) Dennis Hall and Mickie Haller, and (right) Barbara Pringle, all of BNL's Division of Contracts & Procurement.



Roger Stoutenburgh

In Memoriam

Augustine O. Allen, who established the Radiation Chemistry Group in the Chemistry Department in 1948 and headed it until his retirement in 1976, died on October 23, while on a Caribbean cruise. He was 78 years old.

Throughout his career, Allen made many contributions to the study of the chemical effects caused by the absorption of ionizing radiation in matter. Early on, he was largely responsible for developing the understanding of the radiation chemistry of water and, in particular, he recognized the importance of nonuniform spatial distribution of the energy absorption in determining the species produced.

In 1961, he published a book on this topic, *The Radiation Chemistry of Water and Aqueous Solutions*. Later, he took up the study of ionization of hydrocarbons, and his research in this field opened up an immensely interesting subject that is still a major area of research.

Through extended visits to other laboratories, Allen strongly influenced the course of radiation chemistry around the world. He served as chair-

man of the joint Japan-U.S. seminar on radiation chemistry in 1973. A founding member of the Radiation Research Society, he served as its president in 1963 and its Failla lecturer in 1980. He was also on the editorial board of the *Journal of Physical Chemistry* for eight years.

Allen retired from BNL at the end of 1976, then spent a year at the Hahn Meitner Institute in Berlin, as the recipient of an Alexander von Humboldt Senior U.S. Scientist Award. After the Three Mile Island reactor accident, he served as a consultant to the Nuclear Regulatory Commission.

He was a resident of Shoreham. In addition to his wife Agnes, he is survived by five children: Edith Allen of Albany; Barbara Fuchsmann of Oberlin, Ohio; Catherine Allen of Silver Springs, Maryland; Winifred Richman of Buffalo; and Edward Allen, of Cheverly, Maryland; and eleven grandchildren.

A memorial service will be held at 1 p.m. on Saturday, November 5, at St. Anselm's Episcopal Church, Woodville Road, Shoreham. In lieu of flowers, contributions may be sent to: Save-the-Redwoods League, 1141 Samsome Street, Room 605, San Francisco, CA 94104.

Note to Employees:

Attendance at lectures, meetings and other special programs held during normal working hours is subject to supervisory concurrence.

To Your Health

Caring for Aging Parents

It's a modern dilemma: With everyone working, there's no one at home to take care of elderly parents. What can a family do?

"Options in Caring for Aging Parents" is the topic to be addressed at the next Health Promotion Seminar, on Thursday, November 10, from noon to 1 p.m., in Berkner Hall. Certified social worker Margaret Brown, director of the Elderly Day Program of the Community Programs of Long Island, will be the speaker, and all are invited to attend.

Weight Watchers

You can still register for the next on-site sessions of Weight Watchers at the start of the first session, on Wednesday, November 9, at 5:15 p.m., in the conference room in Bldg. 535. The cost for the eight, hour-long sessions is \$60 for continuing members and \$30 for new ones, as the Lab splits the fee with them.

CAP Meetings

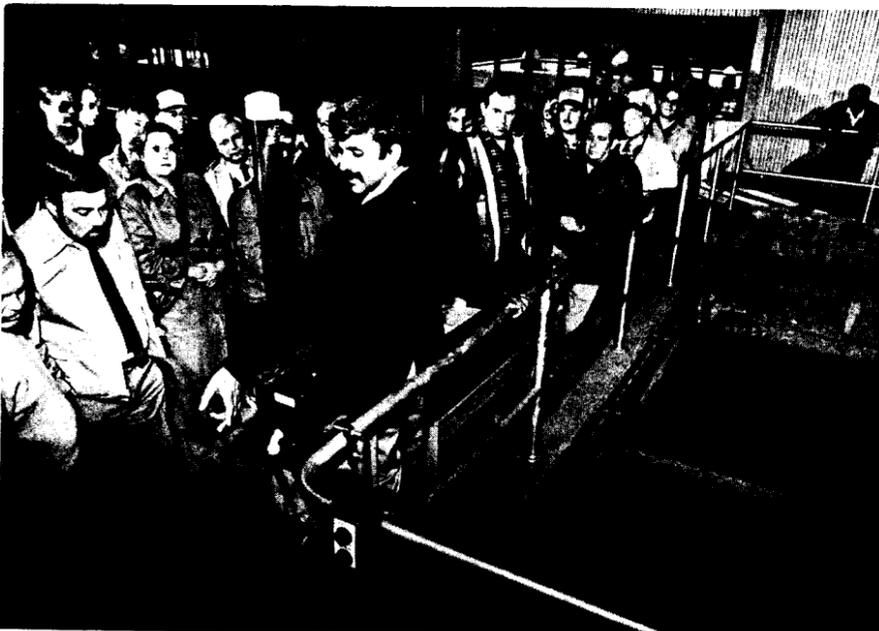
(cont'd)

the ATF beam to create a free electron laser, or a microwave source, or an inverse free electron laser — even one that might be enhanced by plasma-driven interactions.

Another proposal was for a physics experiment to study nonlinear electrodynamics by looking for the doubly energetic photons that would be produced in the collision of the electron beam with laser photons.

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

Inside the Water Treatment Plant



Roger Stoutenburgh

BNL's advanced water treatment plant, one of only three on Long Island, was on show last Thursday, 27 October, on the occasion of the Long Island Water Conference (LIWC) seminar. It was arranged by Paul Ponturo and Tom Martin of the Suffolk County Department of Health, in conjunction with the LIWC, whose membership is open to all water suppliers on Long Island, including BNL.

Here, a group of the 140 attendees watch as William Chaloupka, Plant Engineering, demonstrates some of the high-tech methodology of the Lab's water treatment plant. They were particularly interested in the operation of the plant's sand filter for removing iron from the water. Some Lab well water is naturally very high in iron, exceeding four parts per million. After treatment, which includes oxidation and filtration processes, this ratio is reduced to less than 0.04 parts per million before being distributed on site.

Toys for Kids

As you plan for the holidays, don't forget the 1988 INTERFACE Toys-for-Kids Drive, which will begin on Monday, November 14, and continue until Friday, December 2.

This drive is organized annually by the Town of Brookhaven to provide happy holidays for needy young people in local communities. For the past four years, Lab employees have given their time and contributions with willing and generous spirits. Let's do it again for year number five!

Please drop off all donations at the BERA Sales Office between 9 a.m. and 2 p.m., Monday through Friday. New toys and gifts are preferred and needed for children of all ages — infants through teens.

Volunteers are also needed to help sort the toys. Call Louisa Barone at the BERA Sales Office, Ext. 3347, or sign up when you drop off your donations.

Reports Available

The following reports are now available to the Laboratory staff and to affiliates of the DOE, AUI and NRC. Others may purchase the reports 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 at the extension listed.

NUREG/CR-5203

BNL-NUREG-52159

Contact: B. Appuzzo, Ext. 2746
Dynamic Amplification of Electrical Cabinets. K.K. Bandyopadhyay et al.

BNL-52132

Uncertainty Analysis of the NAPAP Emissions Inventory. Progress Report FY 1986. C.M. Benkowitz et al. Contact: L. Kopp, Ext. 2265.

BNL-52104

Contact: F. Donnelly, Ext. 4835
Strategies for Energy Conservation through Residential Zoning and Reduction of Duct Losses. J. W. Andrews et al.

BNL-52114

Contact: P. Hughes, Ext. 4619
Proceedings of the 1987 ICFA Seminar on Future Perspectives in High Energy Physics. Held at BNL Oct. 5-10, 1987. P.F. Dahl, Editor.

NUREG/CR-4999

BNL-NUREG-52101

Contact: D. Miesell, Ext. 4962
Estimation of Risk Reduction from Improved PORV Reliability in PWRs. Final Report. C.J. Hsu et al.

BNL-52091

Contact: B. Orlowski, Ext. 3481
Follow that Quark (and Other Exclusive Stories). Brookhaven Lecture #235. A. S. Carroll.

BNL-52107

Contact: L. Thompson, Ext. 5068
The Cosmotron. Brookhaven Lecture #237. J. P. Blewett.

BNL-52133

Contact: F. Donnelly, Ext. 4835
Modular Cogeneration in District Heating and Cooling Systems. J. W. Andrews et al.

BNL-52138

Contact: J. Williams, Ext. 4538
Development of Techniques for Measurement of Gas-Phase Hydrogen Peroxide. Shen Ji et al.

NUREG/CR-5105

BNL-NUREG-52137

Contact: K. Savino, Ext. 4909
Response Margins Investigation of Piping Dynamic Analyses Using the Independent Support Motion Method and PVRC Damping. P. Bezler et al.

BNL-51911

Contact: D. Cange, Ext. 4142
Guide to Computing Facilities at BNL. K. Fuchel.

Look, No Alligators!

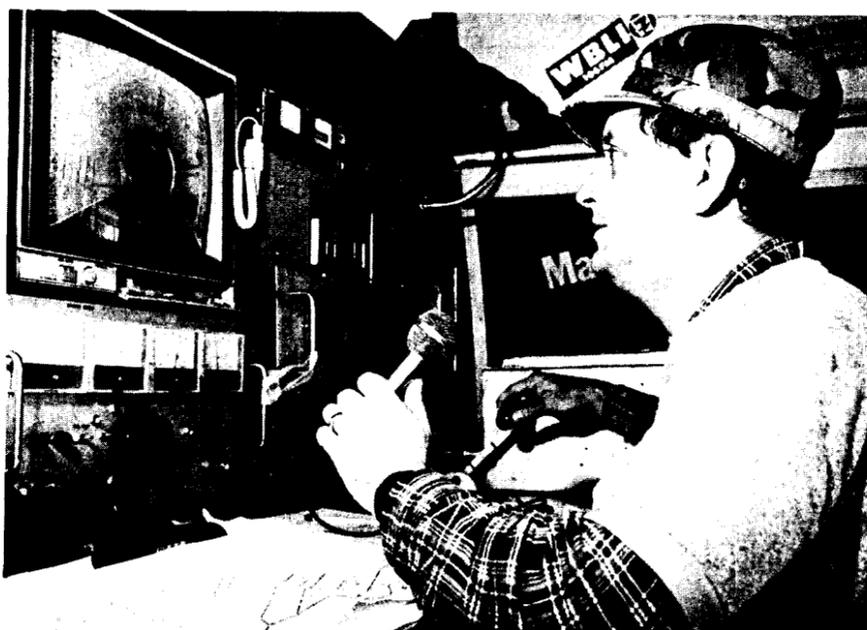


—photos by Roger Stoutenburgh

With a new kind of sound video, featuring living-room quality color, the Facilities Planning Group in Plant Engineering is addressing a perennial concern: Are blockages threatening the Lab's sewer pipes, and if so, where?

With the video system, which eliminates much of the previous necessity for extensive and expensive digging, Facilities Planning is checking the condition of site sewers. Based on these findings and those on other utilities, a master plan will be developed so that repairs and improvements can be undertaken in the most logical and economical way.

The video work is being done by the Carlsen and Sweatt sanitary and water consulting firm. At left,



engineers install the camera, light and cable into part of the sewer system. The interior of the pipe is displayed on the monitor (at right), and the viewer adds narrative to the video by describing the changing conditions noticeable as the camera travels down the pipe.

The numbers on the screen show that the picture is being taken 170.6' from the starting point. Joints in the pipe and the flow of water are easily visible. A possible obstruction on the left could be a tree root. All of this is even more visible in color, which is a great help in defining potentially troublesome materials, which otherwise fade into a grey blur.

And so far, no one has spotted any sign of alligators.

Have Lunch In Switzerland

You are invited to have lunch in Switzerland with the Social Club, on Friday, November 8, at noon in Berkner Hall, Room B. Esther Sworney, a Swiss representative from Swissair, will present a short film on Engelberg, where the Social Club will spend their winter vacation in February.

Engelberg is central and convenient for sightseeing. By train, Lucerne is 30 minutes away, while Bern and Zurich are approximately one hour away.

The Social Club still has tickets for Walt Disney's World on Ice, for December 4, at the Nassau Coliseum. All tickets are \$13.50, and payment is due by November 14. For more information, call Doris Terry, 7610.

Over the Top of the Rainbow — United Way Donations = \$94,000!

The smiling faces of these prizewinners reflect the pleasure of their having submitted the winning pledge cards to the BNL United Way Fund Drive. They also reflect the general pleasure with the fact that donations from BNL employees reached \$94,000 in just two weeks.

Arthur Nintzel (seated, center) Physics, was the grand prizewinner of a weekend for two in New York City. Winning dinners for two were: (back, from left) Thomas Thurston, Physics; Carl Anderson, Biology; Thomas Wild, ADD; and Bob Terwilliger, PE; (seated, from left): Carol Archer, MIS; Ruth Fernow, DO; Katherine Vivirito, TID; and Frederic Furuya, Biology; not present were Richard Fuka, P&GA; and Samuel Morris, DAS.

Said Susan Foster, this year's BNL United Way fund drive chair, "To go so far above our \$80,000 goal is fantastic. Special thanks go to the department and division representatives and the committee who worked on our campaign, and of course, AUI and the Long Island Guards Union, who, in donating the prizes, provided a great incentive for people to pledge early."

Although the fund drive is over, pledges are still wel-



Roger Stoutenburg

come. Send them to Betty Pergan, Bldg. 179, who processed all the pledges and welcomes any further donations.



Roger Stoutenburg

The most recent first-time Team Safety winners were the members of the Plant Engineering Division's Carpenter Shop Team: (from left) T.J. Reddick, Tony Calligeros, Wayne Hulse, Gene Rohde, Donald Tarrant, Fred Wojtuniak, Joe Dudek, Charlie Hyde, Peter Fish, Donald Hicks, J.B. Brooks, Peter Fennelly, Peter Stolz, Frank Miller and Robert Zigrosser. Not pictured: Richard Geib and Joe Radich.

Give a Little — Help a Lot

Think about it: While over 10,000 people in Brookhaven Town go to bed hungry almost every night, your pantry may contain at least one box of macaroni & cheese, one can of tuna or one jar of peanut butter that you wouldn't miss.

Why not contribute that box, can or jar to BNL's monthly food drive? Carole Kerr, Director's Office, Chair of BNL's food drive, explained, "For the next year, BNL, Brookhaven Town and the INTERFACE Coalition of Corporations will be asking employees to bring in nutritious, nonperishable foods to be distributed to single mothers and their children, the elderly, the handicapped, the working poor, the underemployed — all those who do not have enough to eat."

The first monthly food drive will be held at BNL the week of November 14. You can bring your contribution to the food drive can in one of the following buildings: AGS, 911; C&CD, 515; Barclays Bank, 193; Biology, 463; Cafeteria, 488; Chemistry, 555; Cashier, 134; Graphic Arts, 197; Medical, 490; NSLS, 725; Physics, 510; Post Office, 179, Research Library, 477.

Suggested items for donation include:



- **Canned Items** — chunky soup, spaghetti & meatballs, all varieties of meats, fruits, juice, ravioli, pork & baked beans, beef stew, vegetables, macaroni & cheese, salmon, sardines, tuna.
- **Staples** — cereal, instant milk, crackers, jelly, peanuts, peanut butter.
- **Dried Foods** — raisins, prunes, fruit.
- **Baby Food** — meat, vegetables, fruit, cereal, juice, strained junior dinners.
- **Support Items** — vitamins, soap, toilet tissue, cleansers, can openers, toothbrushes, toothpaste, soap powder, disposable diapers.

Volleyball

Standings - Week of October 24

League I		League II	
X-rayted	6-0	Nuts & Bolts	6-0
Upfagrabs	5-1	Krush	4-2
Dinkers	4-2	Set-Ups	4-2
Phoubars	2-4	Slammers	4-2
Cannonballs	1-5	Ziegfield VOLLIES	4-2
Netminders	0-6	Fossils	2-4
		Chunga's	
		Revenge	0-6
		Upton-Ups	0-6
League III		Open League	
Frazzled	6-0	Dig Your Lips	6-0
High Volley'em	4-2	Tom's Mutants	6-0
Printouts	3-3	Phoenix	4-2
Renegades	3-3	Magnum	3-0
Sourcerers	3-3	Meriem's Team	2-1
Good Timers	2-4	VOLLIES	2-4
MISfits	2-4	Pi Chu	1-5
Spikes	1-5	Constables	0-6
		Rowdy Radicals	0-6

Bowling

Red/Green League

High games were bowled by Ron Mulderig 219, Nick Parrinello 214, Ed Sperry IV 210, Charlie Bohnenblusch 205, Tom Prach 203, Don Jesaitis 202, John Connelly 200, Lee Grimes 200.

BERA Needs Lifeguard

Anyone interested in becoming a BERA lifeguard may apply by contacting M. Kay Hunt, Ext. 2873, or by calling Personnel reception, Ext. 2882, for an application.

Applicants must possess current Red Cross Advanced Lifesaving or Lifeguarding Certificates. They must also be available to work from 10:45 a.m. to 2:45 p.m., Monday through Friday, and to be on call to back up other lifeguards on weekends, if necessary.

Arrivals & Departures

Arrivals

Donna M. Byne Plant Eng.
 Karen Furenlid Instr.
 Eric A. Hayri Chemistry
 Kegang Huang Physics
 Ioannis M. Marneris Accel. Dev.
 Herbert O. Moser NSLS
 Asko E. Vehanen Physics
 Thomas J. Wozniak NSLS

Departures

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

Thomas J. Blair AGS
 Stanton Ehrenson Chemistry
 Henryk A. Mach Physics

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 Thursday, November 10, 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 18, 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.

Rifle & Pistol Club

The next meeting of the Rifle and Pistol Club will be held at noon on November 9, in Room 202, Bldg. 911B. Please attend to get information about our indoor range and winter shotgun activities. For more information, call Otto Jacobi, Ext. 3471.

Cafeteria Menu

Week of November 7

Monday, November 7

Soup: Turkey barley	(cup)	.75
	(bowl)	.95
Fresh ham divan & veg.		3.10
Beef macaroni & tomato w/garlic bread		2.85
Lite-line: Tuna cold plate		2.25
Hot deli: Steak & cheese sandwich		2.85

Tuesday, November 8 — Election Day

Soup: Sausage pizza	(cup)	.75
	(bowl)	.95
Pot roast dinner & veg.		3.10
Italian lasagna w/garlic bread		3.10
Batter-fried sandwich w/cheese sauce & veg.		2.85
Lite-line: Pot roast au jus & veg.		3.10
Hot deli: Turkey breast (bread or roll)		2.85
	(hero)	2.95

Wednesday, November 9

Soup: Vegetable beef	(cup)	.75
	(bowl)	.95
Individual beef pot pie		3.10
Turkey breast w/dressing & veg.		3.10
Lite-line: Turkey breast & veg.		3.10
Hot deli: Pastrami Reuben sandwich		2.95

Thursday, November 10

Soup: Cream of spinach	(cup)	.75
	(bowl)	.95
Mandarin chicken & veg.		3.10
Fried seafood platter, French fries, cole slaw		3.10
Lite-line: Broiled chicken & veg.		3.10
Hot deli: Open-face roast beef sandwich		2.95

Friday, November 11 — Veterans' Day

Snack Bar Service — 9 a.m. to 2 p.m.



Week fifteen of the Team Safety* program is history, and the news is again mixed.

For the good news, the Plant Engineering Division's Carpenter Shop Team, after suffering an injury in September, hung in there and became a winner on October 28. Congratulations!

For the bad news, the Plant Engineering Custodial B Team suffered an ankle injury on Halloween, which will put them back on the bench until January 23, 1989.

Additional good news from the commissioner's office is that all the Supply & Materiel Division teams are still undefeated since the beginning of the program. Good show! Additionally, in only four weeks, the program will have some double winners! Will the luncheon be steak and lobster?

Keep your mind on the game, and play it safe.

*Twenty-five teams are participating in the Lab's Team Safety Program. As a team reaches its time goal without any lost-time injuries, team members are being rewarded for their safe practices with a luncheon.

BROOKHAVEN BULLETIN

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

ANITA COHEN, Editor
 MARSHA BELFORD, Assistant Editor
 LIZ SEUBERT, Reporter

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 (516)282-2345

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.

3007. ADMINISTRATIVE/TECHNICAL POSITION - Requires AAS in a technical field or equivalent and demonstrated administrative abilities as well as extensive knowledge of BNL policies and procedures and excellent communication skills. Will act as liaison to project engineers in developing estimates and schedules for major construction projects. Additional responsibilities will include monitoring ILR activity and expediting delivery of materials. Knowledge of large R&D machine components and previous technical supervisory experience helpful. Familiarity with JCARS/IPAP systems and IBM PC desired. Accelerator Development Department.

3008. AUTO-TRUCK MECHANIC - Under minimum supervision, performs required repairs, maintenance, servicing, and incidental operation of gasoline and diesel engine-driven vehicles such as automobiles, trucks, trailers and material handling equipment. Responsibilities will include limited welding and brazing. Experience with computerized diagnostic equipment is a plus. Staff Services Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

3009. ENGINEERING POSITION - Requires a BS or higher in mechanical engineering with 10-15 years' experience in either accelerator engineering or high energy physics research. Will coordinate the design, development, specification and fabrication of high-field dc magnets. Must be skilled in the areas of magnet design, high-energy power electrical devices, fabrication, assembly and testing. Must have excellent communications skills. Will provide technical supervision of engineers, designers and technicians and will interact with other departments and vendors. Accelerator Development Department.

3010. ENGINEERING POSITION - Requires a BS or higher in mechanical engineering with minimum of 5 years' experience in accelerator engineering or related field. Will assist with the development, design and fabrication of high-field pulsed electromagnets. Must have working knowledge of standard engineering materials, high-power electrical devices, fabrication techniques and the capability of doing thermal and stress calculations. Excellent communications skills required. Accelerator Development Department.

3011. ENGINEERING POSITION - Requires a BS or higher in mechanical engineering with minimum of 5 years' experience in accelerator engineering or related field. Will assist with the development, design and fabrication of special ferrite-core magnets. Must have working knowledge of standard engineering materials, high-power electrical devices, fabrication techniques, with the capability of doing thermal and stress calculations. Experience in design, fabrication or operation of vacuum systems desirable. Excellent communications skills required. Accelerator Development Department.

3012. ENGINEERING POSITION - Requires a BS in electrical engineering or its equivalent, a minimum of five years' experience in industrial plant instrumentation controls, three years of which should be in a nuclear facility, and knowledge of process control instruments, pneumatic controls, and analog and digital control circuits. Responsibilities will include instrumentation design modifications, engineering assistance for maintenance and operations and technical writing. Must be able to obtain and maintain DOE "Q" clearance. Reactor Division.

3013. ENGINEERING POSITION - Requires an MS in environmental science or engineering and several years' experience. Must have knowledge of environmental principles in order to develop and coordinate studies on environmental contamination issues. Experience with developing, maintaining and utilizing environmental data bases for statistical analysis and reports is highly desirable. Safety and Environmental Protection Division.

3014. COMPUTER SECURITY POSITION - Requires a BS in computer science or equivalent experience, ability to develop software and several years' computer security experience. Knowledge of COBOL or HP TRANSACT languages is highly desirable. Will be responsible for establishing guidance, policies, procedures, training and oversight for the Laboratory's classified and unclassified computer security programs. Must be able to obtain and maintain a DOE "Q" clearance. Safeguards and Security Division.

3015. ENGINEERING POSITION - Requires a BS in health physics, nuclear engineering or physics. Advanced degree and ABHP certification preferred. Work involves research facility review for radiation protection concerns. Will assist in resolution of radiation safety questions and program development. Must be able to obtain and maintain a DOE

"Q" clearance. Knowledge of neutron dosimetry and computers is desired. Safety and Environmental Protection Division.

3016. TECHNICAL POSITION - Requires AAS in electronic technology or computer-related field. Will assemble and test PC hardware and install PC software. Previous experience in microprocessors, pc and scientific workstation maintenance necessary. Computing and Communications Division.

Motor Vehicles & Supplies

88 HYUNDAI EXCEL - 2-dr., h/b, 4-spd., only 8k mi., like new, mint, orig. owner, must sell, \$5,000. Ext. 7933 or 345-3557.

87 CAMARO IROC - 350 w/od, burgundy w/black velour int., p/w, p/s, p/b, remote mirrors, cruise, tilt, stereo, 7k mi. Andrea, Ext. 4424 or 286-9456.

86 HONDA SPREE - \$300. 732-1913.

86 CAMARO IROC - black, loaded, 13k mi., \$10,500. George, 724-2695.

84 VW SCIROCCO - 4-spd., a/c, am/fm cass., sunroof, design side molding, excel. cond., \$5,500. 929-4270 after 6 p.m.

84 MERCURY TOPAZ - 4-dr., a/c, p/s, am/fm stereo, good cond., must sell, \$2,800, neg. 924-1967.

84 PONTIAC TRANS AM - 305 H.O., 5-spd., T-tops, tinted glass, excel. cond. 928-9109, \$7,800.

83 CAMARO - 4-spd., T-tops, lo mi., garaged, mint, \$4,400 neg. Sue, Ext. 7235 or 395-3529, leave message.

82 CHRYSLER LeBARON - a/t, a/c, am/fm cass., new tires, 4-dr., all power, \$3,200. Ext. 2876 or 878-2702.

82 HONDA CIVIC - good cond., excel. transp., \$900. Tom, Ext. 4440.

82 BUICK CENTURY LIMITED - 4-dr., V-6, a/t, a/c, all power, new brakes, exhaust, complete front end, \$3250, firm. 269-9510.

82 DATSUN 310 - 4-dr., h/b, a/t, am/fm, good cond., 76k mi., \$1,800. Ext. 4004 or 286-0934.

81 PONTIAC LeMANS - 68k mi., new tires, rods, struts, rear brakes, a/c, am/fm, good cond. 874-3437.

81 PONTIAC T-1000 - 4-dr., a/t, p/b, a/c, new brakes, 88k mi., excel. cond., \$1,100. Bill, Ext. 4312 or 281-6498.

81 SUBARU - wagon, a/t, a/c, 76k mi., excel. cond. \$2,600. 473-2473.

80 CITATION - 4-dr., high mileage, runs well, \$350. 472-1302.

80 CHEVY MONZA - runs well, looks good, new exhaust, recent front brakes, door broken, \$200. Ext. 2175.

80 HONDA CIVIC - h/b, a/t, am/fm cass., runs smoothly, 62k mi., need some body work. 433-4615.

80 FORD MUSTANG - 4-cyl., 4-spd., new tranny, clutch, paint, struts, \$1,100, neg. Brenda, 366-1860.

80 MERCURY ZEPHYR - a/t, cass., good tires, \$650. Alison, Ext. 4410/4514 or Chris, Ext. 4149/5611.

80 BUICK SKYLARK - V-6, 76k mi., good cond., \$1,300, neg. Ext. 3851.

79 FORD PICK UP - std. V-8 w/cap, runs well, looks good, \$1500 firm. 744-2805.

79 HONDA CIVIC - 1200cc., eng. needs work, \$150. Don, Ext. 3511.

78 DATSUN 280Z - lt. blue, 5-spd., am/fm cass., a/c, sunroof, new eng., differential, 4 tires & wheels & more, mint cond., \$4,000. Ext. 4931.

78 OLDS OMEGA - V-6, a/t, p/s, p/b, \$550 neg. 732-1913.

78 PEUGEOT 504 - new am/fm radio cass., 2 new tires, asking \$450. 289-5770 after 6 p.m.

77 FORD GRANADA - 2-dr., 6-cyl., a/c, p/b, p/s, good tires, runs well, \$300. Ernie, Ext. 3357 or Tim, 281-7873.

77 HONDA CIVIC - orig. owner, many extra parts, neg. Joe, Ext. 7505 or 744-3729 after 6 p.m.

77 TOYOTA CELICA GT - new radiator, brakes, am/fm stereo cass., 90k mi., great transp., \$800. Rick, Ext. 3932 or 472-9789.

77 PLYMOUTH - runs, needs work, \$100. Dave, Ext. 3093 or 281-0062 eves/wknds.

77 PLYMOUTH VOLARE - 4-dr., 6-cyl., p/s, p/b, a/c, good mech. cond., \$350. Peter, Ext. 4982.

77 VW DASHER - good car for parts, \$100 or best offer. Augie, Ext. 3884.

76 DODGE CORNET WAGON - 3 new tires, needs water pump, muffler, \$200. Mark, Ext. 2957.

76 TRIUMPH TR7 - 4-spd., Porche red, front and rear spoiler, car cover, excel. cond., price neg. 727-2861 after 5 p.m.

74 FORD F-250 - new eng., trans, brakes, bed, cap, asking \$4,500. 474-5715.

73 DODGE DART - 6-cyl., 2-dr., a/t, p/s, runs, body good, \$400. 363-6753 after 6 p.m.

72 PINTO - or 1974 Maverick, \$575 ea. Ext. 4847 or 473-3987.

72 DODGE CORONET - V-8, 318 eng., 85k mi., a/c, p/s, p/b, new tires & brakes, \$600. Rich, 744-8910 after 5 p.m.

71 CAMARO - white w/black int., \$275. Mark, 727-3673.

71 PLYMOUTH FURY - 383 eng. & trans, tires good. John, 924-3492.

63 F-100 - red/white, 6 cyl., clean, make offer. 475-6797 after 5 p.m.

PLYMOUTH DUSTER - auto parts, newly rebuilt trans., \$125, slant-6 eng., \$250; utility trailer, \$550. 585-6518, M-F 8:30 a.m.-4:30 p.m.

UTILITY TRAILER - 16' long, medium-sized tires, some rust, \$100 neg. lites, etc. 744-9429.

SNOW TIRES - 2 on rims, F78-14, \$40 for both. 878-6637.

STEEL-BELTED RADIALS - 4, new P235 75/R15 on Ford rims, \$275 take all. Ext. 5462 or 288-2080 after 5 p.m.

NOSE COVER - for Z28, \$40. 689-7963.

TIRES - Sears 215B15 belted w/2 reg., 2 snow, good cond., also 5 all-weather radials, 215R15. Ken, 289-8212.

TIRE - new 721 Firestone, 235/74R15, Eldo rim, \$75 neg. Ernie 588-4987.

TUNE-UP CENTER - Snap-On, \$175; power brake bleeder, \$100; air powered hydraulic jack, 20-ton, \$250. 474-5715.

MASK - for 1986 Toyota MR2, naugahyde, \$45 or best offer. Donna, Ext. 4764 or 821-2875.

Boats & Marine Supplies

20'4" GRADY WHITE - 1977, 1983 Evinrude, trailer, 65-gal. fuel tank, roomy cuddy, \$9,500. 473-1428 after 5 p.m.

17' SPORTCRAFT BOWRIDER - 1981, deep V, 470 mercruiser I/O, full canvas, trailer, life jackets, anchor, good cond., \$5,000. 878-1580 after 6 p.m.

BOAT TRAILER - 16', medium-sized tires, some rust, \$100 neg. 744-9429.

EVINRUDE - 2 h.p., excel. cond. Elaine, Ext. 5329.

BROWNING BOWRIDER - 1976, w/1985 Cox trailer, very good cond., \$3,000. George, 744-9732.

SINGLE LEVER CONTROL & CABLES - for Morse twin engine, \$65 neg. Ernie, 588-4987.

Miscellaneous

DINING SET - dark pine, 60" round table w/2 leaves, 6 chairs, 2 china hutches, dry sink, mint cond., \$1,500. 744-1110.

DRESSER - w/mirror, good cond., hardwood, \$100. Scott, Ext. 3369 or 758-7114.

TWIN HEADBOARD - two, pine, \$20 ea.; twin mattress, \$15; maple tea wagon, \$150; drapes, \$45; 2 traverse rods, \$20 ea. 584-7970.

WALLPAPER - new, beige pattern, 5 rolls, \$15. Susan, Ext. 7716.

BATHROOM VANITIES - 4, like new, complete w/sinks and faucets, avg. \$85 ea. Tom, Ext. 4084 or 878-1060.

MATTRESS - queen-size, \$100. Klaus, Ext. 5089.

ELECTRIC STOVE - GE Americana, gold, top and bottom ovens, excel. cond., super clean, \$250. 928-7391.

OAK CHAIRS - 5, painted, \$50; 1940's wood china closet, \$50; 10-spd. new men's bike, \$60. 878-6637.

WICKER HEADBOARD - and bed frame for single bed, \$30. 286-0517.

LAWN MOWER - Sears, 20" cut, 3.5-h.p., self-drive, used for 3 seasons, \$100. Ext. 5403 or 821-3373.

PIZZA OVEN - commercial, electric, 24x18, excel. cond., asking \$50. Tony, 698-9274.

HOT AIR BURNER - w/Becket heads, 2-yr.-old, must sell, ready to go, \$375. 588-4703 after 5 p.m.

STORM DOOR - brown, 30x79 1/2, \$25. Bill, 472-4684 after 6 p.m.

LIVE CHRISTMAS TREE - 25', beautiful, \$100, must take out yourself. 281-5792.

FIRE SCREEN - w/glass door, will fit 28" to 38" width, 24" to 32 1/2" height, \$45; fire screen w/andirons and lg. basket, \$25. Bob, Ext. 4782.

COAL STOVE - Haas & Sohn, like new, used twice, brown ceramic exterior, \$425. Ed, Ext. 2697.

SKIS - Olin MKIII 180's, Look bindings, Nordica 8 1/2 boots, \$75. Augie, Ext. 3884.

TENTS - sleeps 4, \$35. ea. crib mattress, like new, \$10. 584-7970.

BICYCLE - boy's 20" BMX, brand-new, box never opened, \$50. Ext. 2710 or 331-7350.

ROWING MACHINE - D.P. Bodytoner 300, excel., new \$140, sell \$50. Pat, Ext. 4581 or 399-3984.

BICYCLE - Vista 18-spd. mountain bike, 1-yr.-old, \$135. Sue, Ext. 5156 or 289-6844.

SLIP MOLDS - two and three pieces, good cond., best offer. 475-6070.

BASEBALL CARDS - O. Booker, Ext. 3082 or 727-5912.

CLARINET - 2-yr.-old, good cond., \$110. 281-6630.

TV/STEREO CABINET - 52" w x 47" h, oak veneer, glass doors, solid, excel. cond., \$40. Brian, Ext. 5265 or 234-9487.

SHARP COPIER - desk-top, 2-yr.-old, orig \$1,300, will sell for \$600. 226-1828 after 5 p.m.

MAGNETIC LOCATOR - Schonstedt model GA-52B, new, in plastic case, cost \$645, sell for \$400. Tallon, Ext. 4847 or 473-3987.

METERS - HP400L Acutum; HP415P SWR; Shall-cross milliohm meter 670A w/documentation, \$20 ea. Rich, Ext. 4172.

COMMODORE 64 COMPUTER - 1541 disk drive, color monitor, \$350. Northam, Ext. 2808.

STEREO CABINET - for components, \$40; couch, \$10. Ext. 5400 or 878-6098.

CABOOSE - Pennys-N5, lewung-Wuonset Pt., R.I., steel, new paint, Amtrac compatible, \$6,500. Fred, Ext. 4407/4435 or 499-1214 after 6 p.m.

TICKETS - Doo-Wopp Concert, Nov. 19th, 7:30 & 10:30 p.m., Delvikings, Chimes, Clefftons, Wrens, & Bluestars, \$17.50 ea. D. Vail, Ext. 2067 or 2021.

PERSIAN LAMB COAT - full-length, silver grey, modern cut, size 12-14, good cond., \$650. White fur & leather jacket, \$250. Ext. 3701.

WINTER JACKETS - boy's, sizes 8, 12, 16, \$5 ea.; Black & Decker car vac., never used. \$15. S. Spark, Ext. 4111.

SWEATERS & SKIRT SETS - quality women's apparel at wholesale prices. 821-1783.

Free

CAR SEATS - two, Ext. 4531.

Yard Sale

SHIRLEY - benefit the Boy Scouts, Nov. 11, 12, 14, 410 River Rd. by Southaven Park. Ext. 4243.

Lost & Found

LOST - women's trifocal glasses, left in Clinic area. Ext. 3670.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed, sex or national origin of the applicant.

For Rent

BELLPORT VILLAGE SOUTH - furnished, 3 bdrm., 2 bath, no pets, non-smoker, Nov. 1 to June 30, \$800/mo. 286-0466 or 286-9389.

JAMESPORT - 1 bdrm. cottage, l/r, eik, porch, bath, part furn., near beach, 25 min. to Lab, suitable for couple, no pets, \$475/mo. + util. Walt, Ext. 2907 or 698-0576.

MASTIC BEACH - 3 rm. apt. w/bath, new kitchen, priv. ent., single or couple, \$750. all incl. Ext. 2951 or 399-3415.

MATTITUCK - new contemp. on water, 2 1/2 acres, furnished, 2 bdrm., loft, den, 2-car gar. Ron, Ext. 4702 or 289-1003.

MOUNT SINAI - 1 bdrm. apt., water view w/private deck, avail. immediately, \$825/mo. incl. util. 473-1761.

MOUNT SINAI - fully furn. 3 bdrm. house, many extras, avail. for 6 months, Jan.-June, 1989, terms neg. 473-1761.

RIDGE - furn. studio apt., 5 min. from Lab, \$400/mo. incl. util. 744-8632 after 6 p.m.

RIDGE - 5 bdrms., 3 baths, l/r, d/r, den, playroom, 1-car gar., poss. M/D, \$1,250; 3 bdrms., 2 baths, l/r, d/r, den, 1-car garage, \$900, both available Nov. 1, no pets, 5 min from Lab. Ext. 5076 or 744-4615.

RIVERHEAD - studio apt w/kitchenette & priv. ent., very clean, \$550 per month incl. util., one month rent/sec., avail. after 11/15/88. 727-4388.

ROCKY POINT - one bdrm. apt., \$450 plus util. Ext. 7722.

YAPHANK - Whispering Pines condo, 2 bdrm., 1 1/2 bath, garage, basement, 5 appliances, tennis, pool, \$825 + utilities. 661-7054 eves.

HILTON HEAD, SC - 2 bdrm. condo, sleeps 6, tennis, golf, beach, pool, Oct. & Nov. \$350/wk. 585-9149.

For Sale

BAYSIDE - 3-bdrm. duplex condo, w/w carpeting, low carrying cost, swimming pool, parking, tax exempt, must see. 718-939-9804.

PATCHOGUE - cottage by bay, 2 bdrms., 1 bath, oak floors, new kitchen, woodburning stove, porch w/bayview, completely redone, \$115,000. 475-6070 after 8 p.m.

RIDGE - new high ranch, 5 bdrms., 3 baths, l/r, d/r, den, play room, 1-car gar., poss. m/d, 5 min. from Lab. Ext. 4076 or 744-4615.

RIDGE - 2 bdrm. townhouse, central a/c, appl., 5 min. from Lab, avail. 1/1/89, \$97,000. Ext. 4676.

ROCKY POINT - 4-bdrm. tri-level, 2 bath, eik, l/r, f/r, TV/sun rm., utility rm., attic, garage, patio, shed, outdoor shower, carpeted, full appl., large closets, mint cond., \$165,000. 821-0691.

SHOREHAM - 3-bdrm. ranch, carpeted, eik, w/w, wood/coal stove, pool, priv. fenced backyard, 2 1/2-car gar., low taxes, SWR schools, clean, \$135,000. 744-9677.

ADIRONDACKS - 5 acres, 290' waterfront property, swimming, boating, fishing, terms avail. 288-5576.

PALM COAST, FL - 1/4 acre lot, 80'x125', 5 mi. to Atlantic Ocean, 24 mi. n. of Daytona Beach, water drainage & sewage, utilities in, \$1,995 & assume loan. Thomas Nolan, Ext. 5265.

ROCKLEDGE, FL - 2-bdrm. house, 2 baths, 2-car garage, fam. rm., porch, w/w carpet, shades, some drapes, appliances, \$64,500. 407-631-2840.