

Beam-Sensing Success at BNL

One of the goals of the nation's Strategic Defense Initiative (SDI) is to create a neutralized particle beam for use in space. While creating that beam is one scientific challenge, sensing the direction in which the neutral beam points without interfering with the beam itself is another research problem.

On April 13, BNL researchers and their collaborator from Los Alamos National Laboratory (LANL) were the first to observe an unambiguous signal showing the position of a neutralized particle beam — by using a non-interfering method called laser resonance fluorescence (LRF).

BNL's success came during experiments at the Lab's Neutral Beam Test Facility (NBTF) in the Department of Nuclear Energy (DNE). It was the fourth attempt in the world to observe LRF since the method was proposed 15 years ago.

"Although the physics of LRF is well understood, there was little experimental data until now," explains Ray McKenzie-Wilson, NBTF Project Manager. "Before our success, attempts to observe resonance signals had been frustrated by a signal-to-noise problem. It took about two years to overcome this problem by developing noise-blind photon detectors, and our success made our effort all worthwhile."

The BNL-LANL experimental team was led by Udo von Wimmersperg, DNE, and consisted of Carl Chen, David Harder, Robert Lambiase, Eng-Kie Souw, Nikolaos Tsoupas, James Veligdan, David Weller and Martin Zucker of BNL's DNE, and Robert Quick of LANL. The experimenters also credit the efforts of the Radiation Effects Facility-NBTF engineering group and its facility operation group.

Laser Resonance Fluorescence

For LRF, a laser is tuned to the

exact frequency that excites the electrons in neutral hydrogen atoms within the particle beam to a higher energy state — that is, the frequency of the laser light matches the absorption frequency of the electrons going from the 2s state to 3p excited states. Since the laser's energy at the resonance frequency is absorbed by the electrons, they are excited to higher energy levels.

As the electrons return to their ground state, the atoms fluoresce — that is, they emit the absorbed resonance energy as radiation having a characteristic frequency. The amplitude of the fluorescence depends upon the angle at which the laser beam intersected the particle beam — and it is this amplitude that was detected

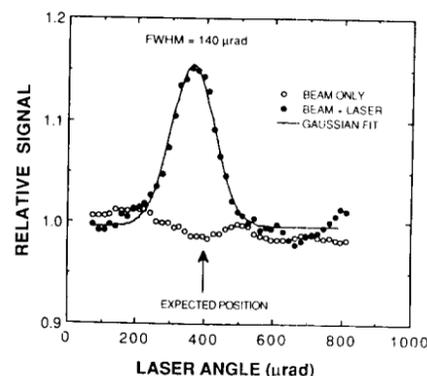
as the laser-induced resonance signal at the NBTF.

Neutral Beam Test Facility

Completed in 1988, the NBTF uses excess negative hydrogen ions coming from the 200-million-electron-volt (MeV) linear accelerator for BNL's Alternating Gradient Synchrotron.

After passing through a thin carbon foil, about 60 percent of the beam is stripped of one electron per ion. So the resulting 200-MeV, low-divergence beam of hydrogen atoms is neutral, having no charge. A neutralized particle beam is essential for space use because it would not be bent by the earth's magnetic field, as would a charged-particle beam.

The laser used for the LRF exper-



Laser resonance fluorescence signal

iments at the NBTF has an active medium made of neodymium:yttrium-aluminum-garnet (Nd:YAG). When stimulated to emit radiation, the Nd:YAG laser is tuned to a wavelength of 1,080 billionths of a meter. The frequency is then doubled in a crystal to give a wavelength of 540 nanometers — the natural frequency that causes electrons in the neutral particle beam to become excited from their 2s state to the next-highest energy level.

As the electrons return to the ground state, the atoms fluoresce — and the amplitude of the radiation emitted is significant enough to be detected above the background noise produced by the carbon foil used as the beam neutralizer.

Parallel Tasks Ahead

"Now that we have demonstrated the LRF beam-sensing concept, we ultimately want to turn it into a compact beam-sensing instrument," explains McKenzie-Wilson.

"But first," he adds, "we have two parallel tasks ahead — continuing our development of noise-blind photon detectors, and undertaking an LRF experiment using a lower power, three-watt, continuous-wave, ring-dye laser having higher resolution. With both of these improvements, the resolution of the instrument will exceed SDI requirements, thus making a major contribution to the SDI program." — Marsha Belford



Within the experimental control room of the Neutral Beam Test Facility are: (seated, from left) Robert Lambiase, Martin Zucker, James Veligdan, Peter Vanier; (standing, from left) David Harder, Ray McKenzie-Wilson, Udo von Wimmersperg, Eng-Kie Souw, Nikolaos Tsoupas, Carl Chen, Robert Quick, Robert Doty, and Ronald Dobert. Missing is David Weller.

Roger Stoutenburg

20th Pegram Lecture Series

Roald Hoffmann Looks at Things the Same and Not the Same

When Nobel laureate Roald Hoffmann was a BNL summer student in 1957, the George B. Pegram Lecture Series was two years away from its initiation. Next week, BNL's newly arrived 1990 summer students will be invited to join the rest of the Laboratory community and the general public, when Hoffmann returns to BNL as the 20th Pegram Lecturer.

Now at Cornell University, Hoff-

mann is not only famous for his achievements as a theoretical chemist, but he is also an accomplished teacher and a published poet. These talents will all be apparent when he delivers the next Pegram Lecture Series in Berkner Hall, beginning at 8 p.m., on three consecutive evenings, June 11, 12 and 13.

"The Same and Not the Same" is the title Hoffmann has chosen for his lectures, which will explore the essential tensions of chemistry.

As Hoffmann explains, "In chemistry, there is a dual surprise awaiting the careful observer of the molecular scene: It's a rich, agitated world down there, both in its innards and in the emotions of the supposedly dispassionate but impassioned practitioners of molecular arts." The lectures exploring this will include:

- **The First Question, Monday, June 11**

Whether it be asked of a moon rock, the extract of 1,000 cockroach glands or a narcotic off the street, Hoffmann believes that the first question is "What are you?" or "Are you different?" As he explains, "The tension here is that of recognition . . . of the same and not the same." He will probe the notion of molecular identity, discuss the difference between natural and unnatural, and analyze why, in spite of the futility of any

such separation, we still prefer the natural.

- **The Driven Natives, Tuesday, June 12**

The psychological dimension of research in chemistry is the subject of this lecture, in which Hoffmann will describe chemists as "the driven natives . . . ingenious and ambitious, but they must pretend to be gentlemen civilly in search of the truth." He will show how much creative tension derives from a struggle to reconcile opposites and how the desire to inform contends with the necessity to convince in what goes on under the surface of the chemical article.

- **Meanwhile, Back in the Lab, Wednesday, June 13**

In his final lecture, Hoffmann will explore the complex, not always logical ways in which macroscopic clues of hidden microstructures are interpreted. This takes place back in the lab, where, he says, "the web of knowledge builds, never as directly as ideologies of scientific method would have it, but perhaps more richly, more consistent with our humanity."

Hoffmann will also explore the tension of equilibrium. Then, he says, "We will look at molecular aesthetics — how a molecule shaped like a cube

is beautiful . . . and so is a messy protein that looks like a clump of pasta congealed from primordial soup, once we recognize its critical biochemical role. Indeed structure and function — just being there and being transformed in the hands of humans both good and evil — is the ultimate duality of molecules."

Those attending these lectures may get a sneak preview of the type of material that Hoffmann will present in *The World of Chemistry*, a 26-segment television course produced for the Public Broadcasting System, which will be aired later this year.

When he's not teaching on TV, Hoffmann is teaching in the Department of Chemistry at Cornell University, where he has been the John A. Newman Professor of Physical Science since 1974. Hoffmann also teaches by writing popular articles on science, including a column for *American Scientist*. In addition, he has another career as a poet, with two collections to his credit — *The Metamict State*, 1987, and *Gaps and Verges*, 1990.

As a researcher, Hoffmann practices "applied theoretical chemistry." This is his name for the particular blend of computations stimulated by experiment and construction of generalized models, or frameworks

(continued on page 2)



Roald Hoffmann

Fair Exchange

Many use JCARS — but few appreciate or understand its subtleties. One of those who do is Juanita Heyliger-Turner.

Heyliger-Turner gained her insights as a participant in a new Administrative Systems Exchange Program, designed and developed by Stephanie LaMontagne of the Accelerator Development Department (ADD) and Edward Gallagher, Management Information Systems Division (MIS). In the program, selected Lab personnel who use MIS computer systems are eligible to trade posts for a given amount of time with MIS personnel. Both staff members gain an in-depth understanding of the techniques and requirements of the other department or division — a result which is interesting, useful, and highly recommended by the first two participants in the pilot program.

Along with Heyliger-Turner, then of the Administrative Management Division for AGS and ADD, the other participant was Donna LeDoux of MIS. LeDoux's work as a programmer at MIS would benefit from an inside knowledge of the needs of budget and expense reporting on the Booster construction project, while Heyliger-Turner's job as an assistant systems specialist at the AGS and ADD required working with JCARS — the Job Cost Accounting and Reporting System used at MIS.



The first participants in the Administrative Systems Exchange Program, Juanita Heyliger-Turner (seated) and Donna LeDoux (far right), are together here with Edward Gallagher and Stephanie LaMontagne, who designed and developed the program.

As was the program's intent, the tasks assigned to the participants were chosen to provide them and their organizations with the maximum benefit obtainable given the time they had available — about seven weeks in this case.

Said Heyliger-Turner, "It was a very productive and intense learning experience that made it much quicker and easier for me to develop systems skills. Not only was I able to gain a

better understanding of the MIS data base, but I also worked with Speedware, a fourth generation programming language."

LeDoux was equally enthusiastic about the value of the program. "My main task was to learn the departments' accounting functions and procedures. But I also became quite efficient in several PC software applications."

Both LeDoux and Heyliger-Turner

enjoyed meeting people in the "other" workplace, finding everyone friendly, cooperative and eager to share their expertise. They also feel that the program, by broadening their skills as well as their general view of the Lab, has made them more effective in their normal work.

Said LaMontagne, "My first year at the Lab was in MIS, and I found that the personal contacts I had there, and the knowledge I had of systems and procedures were extremely valuable when I moved to the AGS and ADD. Ed Gallagher agreed, and so we worked on the idea of an exchange program. The first exchange was last year, and it proved to be all we'd hoped."

While budgetary constraints and some reductions in personnel have made it difficult to arrange further exchanges, LaMontagne and Gallagher hope to recruit more participants this spring.

Concluded Gallagher, "The knowledge gained by individuals within the exchange program will benefit the successful development of future administrative applications. It's a good opportunity — we hope more Lab staff will be able to take advantage of it."

For more information on the exchange program, contact Gallagher, Ext. 7786. — Liz Seubert

Note to Employees:

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

Spring Into Summer by Giving Blood

Participating in the semiannual BNL Blood Drive on Tuesday through Thursday, June 19, 20 and 21, is a good way to celebrate the summer solstice. This is one of the best ways to spend one of the three longest days of the year — helping to save lives through giving blood.

Blood donation is a simple, five-step process that begins with a pledge card:

Step 1 — Sign-up and register: Two pledge cards have been sent to each employee so that friends and relatives also can roll up their sleeves to give blood. Those between 17 and 75 years old — who weigh at least 110 pounds, do not have a medical condition preventing them from giving blood, and have not have donated blood within the last 56 days — can give blood now.

Sign up by returning your completed pledge card — today if possible. If you have misplaced yours or need more information, call Susan Foster, Blood Drive Chair, Ext. 2888, or contact your department or division Blood Program Captain.

When you come to the gym on June 19, 20 or 21, you will be registered by employees-volunteers, who will also ask you to complete a form asking non-medical information.



Step 3 — Relax: (above) Holding your paperwork and the sterile blood-donating kit issued to you, you and your colleagues can sit and chat while waiting to donate — knowing that you are about to do some good for those in need of blood.



Step 4 — Donate: (above and right) Lie back and relax — as if you were on a lounge chair around the pool with your face to the summer sun.

Step 5 — Canteen: (left) Afterwards, have a seat for 15 minutes to adjust to having donated blood. Meanwhile, enjoy the fresh juice, coffee, tea, munchkins, and cookies — including Lorna Doones by popular demand — provided by the Laboratory.



Step 2 — Medical: (above) As a prospective blood donor, you'll discuss your medical history and present health with a nurse from Long Island Blood Services. Blood will be drawn from your finger to tell whether or not you are fit to give blood.

In addition, your pulse and blood pressure will be taken — something you should know about yourself. Also for your personal health benefit, your total serum cholesterol will be analyzed from the blood that you donate, and the results will be mailed to you about a month later, as part of a pilot program.



Pegram Lecture (cont'd)

for understanding, that is his contribution to chemistry.

The holder of more than a dozen honorary degrees, Hoffmann shared the 1981 Nobel Prize in Chemistry with Kenichi Fukui. Just last spring, he was honored by his peers by winning the American Chemical Society's (ACS) highest award, the Priestley Medal.

Despite his achievements in chemistry, Hoffmann came late to his subject. "I didn't decide to become a chemist until almost halfway through college," he said. He credited his introduction to chemistry to biographies of Marie Curie and George Washington Carver that he read at age 10 or 11.

"Later," he said, "what also turned me on to chemistry was research during the summers. One summer I had a research job at the National Bureau of Standards. Another summer I worked in the exciting environment of Brookhaven National Laboratory."

As a Columbia University undergraduate, Hoffmann was a 1957 BNL summer student in the Chemistry Department, working with James Cumming, now a senior chemist. From that summer came one of the two experimental papers gracing his publication list of more than 300 articles, a paper written jointly with Cumming and Gerhart Friedlander.

Hoffmann began graduate study at Harvard University in 1958, obtaining an M.A. in physics in 1960 and a Ph.D. in chemical physics in 1962. Elected a junior fellow in Harvard's Society of Fellows in 1962, he remained in that position until leaving for Cornell in 1965.

Now in its 31st year, the Pegram Lecture Series is named in honor of George Braxton Pegram. As Dean of the Graduate School at Columbia University in March 1946, Pegram headed the Initiatory Advisory Group (IUG), which proposed that a regional center for research in the nuclear sciences be established in the New York area. Thus, he played a key role in the founding of BNL and became one of the incorporating trustees of Associated Universities, Inc., remaining an active trustee for ten years.

1990 Bowling Champs



The High Rollers rolled their way to the highest point in the Pink League: (clockwise from bottom left) Fern Simes, Pam Meehan, Tracy Ryan and Debbie Keating.

Photos on these pages by Roger Stoutenburgh.



What happens when a group of left-handed men form a bowling team? They call themselves the Portsiders and win the Red/Green League championship. With over 200 years of BNL bowling experience among them, they are: (standing, from left) Michael Guacci, Elbert Carter, Bill Kristiansen, Nick Parrinello; (seated, from left) Richard Larsen, Harold Marshall and Hank Arnesen.



The Diamonds had a sparkling victory in the Purple League: (from left) Nancy and Ted Ericksen, and Pat Manzella. Not present is Vito Manzella.



The Good Times had a high time, winning in the White League. Shown here are Lynne Warkentien and Ken Riker; not present are Andy Warkentien and Gerry Riker.

Mountain Club

The Mountain Club will meet on Tuesday, June 12, at 5:15 p.m., at the Brookhaven Center, to discuss upcoming events. The meeting is open to all interested parties, and all members are encouraged to attend. Call Rich Casella, Ext. 7975, for more information.

Astronomical Society

The Astronomical Society will hold a Deep-Space Astrophotography Seminar, on Wednesday, June 13, at 7:30 p.m., in Berkner Hall. To attend, call Keith Power, Ext. 7772, for room number and other information.

Software Demo

On Tuesday, June 12, in Berkner Hall, Room D, Computervision will demonstrate their mechanical CAE/CAD/CAM software on SUN SPARCstations, from 10 a.m. to 12:30 p.m., and electronic/PC board applications from 12:30 to 2:30 p.m. Each demonstration will begin with a brief presentation describing related applications. Anyone with comments or questions should call Pam Mansfield, Ext. 7286.

Tennis Anyone?

The annual BNL tennis tournament — including mens' and womens' singles and doubles, and mixed doubles — will begin on Saturday, July 21. Sign up begins today, June 15, at the BERA Sales Office, Berkner Hall. The last day to sign up is Tuesday, July 10. By Friday, July 13, the draw will be posed at the Sales Office and by the courts.

The tournament cost is \$12 per person per event. Rules for the tournament will be available at the Sales Office. Call Ken Perkins, Ext. 2147, with any questions.

Arrivals & Departures

Arrivals

Ronald P. Mileski Central Shops
 Roger L. Thompson S&EP
 Robert C. VonDerLinn S&EP
 Nancye A. Wright Fiscal

Departures

This list includes all employees who have terminated from the Lab, including retirees:
 None

Coming Up

Scientist John Warren, Instrumentation Division, will present the next Brookhaven Lecture on Wednesday, June 20, at 4 p.m. in Berkner Hall. His topic will be "Micromechanics: Great Expectations, Scientific Realities."

BERA Reminders

Children's Summer Program

Applications for the swimming classes offered through BERA's summer recreation program for children of Lab employees are now available at the BERA Sales Office or the swimming pool during scheduled hours. They are due in the Recreation Office, Bldg. 185, by Friday, June 22. The classes run July 2-August 24. For more information, call Kay Dellimore, Ext. 2873.

Atlantic City Trip

Tickets are still available at the BERA Sales Office for BERA's one-day trip to Trump Castle on the marina in Atlantic City on Saturday, July 28. For more information, call Louisa Barone, Ext. 3347; Rosalie Piccione, Ext. 3160; or Kay Dellimore, Ext. 2873.

PSI to Install New Officers

Professional Secretaries International, Upton Chapter, will install its new officers on Thursday, June 14. A celebration dinner will take place at 5:30 p.m. at Bobby Rubino's Restaurant, Patchogue. The cost of \$27 includes tax and gratuities. Everyone is invited. For more information, call Sharon Jones, Ext. 2493.

Congratulations to the new officers for 1990-91: President— Nancy Griffin; Vice President—Sharon Jones; Recording Secretary—Maria DeNatale; Corresponding Secretary—Eleanor Mitchell; and Treasurer—Harriet Tobin.

In Memoriam

It has been learned that Charles LoRe who retired as a master welder in the Central Shops Division in 1976, died on May 18, at the age of 75 after a long illness.

LoRe started at BNL in 1962 and spent all of his 14 years at the Lab in Central Shops. He was a resident of Middle Island and is survived by his wife Mary, son Charles LoRe and daughter Susan DiNapoli.

On the Menu

At the Cafeteria
 Luncheon served 11:15 a.m. to 1:30 p.m., grill open to 3:45 p.m., Cafeteria closes 4 p.m.

Monday, June 11
 Soup: Cream of celery .75/.95
 Entree: Swiss steak w/1 veg. 3.10
 Entree: Chicken chasseur w/1 veg. 3.10
 Fitness: Pasta w/red sauce w/1 veg. 3.10
 Carvery: Pastrami sandwich 2.85
 Grill: Reuben 2.95
 SPICE: Caesar salad

Tuesday, June 12
 Soup: Tomato rice .75/.95
 Entree: Chef's special 3.10
 Entree: Sautéed liver & onions w/1 veg. 3.10
 Fitness: Sweet & sour pork w/1 veg. 3.10
 Carvery: Roast beef sandwich 2.85
 Grill: Beef & cheddar hero 2.95
 SPICE: Asparagus festival

Wednesday, June 13
 Soup: Split pea .75/.95
 Entree: Minute sirloin steak w/1 veg. 3.10
 Entree: Shish kebob 3.10
 Fitness: Fish Creole w/1 veg. 3.10
 Carvery: Black Forest ham 2.85
 Grill: California burger w/French fries 2.95
 SPICE: Hot dog and topping bar

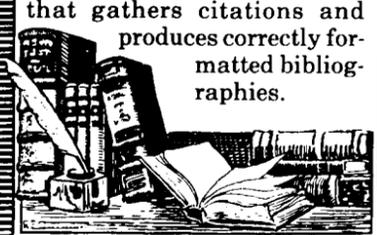
Thursday, May 3
 Soup: Cream of mushroom .75/.95
 Entree: Roast sirloin beef w/1 veg. 3.10
 Entree: Fish of the day 3.10
 Fitness: Chicken curry w/1 veg. 3.10
 Carvery: Hot corned beef sandwich 2.85
 Grill: Two cheeseburgers w/French fries 2.95
 SPICE: Flag Day

Friday, May 4
 Soup: New England clam chowder .75/.95
 Entree: Pepper steak w/1 veg. 3.10
 Entree: Chicken pie w/1 veg. 3.10
 Fitness: Fish w/herbs & 1 veg. 3.10
 Carvery: Hot turkey sandwich 2.85
 Grill: Fried flounder platter 2.95
 SPICE: Biscuit breakfast

Book Fair Plus — the Technical Information Division's second annual book fair plus continuous demonstrations of the Technical Library's new computerized capabilities — will be held on Tuesday, June 19. Bookworms and on-line information buffs are invited to browse in Berkner Hall that day from 10 a.m. to 3 p.m.

Eleven scientific, professional and technical publishers will display their latest books of interest to BNL readers and researchers, whose book preferences will be taken into account for the Technical Library's purchases.

In addition, the Technical Library staff will demonstrate the use of INFORM, their computerized catalog of BNL's books and journals; data bases on CD-ROM, including SCITECH Reference Plus; on-line searches of such data bases as STN International and LEXIS/NEXIS; and Pro-Cite, software that gathers citations and produces correctly formatted bibliographies.



Book Fair Plus

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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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.

The vacancies listed below have been exempted by the Director's Office from the current freeze on open requisitions.

SCIENTIFIC RECRUITMENT - Candidates may apply directly to the department representative named or through the Office of Scientific Personnel, Ext. 7813.

POST DOCTORATE RESEARCH ASSOCIATE - Position available in the Radionuclide and Radiopharmaceutical Group to identify medically useful new radionuclides and perform nuclear and chemical research to produce and characterize these species. Contact: Leonard Mausner, Medical Department.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

4241. **TOOL AND INSTRUMENT MAKER, GROUP LEADER** - (Bldg. 462 - Hot Shop). Central Shops Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

4240. **CENTRAL SHOPS CLERK** - (part-time term) Under supervision, will perform various clerical duties including typing and word processing. Relevant background including experience with computers is required. Central Shops Division.

4242. **TECHNICAL POSITION** - Requires an AAS in surveying technology or equivalent, and extensive experience in first and second-order surveying and precision leveling. Experience with optical tooling highly desired. Knowledge of "wild soft," electronic data collection and downloading of data to pc, and previous T-3000 experience helpful. Responsibilities will include establishing control lines and locating experimental equipment at precise elevations. Land surveyor's license is desirable. Alternating Gradient Synchrotron Department.

4243. **REFERENCE LIBRARIAN** - Requires a bachelor's degree in physics or chemistry, an MLS degree, strong communications and interpersonal skills, expertise with collection development and substantial experience providing on-line searching of scientific data bases such as DIALOG, ORBIT and STN. Responsibilities will include handling complete range and complexity of reference requests and assisting scientists with end-user searching. Technical Information Division.

4244. **SECRETARIAL POSITION (temporary)** - Requires an AAS in secretarial science or equivalent relevant experience, and knowledge of PC-based word processing (WordPerfect preferred). Excellent secretarial, organizational and interpersonal skills are essential. Will be responsible for providing diverse secretarial support functions for the Employment Group. (Reposting of job number 4238) Personnel Division.

4245. **ENGINEERING POSITION** - Requires BS/MS in electrical engineering or health physics, substantial pertinent experience, and knowledge of ANSI standards. Responsibilities include managing the calibration and maintenance of radiological and non-radiological instruments, reviewing and evaluating new and existing monitoring systems, and serving as the QA officer for the Technical Support Section. Safety & Environmental Protection Division.

Motor Vehicles & Supplies

77 BUICK LESABRE - high mi., brown, 4-dr., runs well, \$599, first call takes it. Andrew, 744-6148, leave message.

77 VIKING POP-UP CAMPER - 21', sleeps 8, elec. refrig., twin gas tanks, stove, etc., \$800. Dan, Ext. 4987 or 698-7322.

77 PONTIAC LEMANS - blue, a/t, ac, reliable trans., \$795. 724-758.

76 FORD ECONOLINE VAN - raised roof, refrig., stove, bunk beds, sink, extras, old but runs well, make offer. Ext. 7699 or 821-1435.

74 GMC PICKUP - 3/4-ton, a/t, good tires & trans., needs engine work, \$200. Tony, 698-9274.

73 TRAVEL TRAILER - 21', sleeps 6, tandem axle, bunk beds, 6 cu. ft. refrig., \$2,750. Ron, Ext. 4428.

31 CHRYSLER - all original, 2 seater, rumble seat, must see. Ext. 3160 or 289-5704 after 5 p.m.

TIRES - 4, Yokohama, steel belted, tubeless, P-145-80R13, like new, \$30 for 2. Tom, Ext. 2957.

RIMS - 83 GT Mustang, 4-lug mag rims, \$50 for 4. John, Ext. 4424 or beeper 0135.

TIRES - 3, 165SR15 radials, \$10 ea.; 1, P185/80B13, \$10. Ext. 4597 or 924-8213 after 5 p.m.

DODGE SWINGER MOTOR HOME - self-contained, sleeps 6, 34,801 ori. mi., gen., ac, stereo, CB, radials, excel. cond., \$11,000. Larry, 473-1456.

TIRES - 6, P215/75R15, Good Year radials on Chevy rims, good cond., \$25 ea. Aron, Ext. 2434.

TRANSMISSION - 4-spd., manual, from full-size GM, w/shifter & linkages, \$55. Jim, Ext. 5400 or 878-6098.

89 TOYOTA COROLLA SF5 - ac, p/s, am/fm stereo, more, \$9,995 neg. 289-2159.

88 NISSAN SENTRA - 2-dr., 4-spd., am/fm cass., new tires, good cond., \$3,500. Ext. 5475 or 369-4099 after 6 p.m.

88 HONDA EXCEL GL - h/b, 3-dr., white, 4-spd., am/fm cass., excel. cond., \$3,500. Debbie, Ext. 2876.

87 FORD MUSTANG - 2-dr., a/t, am/fm cass., ac, p/l, 39k mi., \$5,500; '86 Toyota pickup, X-cab, 5-spd., 29k mi. Jackie, Ext. 2456 or 696-6316.

85 TOYOTA TERCEL - sedan, h/b, 2-dr., 5-spd., ac, 47k mi., excel. cond., \$2,800. 874-3927.

85 HONDA CRX - red, 5-spd., 78k mi., sporty 2 seater, runs well, cute, \$3,100. Jim, Ext. 5160.

84 RENAULT ENCORE - 2-dr., blue, 5-spd., am/fm cass., ac, new tires, good cond., \$1,000 neg. 286-0913 after 6 p.m.

84 VW RABBIT GTI - black, 5-spd., sporty, 2-dr., perfect in/out, new clutch, trans. & tires, \$3,500 firm. Andrew, 744-6148.

82 PLYMOUTH RELIANT WAGON - no rust, new tires, ac, a/t, p/s, p/b, cruise, runs well, \$1,200. 924-6129.

82 HONDA ACCORD - h/b, blue, am/fm, ac, 5-spd., 110k mi., 2nd trans., runs well, body excel. cond., \$1,500. Larry, Ext. 4295.

81 HONDA CX500 MOTORCYCLE - direct drive, 20k mi., 2 helmets, intercom, walkie talkie, good cond., \$850. Tom, Ext. 2214.

81 PLYMOUTH CHAMP - 66k mi., ac, am/fm, 4-spd., new exhaust, good tires, good cond., \$975. Kevin, Ext. 5504/7024 or 331-5636.

80 MERCEDES 240D - excel. cond., \$10,000. Ext. 2303 or 732-3902 after 6 p.m.

79 JEEP WAGONEER - 4-dr., 85k mi., a/t, ac, p/b, p/s, orig. owner, reliable, inspected, trailer hitch, extras, \$2,195. Ext. 2260 or 286-1214 after 5 p.m.

79 PONTIAC LEMANS - V-6, new trans., exhaust, starter, distributor, cables, good running cond., \$750 neg., Ext. 3583.

79 CHEVROLET MONTE CARLO - p/s, p/b, a/t, am/fm cass., very clean & reliable, smooth power, excel. cond., \$1,550 neg. Louis, 475-8242.

79 PONTIAC FIREBIRD - 8-cyl., a/t, ac, p/s, p/b, 105k mi., sunroof, am/fm, many new parts, \$800. Maryellen, Ext. 2979 or 874-3291 after 5:30 p.m.

78 AMC MATADOR - mechanic's special, engine pollutes, 103k mi., 6-pass., a/t, ac, make offer. Frances, Ext. 4382.

78 CHEVY CHEVETTE - white/gold, runs well. Joan, 286-0935.

78 CHEVY NOVA - 6-cyl., a/t, \$550 neg.; '75 Buick Skylark, 6-cyl., a/t, \$300 neg.; both run well. Mary, Ext. 2926 or 281-0268.

78 JEEP CHEROKEE - 4wd, needs work, \$800. Mike, 878-0487.

77 PINTO - new water pump, good tires, runs well, \$300. Bob, Ext. 2021 or 5462.

77 OLDSMOBILE CUTLASS SUPREME - 41k mi., 2-dr., white/tan, 8-cyl., a/t, p/s, p/b, radio, \$900. Allen, Ext. 4473 or 581-2961 after 6 p.m.

76 SUZUKI MOTORCYCLE 250 - twin engine, 2 stroke, low mi., runs well, \$250. Ext. 7699.

73 PLYMOUTH WAGON - 318, V-8, p/s, p/b, 110k mi., runs well, some rust. Joe, Ext. 4786 or 281-7683.

68 PONTIAC FIREBIRD - metallic jade green, steel tilt front nose, 400 CID, TH400, car show winner, \$7,500 neg. Scott, 289-6892.

65 DODGE DART - slant-6 motor, good for parts, best offer. Frank, Ext. 2314 or 567-5131.

TRAILER HITCH - Class 2 for mid-size GM cars 1978-1988, no drilling required. Ext. 2799.

FORD LTD II - 4-cyl., 4-dr., gray, ac, cruise, 80k mi. w/15k mi. on new engine, \$1,995. 234-0538.

TIRE - steel-belted rad., Goodrich, P175/80R13, on '82 Omni wheel, like new. \$30. Connie, Ext. 2594.

APACHE POP-UP CAMPER - AL, HT, sleeps 5, screens, good cond., \$500. John, Ext. 4631 or 924-3492.

TIRES - 4, P195-75R14, whitewall radials on Toyota rims, hardly used, \$125. Ext. 4692 or 878-2040 after 6 p.m.

ROLL BARS - black, fits most small trucks, 2 Dick Cepek lights w/locking bar, good cond., best offer. Ken, 744-8512.

TRANSMISSION - 4-spd., rear end for Dodge, Chrysler & more parts. Mark, 924-0960 after 5 P.m.

TIRES - 2, new doughnut, on rims for '88 Honda Accord, orig. \$85 ea., make offer. Ben, Ext. 4333.

TRAVEL TRAILER - 16', sleeps 6, stove, refrig., very clean, best offer. 422-2874.

TRAILER - small pop-up camper, sleeps 4, will trade for boat trailer for 14' boat. Mark, Ext. 4289.

Boats & Marine Supplies

28' CAPE DORY SAILBOAT - 1975, incl. cradle, Volvo diesel, fully equipped, great shape, \$23,500. Roger, Ext. 2382.

25' MORGAN SAILBOAT - 8 sails, new ob., cradle, \$5,750; 18' Sol-Cat catamaran, trailer, beach wheels; extras. Steve, Ext. 4008 or 821-0686.

23' O'DAY - cruising, racing, 6 sails, VHF, Loran depth/speed, Dodger, solo handling, extras, excel. cond., \$10,500. 286-1024.

22' RHODES - 1974, furling 150 Genoa, pop-top, 1986 Evinrude, 8 h.p., \$3,500 neg. Ext. 3969 or 878-6580.

21' BONANZA CRUISER - cuddly cabin, 1986 225-h.p. Evinrude, VHF, DF, full camper canvas, porta potty, excel. cond., \$5,400. Al, Ext. 2173.

19' MARQUIZ - 1974, V-hull, large deck, full canvas, Cox galv. trailer, 70-h.p. Johnson, \$1,650 or best offer. John, 331-3724.

19' BOWRIDER CRUISER - 1972, w/1976 115-h.p. Johnson, full canvas trailer w/elec. winch, \$3,000. Frank, Ext. 2314 or 567-5131.

18 1/2' CELEBRITY BOWRIDER - 165-h.p. Merc., i/o, full electronic inst., radio, DF, EZ load trailer. Ralph, 724-7530.

13 1/2' BOSTON WHALER - 1965, w/1984 35-h.p. Evinrude, needs TLC, \$1,295. 234-0538.

SUNFISH - 1974 hull, 1986 sail mast, booms, rudder, daggerboard, used 1 season, daggerboard dolly, \$850. 286-1097.

DEPTH FINDER - \$30. 732-2720.

CRADLE - steel, suitable for keeled sailboat, 20' to 25' long, adjustable, like new, \$800 neg. Bernie, Ext. 4842.

OUTBOARD MOTOR - 1984, 115-h.p. Johnson, VRO, ss prop., p/tilt & trim, controls, low hrs., excel. cond., asking \$2,200. John, 331-3724.

Tools, House & Garden

LAWN MOWERS - Yardmaster, \$75; Snapper, \$175, both 21" cut, 3 1/2 h.p., Briggs & Stratton, rear bagger. Dan, Ext. 4987 or 698-7322.

POOL FILTER - & pump for 3' above ground pool, \$10. Mark, Ext. 4289.

WIRE FENCE - 200' x 5', w/100' green vinyl. 924-0960.

TOPSOIL - fine screened, delivered. 696-6011, leave message.

POOL PUMP - & filter, 1/2-h.p., w/backwash, like new, \$100. 744-2060.

WORK BENCH - 8'1 x 30" w, 2" pipe legs, 2" solid top, \$100; Stanley miter box, #244, #2 frame, \$25. 475-0831.

GARAGE DOOR OPENER - Stanley, electric, good cond., 1/3 h.p. 325-0447.

GAS TANK - 2, new, 20-lb., propane, good for extras, \$13/ea., or \$25/both. Bob D., Ext. 2050.

Sports, Hobbies & Pets

DOLLHOUSE KIT - Beacon Hill, from Greenleaf, all pieces are punched out & labeled, w/book, \$150. 589-6803.

SWIM MASK - \$10; snorkel, \$5; water skis, \$20; man's bowling ball, \$20; soccer ball, \$3; woman's golf clubs, \$10/ea. Kathy, 744-2203.

MODEL AIRPLANE - Carl Goldberg Anniversary edition Piper Cub, partially assembled, \$15; Top Flite monokote iron, \$5. Ext. 2492.

TOURING KAYAK - fiberglass, 14' x 6", British import, model Petrel, yellow, good cond., new one sells for \$1,050, sell for \$650. Ernie, Ext. 3357.

CAMPING EQUIPMENT - backpack, external frame, \$30; sleeping pad, eggshell foam w/ground cover, \$12. Jack, Ext. 4447 or 744-3919 eves.

DRUM SET - 5-piece w/cymbals, \$500. Tim, Ext. 2214.

Audio, Video & Computer

WALKMAN - Sharp, am/fm, graphic equalizer, w/o headphone, 1 yr. old, used, excel. cond., \$25 neg. Manami, Ext. 3190.

COLOR TV - RCA, 23", excel. cond., moving, \$175. 924-0960 after 6 p.m.

VIDEO GAME - Atari 5200, w/6 cartridges, \$25. Ext. 2492.

GRAPHIC EQUALIZER - Coustic HER-7005, 10-band stereo, intermittent audio, \$10. Ext. 2492.

PLOTTER - HP, multicolor, brand-new, \$850. Ext. 7699.

CD SLAYER - Sharp, needs work, \$39. Andrew, 744-6148.

Miscellaneous

BABY ITEMS - Fisher Price bath tub, \$7; Evenflo electric feeding dish, \$8; rocking horse, 31" high, steel frame, \$20; everything for \$30. 589-6803.

WICKER SUITCASE - \$25; antique iron fire pumper w/horses, \$125; black iron cat, \$45; 36" wicker plant stand, \$35; more. Kathy, 744-2203.

NURSERY MONITOR - Fisher Price, \$10. Ext. 2492.

KIDS' BICYCLES - desks, chairs, lamps, living room set, BBQ set; violins, 3/4 sizes, \$50-\$70; classical guitar, \$60. Ext. 3702 or 751-1042 eves.

Free

KITTENS - 6 weeks old, 2 black, 2 black and white. Ext. 2484 or 689-9328 eves.

BOAT - 17' fiberglass, hull perfect, no motor, no trailer, you haul away. Tommy, 447-1460.

Yard & Garage Sales

BROOKHAVEN HAMLET - June 9, 10-4 p.m., something for everyone, 18 Highway Blvd.

MIDDLE ISLAND - Sat., June 9, 10-4 p.m., misc. items, Curran Rd. to Bailey Rd., signs at TSS.

MATTITUCK - June 9-10, 905 Captain Kidd Drive, near Brookwater on the Sound.

Car Pools

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

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 - 1-bdrm. apt., upstairs, kitchen-l/r combo, full bath, w/w carpeting, \$675/mo. all. + 1 mo. sec., single, nonsmoker, no pets. Jim, 758-0393 after 6 p.m.

CALVERTON - 2-bdrm. townhouse, 1 1/2 baths, w/w, appl., patio, deck, \$750. 878-0874 after 5 p.m.

CENTER MORICHES - 1 bdrm./1 bath in 2-bdrm./2 bath country club apt., to share w/professional male, 15 min. from Lab, \$400/mo., neg. 874-3437.

CORAM - Strathmore East, 4-bdrm. ranch, 2 baths, 5 appl., patio, fenced yard, 17 min. from Lab., \$925/mo. + util., Ext. 3791 or 928-7154 after 7 p.m.

HOLTSVILLE - 1-bdrm. apt., ground floor, kitchen, l/r, d/r, full bath, carpet, single or couple, priv. ent., no pets. cable, Fraser, Ext. 2043.

MASTIC BEACH - 2-bdrm. cottage, screened porch, fenced yard, nice neighborhood, \$700/mo. + util. 360-3803 eves.

NORTH SHIRLEY - small house close to Lab, fully furn., perfect for single or couple, reasonable. 399-3659 or 212-213-5993.

PORT JEFFERSON - bright, 1-bdrm. apt., large kit. w/deck, l/r, wood floors, gar., walk to Village, trains. Steve, Ext. 5567, or Vinnie, 473-7474.

RIDGE - furnished room, kitchen privileges, share bath, nonsmoker, \$80/wk, 1 mo. sec., avail. July 15. 929-4910 after 6 p.m.

SMITHTOWN/COMMACK - priv. studio, eik, full bath, a/c, cable, \$575/mo. incl. all, or \$400 or less w/some housecleaning. 543-0487.

STONY BROOK - 3-bdrm. Colonial, 2 1/2 baths, l/r, d/r, eik, near university & hospital, \$1,300/mo. 751-8351 eves.

WADING RIVER - 2 bdrm., full bath, fp, priv. ent., near beach, 10 min. to Lab, \$600/mo. John, Ext. 4028 or 751-2713.

EASTHAM, MA - on Cape Cod, 4-bdrm., completely furn., 2 baths, w/d, dw, deck, short walk to beaches, 2 weeks open July/Aug. 722-3865.

HILTON HEAD, SC - 2-bdrm. condo, sleeps 6, 2 baths, tennis/golf, pool, beach, July & Aug., \$425/wk. 689-5378.

For Sale

CENTERPORT - 200' waterfront on Northport Harbor, dock, 4-5 bdrm., 4 baths, 0.6 acre, \$625,000. Bob, Ext. 4044 or 261-3890.

EAST PATCHOGUE - 3 bdrm., 1 bath, l/r, eik, appl., full bsmt., ag pool, deck, excel. location, low taxes, \$122,000, neg. 654-5609.

EAST SETAUKET - 4-bdrm. Colonial, l/r, d/r, fam. rm. w/fp, eik, 1 1/2 baths, full bsmt., 2-car gar., ag pool, 0.42 acre, 3VSD. Ext. 2958 or 473-6429.

FLANDERS - 1-bdrm. cottage, vinyl siding, cedar bath, all appl., lp heat and cooking elect., full ac, maint. free, 1/2 acre, \$79,000. Robert, 924-6043.

MASTIC - 3-bdrm. house, 120'x200' priv. fenced lot, eik, 2-car gar., city water, low taxes, close to LIRR, 6 miles to Lab, ask., \$118,000. 281-2003.

MIDDLE ISLAND - Coventry Manor, 3-bdrm. townhouse, 2 baths, kit., l/r, d/r, laundry rm., cac, 5 appl., patio, pool, tennis, carpet, ask. \$102,000. Rosalie, Ext. 3160 or 289-5704 after 5 p.m.

MIDDLE ISLAND - Fairview, 1-2 bdrm. Condo, 1 1/2 bath, upper unit, a/c, blacony, pool, tennis, five min. to Lab, many extras, ask. \$107,000. 345-5365 eves.

MIDDLE ISLAND - Lake Pointe, 2 bdrm., lr-dr area, cac, gas heat, wood deck off master bdrm., all appl., pool, tennis and club house, maint. free, 85% tax deduct., ask, \$77,500 neg. Bob, 924-7316.

NORTH BAYSHORE - new high ranch, 6 bdrm., 2 baths, sep. entrances, 1/2 acre, city water/sewage, near major trans., must sell, finance \$167,000. Frank, Ext. 3499 or 345-5713.

PORT JEFFERSON VILLAGE - 6 bdrm., 3 full baths, l/r, d/r, fam. rm., ac, oil heat, 3 gar., heated playhouse on patio, #6 school dist., priv. beach, country club, ask, \$230,000. Tallon, 473-3987.

RIDGE - 2-bdrm. duplex, 1 1/2 baths, eik, cac, w/w, all appl., 5 min. to Lab, \$79,900. Erik, Ext. 2437 or 924-2898.

RIDGE - 3-bdrm. townhouse, 1 1/2 baths, cac, w/w, all appl., upstairs newly carpeted, encl. redwood patio, storage room, low monthly main., 5 min. to Lab, price reduced to \$93,000. Mary, 924-4328.

RIDGE - Scenic Hills, 4-bdrm. Colonial, e