



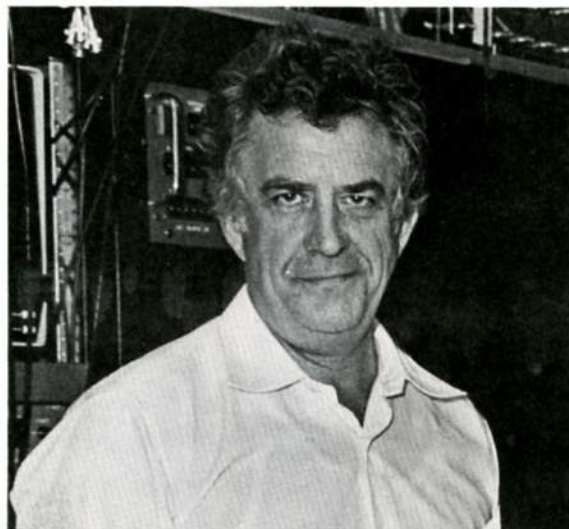
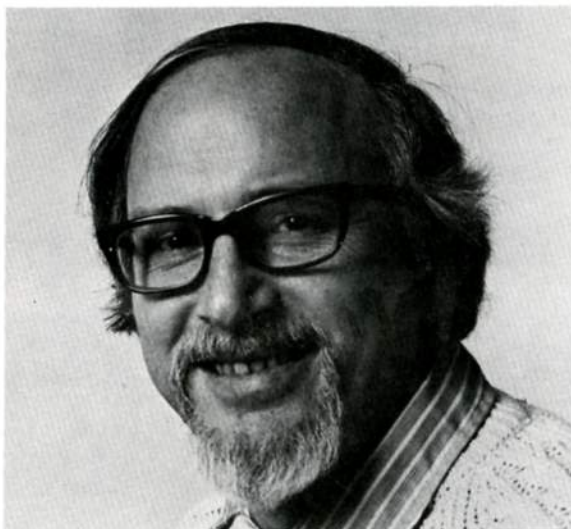
HOTLINE

PRINCETON PLASMA PHYSICS LABORATORY

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Stodiek Named To FED Project; Hosea To Head PLT



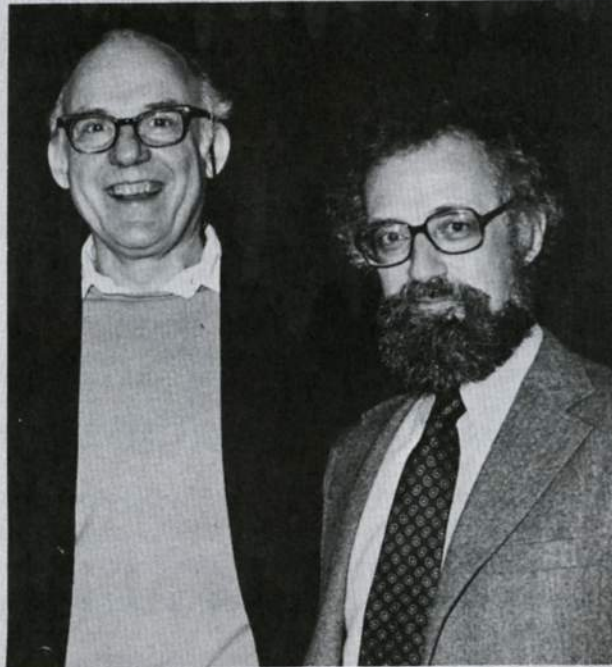
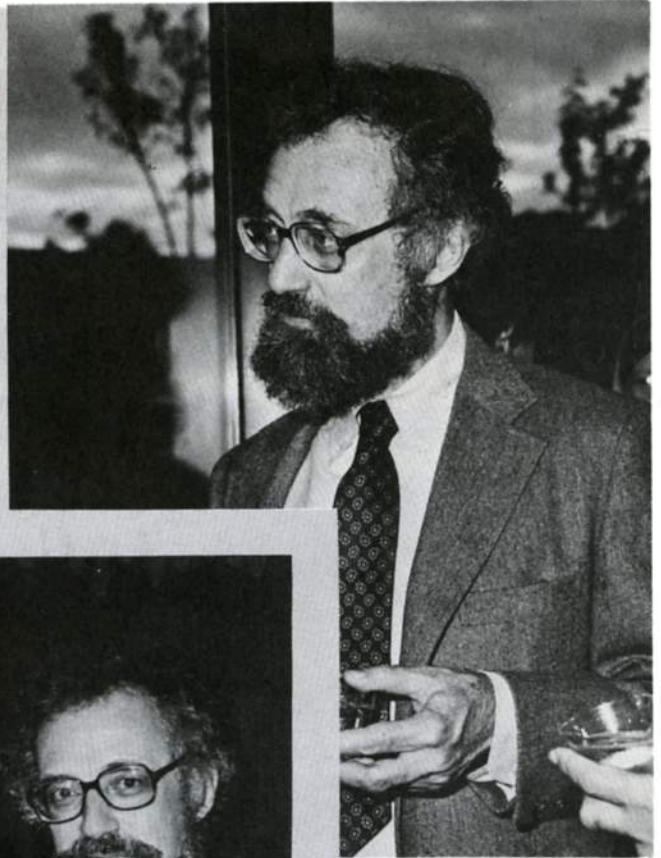
Dr. Wolfgang Stodiek has been appointed Engineering-Physics Coordinator for the Fusion Engineering Device (FED) project. In this new 50%-time position, he will provide an interface between a national FED physics effort and the engineering design work carried out mainly at the Fusion Engineering Design Center at Oak Ridge National Laboratory. He will report to John Gilleland, Executive Director for the FED Technical Management Board.

In announcing the appointment, PPL Associate Director Paul H. Rutherford indicated that Dr. Stodiek would work closely with him in his capacity as head of "a national effort to help define the physics characteristics of the FED."

The remaining 50% of Dr. Stodiek's time will be devoted to PPL in the position of FED-PPL Experimental Physics Coordinator. In this capacity, Dr. Stodiek will be responsible for ensuring that the laboratory's experimental program is suitably addressing FED needs. He will be a member of Experimental Division Management.

As the next step in the national fusion energy research program after TFTR, the FED has been recommended by the Energy Research Advisory Board of the Department of Energy. This recommendation has been endorsed by Congress and the authorizing legislation has been signed into law by President Carter. According to Paul Rutherford, "The impact of the FED on the prospects of magnetic fusion research in general, and on PPPL's programs, will be very large...It will be part of Wolfgang's role to help ensure that...PPPL contributes in a major way to the necessary supporting research."

Dr. Joel Hosea will replace Stodiek as Branch Head of PLT. Hosea's new position will also incorporate a newly formed Radio-Frequency Heating Branch that will be responsible for an eventual RF program on TFTR. Dr. Hosea joined the laboratory in 1968. He has been active in RF heating research since 1962.



Hail
To The
Chief



Act-1 Observes First Anniversary

In August 1980 the Advanced Concept Torus (ACT-1), a small non-tokamak research device of toroidal configuration, observed its first anniversary.

ACT-1 has only a toroidal field, which by itself cannot confine a plasma. However, the machine is designed to use the vertical plasma current (created by the toroidal field) to maintain a steady-state plasma discharge with a 1-millisecond confinement time.

ACT-1 permits easy access to its interior through 26 port sections, allowing quick testing of new ideas. The experimental program, under the direction of Masayuki Ono and King-Lap Wong, is dedicated to radio-frequency-induced plasma waves. One of these waves is the ion-Bernstein wave, which has a frequency double that of the ion gyrofrequency. Another is the lower hybrid wave, which in a deuterium plasma has a frequency about 60 times the ion gyrofrequency. The ion gyrofrequency is the rate at which ions spiral around in the magnetic field.

In one ACT-1 experiment, a waveguide directs radio signals of 50-200 MHz into the plasma to generate ion-Bernstein waves. These waves then give up their energy to the plasma and heat it.

Ion-Bernstein waves have been created in plasmas before, but their generation required conducting coils in the ionized gas. ACT-1's system places the waveguide and rf generating equipment far away from the

plasma. In a reactor, this would reduce neutron irradiation of the rf-components, giving them a longer useful lifetime and permitting easier repairs.

The program's second major accomplishment is the generation of a poloidal field (PF) current by radio waves. A 500-watt, 160-MHz signal enters the plasma and generates lower hybrid waves, which selectively accelerate electrons initially moving in the direction of wave propagation, leaving others unaffected. The result is a PF current of about 10 amps. Researchers are now installing 100-kilowatt rf equipment, which may generate currents up to 10,000 amps.

In present-day tokamaks, the PF current is created by changing the amperage in the ohmic-heating coils. Since such changes cannot be continued indefinitely, all tokamaks must now operate in a pulsed mode. In the future, ACT-1's system may allow steady-state tokamak operation, which would simplify many reactor engineering problems, and allow a continuously burning plasma.

Several graduate students are involved in the ongoing ACT-1 experimental program. Robert Horton will be working with the high power rf generator, and Glen Wurden is using a CO₂ laser to study fundamental properties of plasma waves. Several first and second year students are aiding in these efforts.

The various ACT-1 experiments are to continue for at least one more year.

Symposium Scheduled

Donald N. Cornish of Lawrence Livermore National Laboratory will speak on "Application of Superconductivity to Mirror Fusion Systems" when the 1980-81 Technology Department Symposia series begins November 14 at 10:45 a.m. in the LOB auditorium.

The Livermore 12-Tesla high field test facility, and a description of the superconducting magnet system of MFTF-B, will be discussed.

Auditorium Reservations

All Sayre Hall auditorium reservations should be made by contacting Joyce Lafharis at ext. 2685.

Meeting Slated

A meeting with Dr. Sally Anne Hansen, chairwoman of the Mercer County Community College Electrical Engineering Technology Department, will be held in the Safety Office Conference Room, November 14 from 10 to 11 a.m.

The meeting will help develop recommendations for future courses to be taught at PPL by Mercer County Community College staff. All those who have attended such courses in the past are urged to attend this meeting.

The Safety Office Conference Room is located in the Gas Dynamics Building, B-Site.

Holiday Schedule

Employees fatigued by their Thanksgiving feast will have a day to recover this year. The laboratory will be closed on November 25, and will remain closed the following day, giving employees a four-day weekend.

The Christmas and New Year's holiday calendars have also been structured to provide four-day holidays. The laboratory will be closed December 25 and 26, as well as January 1 and 2.

Siren Signals

When the PPL siren blows, do you recognize it and what it signifies?

Two cycles of the siren indicate a siren test, normally held each Wednesday at noon. Six cycles indicate a drill evacuation, usually publicized in advance. Six

cycles of the siren repeated continuously indicates an emergency evacuation situation.

During an evacuation, employees should vacate their buildings immediately by the closest exit. Once outside, go to a designated area well clear of the building and await further instructions. Elevators must not be used during an evacuation.

The A/B and C-Site sirens work independently of each other. For an evacuation of only one site, only one siren will sound.

The PPL siren should not be confused with the Plainsboro air raid siren and fire alarms, the LOB fire alarm bells for evacuation of the LOB only, or with construction site horns signalling the start and stop of work.

An expanded and upgraded P.A. system, additional alarms or bells within specific areas, and an all-call telephone system capability for emergencies are under consideration as additional emergency warning methods.

Stop Smoking Program



Six of the 12 employees who successfully completed the first stop smoking program offered at PPL pose with their teacher, Anne Morham of Blue Shield of New Jersey (center). The students pictured are (left to right) Mike Quigley, Rich Vorusovic, Dick Reny, Anne Morham, Jo Lumberger, Larvale Hurley and Ray Gernhardt. Those who completed the course but are not pictured include Joyce Lafharis, Louise Reny, Lydia Miller, Rani Sahu, Jill Green and Mounir Awad. To sign up for the next session of the program, due to get underway in the near future, contact the Personnel Office at ext. 2685.

Service Awards

Approximately 300 PPL employees have been honored for their service to the laboratory through the Service Awards program run by the Personnel Office.

Awards were presented during July, September and October to employees whose terms of service ranged from five to over 24 years. Any employee who feels he is eligible for a service award but did not receive one should contact the Personnel Office.

Those employees who received awards but were unable to attend the awards ceremonies should pick up their gifts at the Personnel Office.

Energy Conservation

Regardless of the dictates of the fashion industry, sweaters are still "in" at PPL. They'll help employees keep warm this winter while the laboratory conforms to the Emergency Building Temperature Restrictions, imposed by President Carter and extended through January 16, 1981.

The restrictions call for setting thermostats to maintain temperatures of 65 degrees Fahrenheit. A specific amendment to PPL's Department of Energy contract mandates energy conservation goals, and DOE is required by regulation to conduct unannounced inspections to insure compliance with temperature restrictions.

To help meet its energy goals, the laboratory will turn off or cut back heat at night and on weekends on a weather permitting basis. Exceptions will be made for designated experimental areas.

Space heaters, which can only be purchased with the approval of Plant Engineering, or individual room controls should be set to maintain the 65 degree level. Unneeded lights should be turned off.

If you have an office or space you feel needs supplemental heat, call Plant Engineering. If you know of any energy-wasting situations, call Plant Maintenance at ext. 3092.

Christmas Dance



Mark December 12 on your calendar; that's the date of the PPL Christmas Dinner-Dance, to be held at Cedar Gardens in Hamilton Square. Further details on the event will be announced in future issues of the Hotline.

Recruitment Program

The Personnel Office is initiating a PPL college recruiting program. Personnel recruiters and interested technical recruiters from the laboratory will visit 10 college campuses this fall and winter. Recruitment will be conducted through college placement centers.

An ongoing recruitment program is expected to establish long-term relationships with the colleges involved in the program. Suggestions on the program should be directed to the Personnel Office.

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 Communications Office, Module 2, C-Site, James Forrestal Campus, ext. 2754.
