PPPL
PRINCETON PLASMA PHYSICS LABORATORY
HOTLINE

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PPPL Physicists Named APS Fellows

Recognizing their achievements in plasma physics research, the American Physical Society (APS) has named six Laboratory physicists as Fellows.

The lifetime appointments, which are recommended by a Fellowship Committee of the Division of Plasma Physics, went to Stefano Bernabei, Russell Hulse, Ernesto Mazzucato, Allan Reiman, King-Lap Wong, and Stewart Jay Zweben. The six were elected Fellows at the November APS meeting.

Fellowship Certificates

Bernabei was cited in his Fellowship Certificate "For pioneering work on the application of lower hybrid power to tokamak discharges including the development of the original grill launcher, demonstration of lower hybrid current drive, lower hybrid plasma formation and current ramp up." Bernabei, who received a degree in physics from the University of Milan in Italy in 1969, has been at the Laboratory for 24 years.

Hulse, a recipient of the 1993 Nobel Prize in Physics, was honored by the APS "For fundamental contributions in two fields of physics: The discovery by radio astronomy of the first binary pulsar, and the description and computational modeling of processes involving high Z ions in tokamak plasma." Last year, Hulse shared the Nobel Prize with Princeton University Professor Joseph Taylor for discover-

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Chemical Tracking Software Developed by PPPL and Vertére

Peter Del Gandio was behind the wheel of his Plymouth Colt one spring day when an idea that would help the Laboratory became as clear as crystal.

Why not develop computer software that can track all the chemicals on site at PPPL? If people could easily find out where and how much of a chemical there is, they could complete inventories quickly, thought Del Gandio as he headed into work at PPPL.

"Then I wondered why not expand it to include waste tracking, too," he added.

Del Gandio, an engineer at the Lab, had been trying to work out how to make the inventory more accessible through a computer software package. The result, which is being developed jointly by PPPL and Vertére, a Rhode Island company, is computer software that streamlines the inventory and tracking of chemicals and the management of waste products.

The Chemical and Waste Management and Report Generating System for personal computers, which will soon be commercially available, allows users to manage chemicals and waste products from cradle to grave. In addition, the system gives users the capability to electronically generate documents

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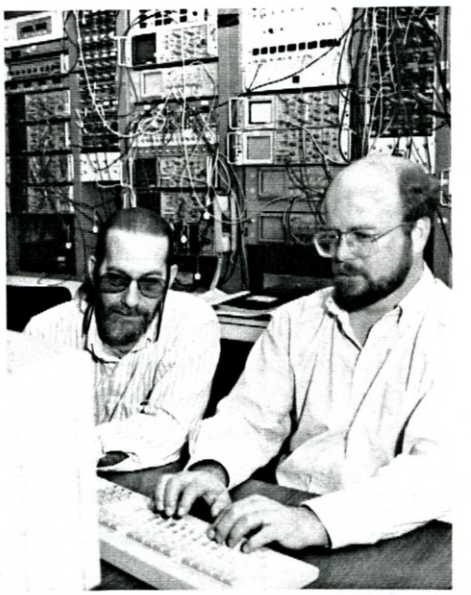

Peter Del Gandio (left), of ES&H/QA, and Bill Davis, of the Computer Systems Division, discuss the details of the chemical and waste inventory and tracking program they are developing. Del Gandio has also worked with Vertére, a Rhode Island company, to develop the program.

APS Fellows

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ing a binary pulsar and its use to verify Einstein's general theory of relativity. After earning a Ph.D. from the University of Massachusetts in 1975, he changed from the field of astrophysics to plasma physics, and came to PPPL in 1977.

Mazzucato was recognized "For wide-ranging contributions to experimental plasma physics and deep understanding of plasma microscopic processes, his contribution to formulation of transport models and the development of high magnetic field and micro-turbulence experiments." Mazzucato, who received a degree in physics from Padua University in Italy in 1960, has been at the Laboratory for a total of 24 years, including a two-year stint in the 1960's as a research associate.

Reiman, who has been at the Lab for 13 years, was cited "For theoretical and computational investigations of nonlinear three-dimensional magnetohydrodynamics in toroidal magnetic confinement devices and for his theoretical investigations of nonlinear waves." He received a Ph.D. in physics from Princeton University in 1977.

Wong, who came to PPPL in 1976, was honored "For pioneering experiments on excitation of toroidal Alfvén eigenmodes by energetic ions, and the first experimental demonstration of lower hybrid wave current generation in magnetized plasma." Wong received a Ph.D. in physics from the University of Wisconsin at Madison in 1975.

Zweben was recognized "For extensive innovative measurements on magnetic turbulence, plasma edge turbulence and for the design of unique diagnotics and measure-

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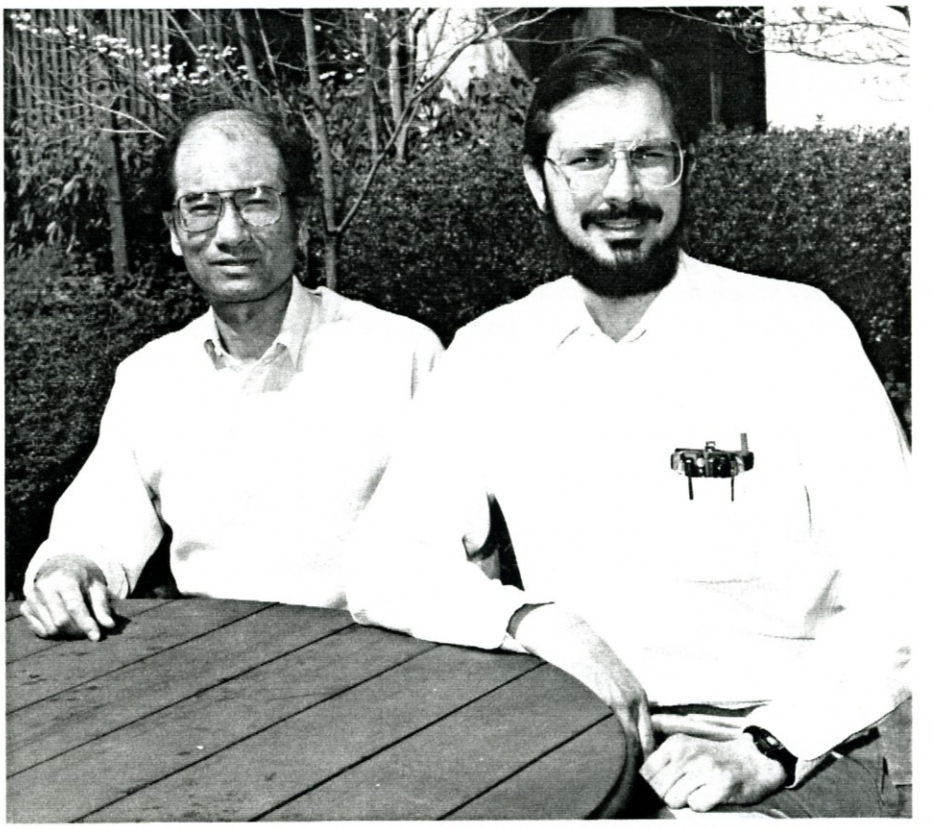
New APS Fellows, seated (l to r), are Ernesto Mazzucato and Stefano Bernabei and, standing (l to r), Allan Reiman and Stewart Zweben.



Newly elected APS fellows King-Lap Wong (left) and Russell Hulse.

APS Fellows

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ments of escaping fusion produced ions." Zweben, who received a Ph.D. in physics from Cornell University in 1977, came to PPPL 10 years ago.

Richard Hawryluk, Head of PPPL's TFTR Project, said Mazzucato, Wong, Zweben, and Hulse have made major contributions to the TFTR Program at the Lab and laid the foundation for the deuterium-tritium experiments.

"I am pleased that APS has recognized their hard work and contributions to our field," said Hawryluk.

Ned Sauthoff, Head of the Laboratory's Physics Department, expressed his congratulations to the new Fellows.

Regarding Physics Department members, Sauthoff said, "The recognition of Stefano Bernabei in the application of lower hybrid wave physics to tokamak plasmas and of Allan Reiman for nonlinear and 3-D magnetohydrodynamics work was well deserved."

Software

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required for regulatory compliance. The software is expected to save businesses money by decreasing the amount of time employees spend on auditing inventories, as well as on the completion of reports for regulatory compliance.

"With the new inventory system, chemicals are entered into the computer system when they arrive at a facility, and are removed when they leave or are used. This saves time and money in terms of manpower since employees no longer need to manually take inventory of the chemicals every year," explained Del Gandio, who was instrumental in the development of the software. "In addition, producing year-end reports on hazardous chemicals that are required by regulatory agencies should result in an about 50 percent reduction of labor hours." He said the State of New Jersey approved the software versions of the reports in February.

Two Programs

"For ease of testing and debugging, we have separated the system into two separate programs—the first will track chemical substances and the other will track and manage waste products," said Del Gandio.

He added that the waste management program has been implemented at the Lab and is managed by the Environmental Restoration and Waste Management Division. The chemical tracking program will be implemented by this fall and then both programs will be merged into one system.

Partnership

The partnership between PPPL and Vertére, called a Cooperative Research and Development Agreement (CRADA), is a method for finding industrial applications for the Laboratory's technologies. CRADAs are being encouraged by the U.S. Department of Energy (DOE). The DOE's Office of Environmental Restoration and Waste Management funded this software CRADA, which was approved in March.

PPPL Director Dr. Ronald Davidson said, "This CRADA between Vertére and PPPL is an outstanding example of cooperative technology development and transfer with a large potential payoff."

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Helen Anane of ER/WM uses a laser wand to enter bar codes from the hazardous waste identification tags.

Software

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Added PPPL's Head of Technology Transfer Lewis Meixler, "This is PPPL's third CRADA with industry, which grew out of our safety needs. Peter Del Gandio realized that if the software he developed with the computer group met PPPL's needs, it could also meet the needs of other businesses facing chemical reporting requirements."

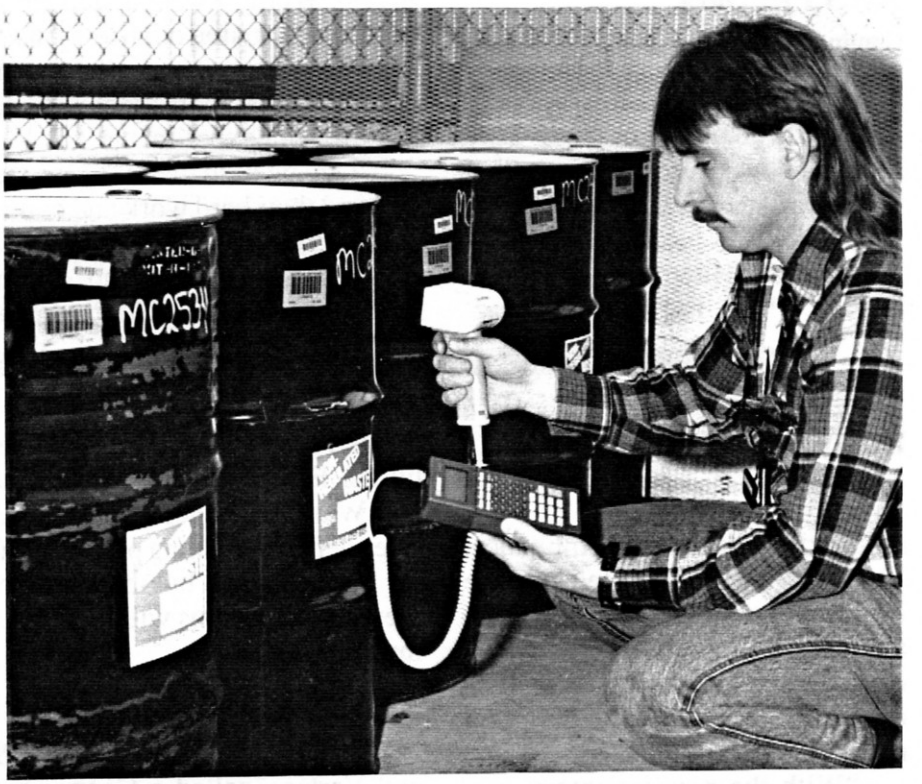
Royalty Income

Meixler said the CRADA carries the possibility of a license for the resulting technology, which could generate royalty income once the software is commercially available.

Del Gandio said this latest CRADA was conceived when he met with Sharon Stasko, President of Vertére, a woman-owned, small business, more than a year ago to discuss the capabilities of developing these software programs. The new software combines Vertére's chemical inventory system for MS-DOS with PPPL's report generating system and waste tracking system for the Macintosh computer. It will operate on a variety of computer systems and will meet the control and reporting requirements of a wide range of chemical users.

PPPL Software Engineer Bill Davis, who was also involved in the development of the software, said, "This software has an easy-to-use interface that people have come to expect from Macintosh programs. By using pull-down menus and mouse clicks, information can be found quickly and data entry errors can be minimized. Forms can be generated that look exactly like the state-provided examples."

Del Gandio said prior to developing the software, he looked into using other software on the market



Michael Widdis, of ER/WM, scans the bar code labels of waste oil containers prior to shipping them.

but found they did not have the report capabilities.

The chemical tracking program will give businesses an affordable way to track all chemicals in every room on site, including information on each container.

> ***"Forms can be generated that look exactly like the state-provided examples."***
>
> ***— Bill Davis***

Said Del Gandio, "You just click on a button on the software and it takes you to a floor plan and shows you right where the cabinet storing the chemical is located in a building."

He explained that a unique bar code will be attached to every chemical container entering the facility. When disposed of, hazardous materials can be logged out using the bar code and deleted from inventory files, and can continue to be tracked through a disposal or treatment facility.

"The software will effectively control and audit the storage, use, and disposal of hazardous materials in the workplace," Del Gandio added. "The system will be enhanced as new needs are identified. For example, the system could be extended to include the tracking of employee exposures to chemicals," he said.

Minimize Over Ordering

Del Gandio said the program will also help users minimize ordering excessive amounts of chemicals, since the on-line tracking and inventory system will be accessible to any employee. Prior to ordering a chemical, an employee can check whether it is available in another area at the facility through the computer.

Let's Get Physical

Fitness buffs and wannabes alike can now get into shape without leaving the Lab.

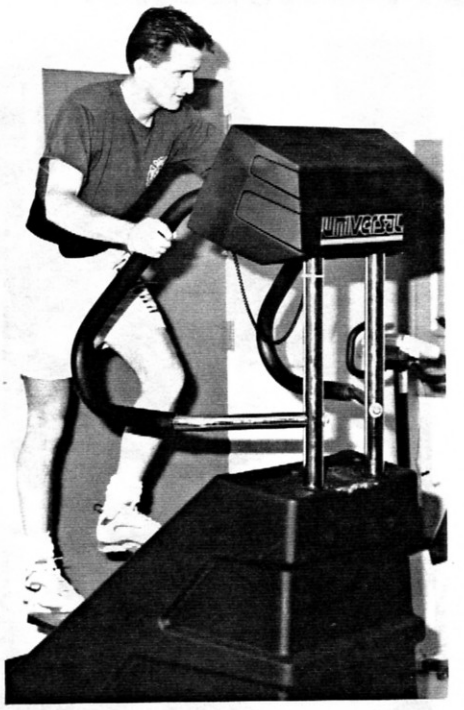
The Emergency Preparedness Division (EPD) invites all employees of PPPL to use the Fitness Facility in the basement of the New Guggenheim Building, B-Site. The Facility is equipped with a stationary bicycle, treadmill, stair climber, rowing machine, and a multi-station, universal-type gym.

It is available to anyone who is a PPPL employee as long as users adhere to the following procedures and requirements:

- Complete an equipment orientation program.
- Complete a waiver form, which states that the employee—not Princeton University—takes full responsibility for his or her health and fitness.
- Have at least one other person present while working out.
- Sign out the key to the Fitness Facility from the Fire Captain's Office at the Emergency Services Unit Firehouse.
- Return the key to the Fire Captain's Office immediately after completing a workout.
- Use the facility only during nonworking hours.

Open Around The Clock

The facility is open twenty-four hours a day, seven days a week, on a first come, first served basis, although Emergency Preparedness Personnel move to the head of the line.



Lab employee Mike Brown uses the stairclimber, one of the many pieces of fitness equipment in the new Fitness Facility at B-Site. Other equipment includes a stationary bicycle, treadmill, rowing machine, and a multi-station, universal-type gym.

Said Gregg Tompkins, "EPD personnel have priority use of the equipment since firefighters are required to maintain a prescribed level of physical fitness to meet National Fire Protection Association standards."

Steve Iverson explained that the fitness equipment was added to the Laboratory because the Tiger Team identified a need for a physical fitness program for PPPL's Emergency Services Unit. "When they are not fighting fires or responding to emergencies, they serve as security personnel. Maintaining their fitness is important in performing both functions," said Iverson, who is Head of the Office of Human Resources and Administration at PPPL.

Available to Staff

"We want to make this equipment available to anybody at the Lab who wants to use it," he added. Iverson stressed that employees must exercise on their own time.

Added Tompkins, "We expect people might want to use the Facility just before work, after work, and at lunchtime."

Laboratory employees interested in using the Facility should contact EPD at Extension 2893. As with all exercise programs, it is recommended that people starting a new fitness regime should contact their physician first.

HOTLINE

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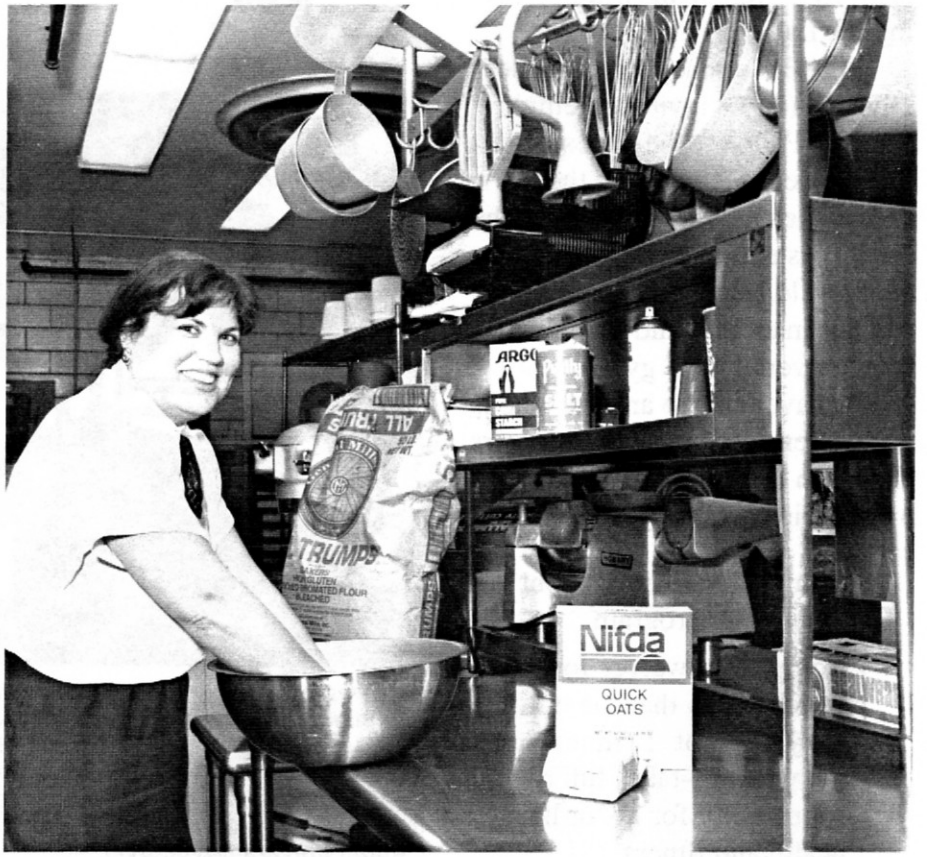
Stinnett's Family *Bread* Recipe Featured in Local Newspaper

Cathy Stinnett's job is to know about food. Daily, hundreds of people taste the concoctions she oversees at the Laboratory, where she is the Food Service Manager for Gardener Merchant. Gardener Merchant operates the Lab cafeterias.

So it is no surprise that her culinary efforts have been recently noted—first in a newspaper food column and most recently in a chefs' competition. The team Stinnett was a member of received a Silver Medal Award for the overall presentation and flavor of its project while competing with seven others in the Annual Culinary Food Expo held in Secaucus on April 23. Stinnett's team included five chef managers from the Princeton area.

Stinnett's recipe abilities were recognized in an area newspaper which featured her oat bread recipe. The recipe is given below.



Stinnett mixes up a batch of her family oat bread in PPPL's kitchen.

Cathy Stinnett's Bread Recipe

Ingredients

- 1 Cup oats, quick or old fashioned
- 2 Cups boiling water
- 2 Packages or 2 tablespoons active dry yeast
- 1/3 Cup lukewarm water
- 1 Pinch of sugar
- 2 Teaspoons salt
- 2 Tablespoons soft butter or margarine
- 1/2 Cup honey
- 6 Cups flour, about

In a large bowl, pour the boiling water over the oats and let stand for half an hour. In a small bowl, dissolve the yeast in the lukewarm water with a pinch of sugar.

After 30 minutes, the oats should have soaked up all the water and will have cooled to lukewarm. Add the yeast mixture (which should be bubbly), the salt, butter, and honey. Stir well; stir in two cups of flour, then two more. Stir, then knead in the last two cups. Knead, adding flour if needed. Dough should be soft, but should not stick to your hand or the counter. Grease a clean bowl; place the dough in it, making sure the top of the dough is greased, too. Cover and put in a warm place. Let rise until dough reaches the top of the bowl—about one hour.

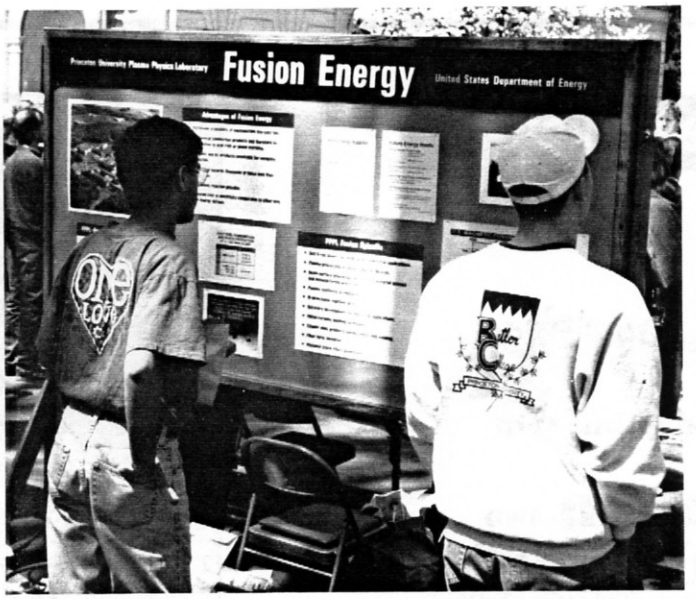
Punch dough down. Divide into two portions. Shape into two loaves. Place in two well-greased load pans.

Note: Make sure the top of the loaf is perfectly smooth. Put all tucks on the bottom. Cover; let rise until nicely rounded—about one hour.

Bake in a preheated oven at 385 degrees for 50 minutes—until loaf is brown and sounds hollow when rapped.

What's Happening at PPPL?

CommUniversity Day Celebrated



CommUniversity Day is celebrated each year in late April. It is a time for community members and Princeton University to get together, have fun, and learn about each other.

PPPL's display this year included poster boards, brochures, pamphlets, and a videotape highlighting events and news stories about the historic TFTR high-power deuterium-tritium experiments in December.

In the top photo, PPPL volunteers Sally Connell and Kevin McGuire are in front of the poster board telling about TFTR's record fusion power results. Sally's granddaughter, Amber Raymond, is at the left.

The photo above shows the "backside" of the poster board. Here information about PPPL and facts about fusion were displayed.

In the photo to the right, volunteers Mike Zarnstorff (left), Carol Phillips, and Kevin McGuire are shown answering questions. Dale Meade, Rush Holt, and Tony DeMeo also helped out during the day.

Ray Whitley, John Bauer, and Bob Cancel of the Facilities Engineering Division handled set up and tear down of the display.

TRANSITIONS

New Hires

We welcome these recently hired PPPL employees in the following areas:

Emergency Services Unit
Gregory Brandt, ESU Officer
Thomas Howard, ESU Officer
John Jacoby, ESU Officer
George Loh, ESU Officer
Christopher Szcsgiel, ESU Officer
Susan Thiel, ESU Officer

TFTR
John Koonce, Tritium Engineer

Environment, Safety & Health
Dennis Ferguson, Technician
William Jackson, Technician
Daniel Reilly, Technician
Richard Szaro, Technician

Procurement
Peter Wilkes, Buyer

Facilities
Roger Glenn, Janitor
Claudia James, Janitor

Births

Congratulations to **Dieu (David) Au**, an electrical technician at the Lab, and his wife on the April 9th birth of their baby girl, Tiffany.

Retirements

Martin Stefano retired from the Lab as a Buyer on April 1 after 13 years of service.

In Memory

Ruth Donald died on March 31. Donald, who retired in 1986 after twenty-six years of service, had been an assistant to the Lab's former director, Melvin Gottlieb, and later an employee of Information Services.

Only a Few Seats Left!

PPPL Staff!

It's Springtime!
Time to get outdoors!

Join us on a one-day bus trip to

ELLIS ISLAND AND LIBERTY ISLAND

(Extra Attraction: Side Trip to South St. Seaport)

Sunday, May 22, 1994

- **Bus departs B-Site parking lot—9:00am**
- **Bus returns B-Site parking lot—7:00pm**

LIMITED SEATS AVAILABLE. FIRST COME—FIRST SERVED.

Purchase Seats at C-Site Reception Desk.

$20.00 per person

Sign Up Now!

Day of Caring
Saturday
May 14

United Way's "Day of Caring" is scheduled for Saturday, May 14. Volunteers are sent to help at United Way agencies in the area. Duties range from delivering meals to the elderly to planting a garden to performing a puppet show for small children. To sign up, call Angelo Candelori at extension 2813.