



HOTLINE

PRINCETON PLASMA PHYSICS LABORATORY

Vol. 5, No. 5

December 14, 1983

Dr. RUTHERFORD WINS LAWRENCE AWARD

PPL Associate Director Paul H. Rutherford is one of five recipients of the 1983 Ernest Orlando Lawrence Memorial Award. The awards, presented for outstanding contributions in the field of atomic energy, were announced by Secretary of Energy Donald Hodel December 2.

The Lawrence Award, which consists of a medal, a citation and \$5,000, is given to American citizens who have made meritorious contributions to the development, use or control of atomic energy. The award was established in December 1959 in memory of Dr. Ernest O. Lawrence, who invented the cyclotron and established both the Lawrence Livermore and the Lawrence Berkeley National Laboratories in California.

Past Lawrence Award winners include PPL Director Harold P. Furth, who received the award in 1974. Dr. Rutherford's award cited his "outstanding contributions to the basic theory of plasma confinement, and to the toroidal fusion reactor concept that has led, in recent years, to excellent agreement between computer predictions and experimental measurements."

Dr. Paul Rutherford



Dr. Rutherford has made notable contributions to the basic theory of plasma confinement, plasma instabilities, plasma transport, and impurity behavior. He played a leading role in the development of the first sophisticated computer models of tokamak transport. His work laid the foundations for present-day computer capabilities in experimental analysis and prediction. His analyses have proven to be highly relevant to the understanding of the complex behavior of tokamak plasmas.

Dr. Rutherford played a central role in Princeton's Tokamak Fusion Test Reactor (TFTR) project, predicting safe limits for energetic-ion heating, plasma pressure, and impurity evolution. He also provided a theoretical basis for the expectation of approximate fusion break-even conditions.

Dr. Rutherford was born in Shipley, Yorkshire, England. He received a B.A. with First Class Honors and a Ph.D. in theoretical physics from Cambridge University. He served as a Research Associate at the Culham Laboratory in England prior to joining the Princeton research staff in 1965.

Other 1983 Lawrence Award recipients are James F. Jackson of the Los Alamos National Laboratory, Los Alamos, NM; Michael E. Phelps of the UCLA School of Medicine, Los Angeles, CA; Mark S. Wrighton of the Massachusetts Institute of Technology, Cambridge, MA; and George B. Zimmerman of the Lawrence Livermore National Laboratory, Livermore, CA.

The awards will be presented at a special ceremony, to be held in the Forrestal Building in Washington, DC.

ENERGY AWARD

Frank Fumia, Manager of Plant Engineering at PPL, was selected as an individual winner in the "In-House Energy Management Awards Program" sponsored by the US Department of Energy.

Following the 1973 oil embargo, DOE began an aggressive program to reduce energy consumption in its facilities by first making low or no cost operation changes. That effort reduced total energy consumption by 11 percent by

1975. After that initial success, energy conservation surveys and retrofit projects were begun which have further reduced energy consumption per square foot in DOE buildings by almost 16%. The department has also reduced the use of petroleum-based fuels in its buildings by 58% compared to a goal of 30 percent set for FY85.

Frank received his award from Secretary of Energy Donald Hodel during an October 27 luncheon in Washington, DC. A total of twelve awards were presented



Frank Fumia (left) receives his award from Secretary of Energy, Donald Hodel.

to individual employees and organizations for reducing energy consumption within (DOE) facilities. "I am especially pleased to be participating in a program to recognize DOE achievements in energy conservation. Energy conservation is high on my list of priorities," said Secretary Hodel.

Frank came to PPL in April, 1981 and quickly turned the lab's energy conservation program into one of the outstanding conservation efforts with the DOE organization. Conrad Stout, Head of Plant Engineering nominated Frank for the award to Herb Mix of DOE's Princeton office. Frank's award came in recognition of his work in implementing an aggressive energy conservation program that reduced the annual cost of electric service at PPL by approximately \$1.7 million. Says Frank modestly, "So many people here at the lab are a part of this program. This award really belongs to a lot of us, not just me."

AT&T CHANGEOVER

Following the adage "out with the old, in with the new", NJ Bell will become Mid-Atlantic Bell on January 1, 1984. But a new name won't be the only alteration the new year (and AT&T's divestiture) will produce. The changeover may affect customers' selections of local and long-distance telephone service, as well as telephone purchase versus rental decisions.

Currently, most NJ Bell customers are charged a monthly service and equipment fee as follows*:

Unlimited local calling	\$6.55
Telephone rental	\$1.62
Touch-tone line charge	\$.47

*Based on a Touch-tone wall/desk phone in a Plainsboro residence. Customers who own their telephones save the \$1.62 monthly rental charge.

Beginning January 1, customers will choose one of three local service options:

1. Flat Rate -- A monthly charge is made for unlimited local calling. This is basically the same service

most people currently have. (See page 11 of your NJ Bell telephone book for the definition of local calling)

2. Low Use Message Rate -- 20 message units of five minutes each are provided for local calling; each additional message unit carries a 10 cents charge. This service costs 35% less than the flat rate, and is recommended for low-income families, senior citizens, or customers who use the phone for essential calls only.
3. Moderate Use Message Rate -- 75 message units of five minutes each are provided for local calls; each additional message unit costs 6.5 cents. This service costs 20% less than the flat rate, and is recommended to those who use their phone on a limited basis.

For long-distance service, Mid-Atlantic Bell customers may choose to keep their current AT&T service, or buy from a competing long-distance company. Most long-distance companies receive a \$5 monthly fee, plus charges for each call. A long-distance directory assistance call (area code + 555-1212) will typically cost 75 cents.

To make this decision, customers will have to consider the number and destination of their long-distance calls, as well as the time and day they place them. Keeping a list of frequently called long-distance numbers will help make the choice easier.

Telephone maintenance will also be affected by divestiture. While Mid-Atlantic Bell will service its telephone wires, telephone sales and service will be handled by AT&T Information Services. Customers can continue leasing their telephones from Western Electric, which will remain an AT&T subsidiary. If a leased phone develops problems, a call to 800-555-1111 will connect you to

Repair Services. If necessary, your telephone will be repaired at an AT&T repair center free of charge.

If you buy a telephone from AT&T Information Services, it will have a warranty period for repairs. Once the warranty expires, however, the telephone owner will be charged for all repair work.

If you buy a telephone from another manufacturer, you may have difficulty getting it repaired, AT&T repair centers will not service other manufacturers' equipment, and there is currently no independent telephone repair service.

Since two separate companies will be involved, it will be doubly important to determine where telephone trouble arises after January 1. For example, if you request service from Mid-Atlantic Bell and the problem is in the telephone (rather than in the telephone line), you will be charged for a service visit -- and your telephone will remain unrepaired. In homes with multiple telephones, difficulties with all phones usually indicates line trouble. If only one telephone malfunctions, the problem probably lies with the unit itself.

For further information about telephone service after January 1, call Mid-Atlantic Bell or your local AT&T office.

FTS DISCONTINUANCE

As of December 1, NJ Bell will remove FTS access from PPL telephones. According to Telecommunications Manager Marjorie Barnett, the removal was prompted by an estimated 50% increase in FTS rates over last year. The current FTS charge per minute is 30 cents; it is expected to rise to 46 cents per minute in 1984.

Incoming callers may still reach PPL by using the FTS 340 prefix.

Any further questions about discontinuance of FTS service should be directed to the Telecommunications Department, ext. 2694.

INTERNING PROGRAM SET

The Administration Department recently announced a Procurement Division Intern Program designed to recruit top quality entry level personnel from local colleges and universities. Recruitment of experienced procurement staff who possess the type of characteristics to function successfully in a R&D environment has been extremely difficult. An alternative is to "grow our own". The new plan provides the recruits with an opportunity for accelerated professional development, while supplying PPPL with a pool of top quality workers.

All approved positions for this program would be listed in the laboratory job-posting system. All internal candidates interested in entering the program must possess the necessary undergraduate degree or have an acceptable background of work experience.

Based upon each recruit's education, job experience, and goals, as well as the projected needs of the Procurement Division, a tailored training plan will be formulated. A "guidance" Personnel officer and assigned Procurement Division supervisor/advisor will prepare an individual development plan, which details immediate (1 year) and long-term (2-5 years) goals. The formal and on-the-job training needed to reach these goals is then planned.

Individuals meeting the entry criteria will normally be given term appointments at the basic entry position of expeditor. They could then take one of two career paths, leading to either a senior buyer or group leader/subcontract administrator position.

At selected milestones, each individual's progress will be evaluated to decide whether his participation in the program should be continued or employment terminated.

Anyone with questions about the program may contact Barry Cohen in Personnel at extension 2037.

PATENTS

Since the PPL Patent Awareness Program was initiated three years ago, \$21,000 has been awarded to laboratory personnel for their new or novel ideas. The Committee on Inventions presents \$100 per inventor (up to \$300) for each invention disclosure. An additional \$200 per inventor (with no maximum) is granted to those disclosures on which DOE files a patent application.

Three patents were issued for applications made in previous fiscal years. The Spheromak Formation Scheme, by H. Furth, T. Stix, A. Todd, M. Yamada; Grating-Tuned Unstable Resonator Laser Cavity, by L. Johnson; and Moment Free Toroidal Magnet by P. Bonanos.

A total of 30 invention disclosures were made this year and eight patent applications were filed by DOE. Last month, more than \$8,000 was distributed to 54 individuals who filed invention disclosures during the last fiscal year, and to those whose inventions received DOE patent applications since the last series of awards were made.

Invention disclosures filed since September include:

- Tokamak Current Drive by Asymmetric Radio-Frequency Induced Stochasticity, by T. Stix
- Disruption Configured Limiter, by J. G. Mauuay
- Spoolless Pieces for Connecting Ultra High-Vacuum Components with Facing Blind Tapped Flanges, by J. Timberlake and S. Cohen
- Spring-loaded Thermocouple Module, by T. McKelvey and J. Guarnieri
- Arched Toroidal Field Coil for Tokamaks, by D.L. Jassby, M. Okabayashi, L. Bromberg, D. Cohen, and J. Williams
- Direct Generation of Electricity From A Magnetized Plasma Using Finite Ion Larmor Radius and/or Ion

Sheath Thickness Effects, by P. Strangeby

- Inductive Steady-State Spheromak Maintenance Without Electode, by A. Janos, M. Yamada and S. Jardin
- Helium Ash Monitor, by R. Fonck, R. Goldston, R. Kaita and D. Post
- High Resolution Multichannel Spectrometer (Hirum), by S. Suckewer and J. Schwob
- Multiple Lock in Method for RF Signal Detection Amidst RF Pickup and Broadband Noise, by J. Goree
- Process for Controlling the Plasma Energy Flux To A Limiter by Varying the Plasma Elongation, by J. Cecchi and B. Coppi

A dinner for all inventors and their guests is hosted by the committee each spring. For further information about invention disclosures or the patent process, contact Meg Harmsen at ext. 2659.

TRAINING COURSE OFFERED

In compliance with the Comprehensive Employee Training Program, the ESU is offering fire extinguisher training to all laboratory personnel. Courses are being scheduled for Thursday afternoons commencing at 1:00 p.m. and lasting approximately 1 ½ hours. Class size is limited to ten persons per course. Employees will receive "hands-on" experience at these sessions, and are urged to sign-up with their supervisor's permission.

The first course was December 1, with courses planned for each Thursday afternoon thereafter. Employees who are interested in obtaining the training should contact Scott Larson at extension 3166.

MILESTONES

Born - to Willie Lee (PPL Theory Division) and his wife Linda; twins, Jessica and Jason, on November 10. Best Wishes - TWICE!

RUN FOR FUN RESULTS

A beautiful crisp autumn day was the setting for this year's Run For Fun, dubbed "The 5K Road Race." Fifty-eight well-toned participants assembled at the starting line and began sprinting the 3.1 mile course in perfect form.

Dennis Mueller was the first to return, with a time of 17 minutes 30 seconds. Close behind was Dave Johnson at 17:53 and Dave Cylinder at 18:13. The first feminine contender to complete the course was Alice Koniges, with a time of 24 minutes, 02 seconds. Carol Phillips was at her heels with a 24:40 finish. Third place in the women's division went to Sue McMahon with a 26:42 timing.

All participants completed the race, as even the final returnee finished in a respectable 36 minutes, 30 seconds.

Jim Clark, Deputy Director of Administrative Operations, awarded trophies to the first place male and female winners. First place team members were Dave Johnson, Dave Cylinder, Dennis Mueller, Carol Phillips and David Ignat with a combined time of 102 minutes and 47 seconds.

A sincere thanks from event coordinator Barbara Safaty goes to Judy Benson, Peggy Fisher, Debbie Anastasio, Rosemary Fuchs, Debbie Carter, Joyce Stanton, Kathy Dunn and the rescue squad for their help in making the event a success.

If anyone lost or misplaced anything at the race, they may contact Barbara Sarfaty at ext. 2440.



Ready... Set... Go!



Runners check their times, with official timekeeper Kathy Dunn.



First place winner Dennis Mueller receives his trophy from Deputy Director of Administrative Operations Jim Clark.



Alice Koniges poses happily with her first place trophy.



PPL United Way Volunteers get ready to kickoff this year's campaign.

SAFETY FIRST

The University has the responsibility of maintaining a safe atmosphere for its employees. Traffic regulations are a very important part of maintaining that safety. Various traffic signs have been posted in specific areas, both to alert everyone of potential accident zones and to allow for the smooth flow of traffic. Handicapped parking areas are for those individuals who have problems with mobility, and should be used *only* by those people who have specialized handicapped parking permits issued by the state. Posted speed limits on University roadways are there to insure the safety of pedestrians as well as motorists and should not be ignored!

At the time of employment, each employee signs a waiver stating that they will adhere to the traffic regulations as explained in the motor vehicle manual. It is the responsibility of every employee to read and understand the traffic and parking regulations of the University. During snow emergencies, vehicles will NOT be permitted to park overnight in any of the University parking lots. Should you need to leave your car here, call Security (ext. 2893) and they will arrange for you to leave your car in a specially designated area.

If you have any questions regarding the University traffic regulations, contact the Security Office, (ext. 2893) at any time.

LABORATORY CLOSING

If you are planning to work during the scheduled holiday closing, contact Janitorial Services, ext. 3595 to make arrangements for your trash to be collected.

SECURITY CHECK

In an effort to promote a more secure working environment for all PPL employees, the Security Department will begin conducting sporadic evening and weekend checks of office doors to be sure they are properly secured. Doors found open will be locked and friendly security reminders will be left to remind employees to lock their offices before they leave.

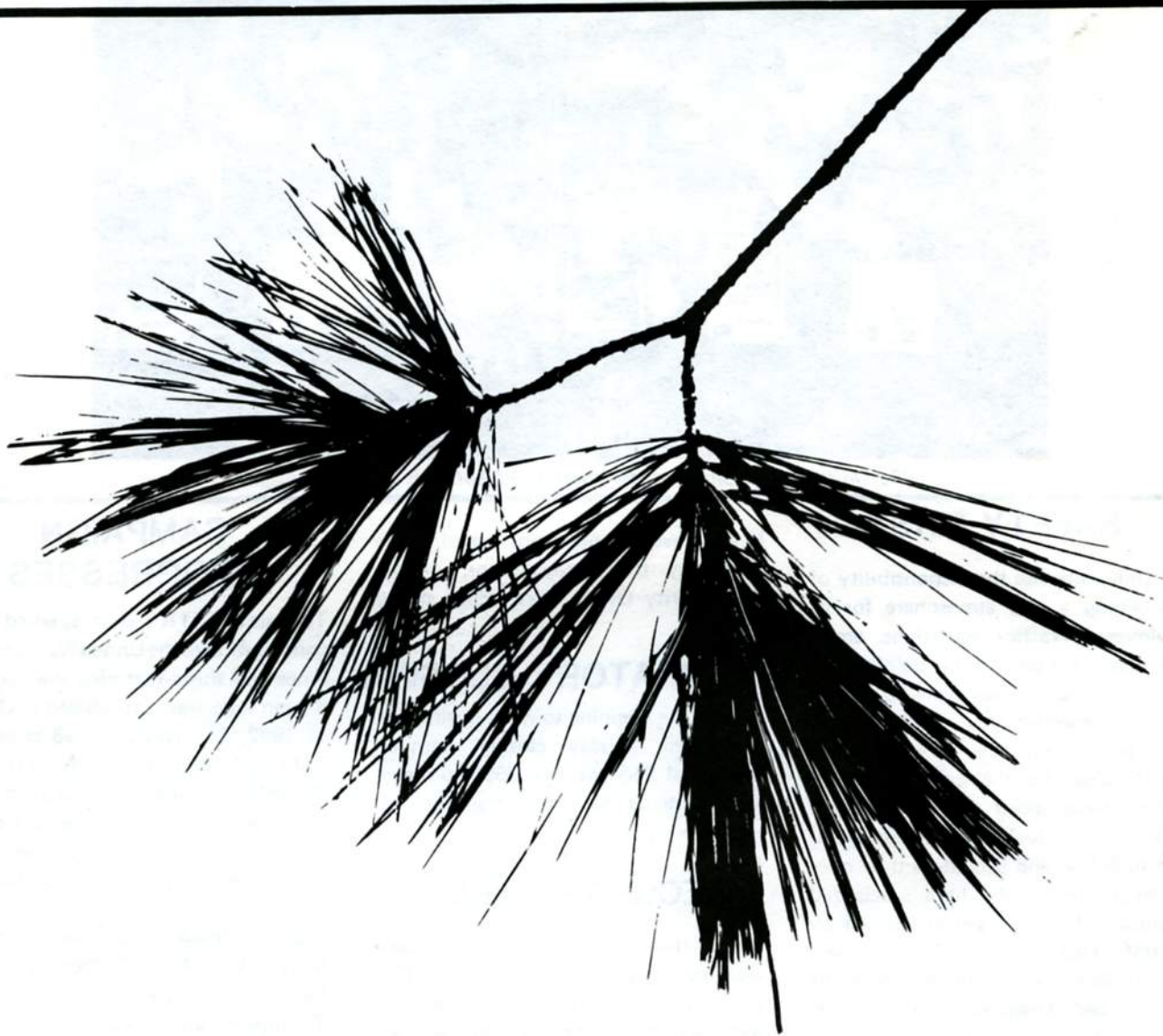
Please help to promote a safe environment for everyone by securing all doors and windows in your area. Remember to keep small valuables out of sight and contact the Security Department immediately should you be the victim of a theft or observe anyone suspicious in the area.

CAMPAIGN PROGRESSES

The sale of TFTR T-shirts sparked a \$513 contribution to the United Way campaign. Since the shirts featuring the unofficial dragon logo were introduced in October of 1982, 747 tees and 106 sweatshirts were sold. Volunteers at the lab handled the ordering and distributing of the shirts, which were priced to cover anticipated costs with the pledge that any profit would be donated to the United Way.

A special thanks to Don Weissenburger, Matt Edgar, Anne Golden, Jill Green, Paul Mauceri, Dennis Rascon, Marilee Thompson, and Karen Tuttle for their efforts.

The PPL Hotline is issued by the Princeton University Plasma Physics Laboratory, a research facility supported by the U. S. Department of Energy. Correspondence should be directed to PPL Information Services, Module 2, C-Site, James Forrestal Campus, ext. 2754.



**HAPPY HOLIDAYS
FROM
INFORMATION SERVICES**