

HOTLINE

The Princeton Plasma Physics Laboratory is a United States Department of Energy Facility

The Race is On — and We're Aboard All The Ships!



On November 2, PPPL Director Rob Goldston delivered his annual “State-of-the-Lab” address to staff in the MBG Auditorium. Goldston said PPPL’s programs are “off and flying” and that partnerships are the key to success. He also stressed the importance of doing our jobs safely, and with zest and humor. He discussed our research accomplishments, as well as the goals and successes of our external relations efforts and operations.

At the conclusion, he presented the Kaul Foundation Prize for Excellence in Plasma Physics and Technology Development and the PPPL Distinguished Research and Engineering Fellows awards (see page 2 for story and photos of recipients). The awards ceremony was followed by an ice-cream party in the Lobby. At top right and left, Goldston gives his talk, “The Race is On,” to a packed auditorium; middle left is the captive audience; below right, Bob Reed and Judy Malsbury load up on toppings at the ice-cream soiree; and bottom left, Alex Ilic enjoys the fare. A video of the State-of-the-Lab talk is available by contacting Sonja Patterson in Human Resources at ext. 2220. The talk is also posted on the third floor corridor between the east and west wings of the LSB. ●

Kaul Prize and Distinguished Fellows Awards Given

On November 2, PPPL Director Rob Goldston presented awards to four PPPL researchers. Ronald Bell and Edmund Synakowski received the Kaul Foundation Prize for Excellence in Plasma Physics and Technology Development. Francis “Rip” Perkins and Charles Neumeyer were named PPPL Distinguished Research and Engineering Fellows, respectively. The four recipients were honored during a ceremony and reception following Goldston’s State-of-the-Lab talk.

Kaul Award

The Kaul award recognizes Bell and Synakowski for novel measurements of the dynamics of hot ionized gases, or plasmas, which will someday serve as fuel for the production of electricity in fusion power plants. By modifying the flow of plasma confined by magnetic fields, they found that the efficiency of the magnetic field in confining the plasma’s heat can be altered and improved. Such flows act on plasma turbulence, the underlying cause of heat loss from

these plasmas. The work suggests that generating plasma flows in a fusion reactor might increase the reactor efficiency, thus reducing its cost and size.

“The team of Bell and Synakowski is synonymous with quality science — delivered under pressure, with complete aplomb. The experimental results they achieved on the Tokamak Fusion Test Reactor (TFTR) four years

ago are only now being reproduced and confirmed elsewhere,” said Goldston.

Princeton University awards the Kaul Prize to recognize a recent outstanding technical achievement in plasma physics or technology development by a full-time, regular employee of PPPL. It includes a cash award of \$2,000 for each of the honorees. Nominations for the award are submitted to the Prize Selection Committee, which includes the Princeton University Provost, the Princeton University Research Board Chair, and the PPPL Director, Deputy Director, and Chief Scientist. Former PPPL Director Ronald C. Davidson created the prize by giving a portion of the gift he received as the 1993 recipient of the Award for Excellence in science, education, and physics from the Kaul Foundation to Princeton University to endow the Kaul Foundation Prize for Excellence. This is the fourth time the prize has been given. In 1999, the Kaul Foundation supplemented



From left are Kaul recipients Ronald Bell and Edmund Synakowski and PPPL Distinguished Engineering Fellow Charles Neumeyer. Francis “Rip” Perkins (pictured on page 3) received the PPPL Distinguished Research Fellow award via videoconference. Perkins is on long-term assignment at General Atomics.

the endowment for PPPL’s Kaul Prize.

Bell received a bachelor’s degree in physics from Rensselaer Polytechnic Institute in 1975 and a Ph.D. in physics from Johns Hopkins University in 1983, the same year he came to PPPL. He is presently involved in research on the National Spherical Torus Experiment (NSTX).

HOTLINE

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The HOTLINE is issued by the Princeton Plasma Physics Laboratory, a research facility supported by the United States Department of Energy. It is primarily an internal publication. Correspondence and requests to reprint material should be directed to the Editor, PPPL HOTLINE, P.O. Box 451, Princeton, NJ 08543; Interoffice correspondence should be addressed to MS-38, LSB Bldg., C-Site; fax 609-243-2751; telephone 609-243-2757; e-mail pwieser@pppl.gov.

Synakowski received a bachelor's degree in physics from Johns Hopkins University in 1982, graduating with Departmental Honors and receiving the Donald Kerr Memorial Medal for excellence in physics. He received a Ph.D. in physics from the University of Texas at Austin in 1988, the same year he joined the research staff at PPPL. Synakowski is presently Deputy Program Director of NSTX. He is a Fellow of the American Physical Society.

PPPL Distinguished Fellows

Perkins, who is on long-term assignment at General Atomics in San Diego, was recognized for his outstanding contributions in many critical areas of plasma physics research with applications in fusion, basic plasma physics experiments, and ionospheric physics, and for leadership in an international collaborative effort to document and assess the physics basis of a next-step burning plasma experiment. He was further honored for contributing prominently to graduate education in plasma physics.

Neumeyer, the lead project engineer for NSTX, was cited for contributions and technical leadership of the engineering effort to design power systems for several magnetic fusion devices, including TFTR, the Tokamak Physics Experiment, and NSTX, and for extraordinary creativity and accomplishments in the development of control systems for fusion devices.

Perkins received a bachelor's degree in physics from Harvard University in 1956 and a Ph.D. in physics from Cornell University in 1964. He came to PPPL in 1966, serving as Head of the Laboratory's Theoretical Division from 1980 to 1986, and as Head of the Physics Integration



Francis "Rip" Perkins

Unit for the International Thermonuclear Experimental Reactor (ITER) group in San Diego from 1993 to 1998. For the past two years, Perkins has been a PPPL collaborator at General Atomics. "Rip Perkins is a pillar of plasma physics. He has worked on the most esoteric basic issues in plasma science, and on the most visible major projects. He has contributed strongly to the education of a generation of plasma physicists, myself included. The breadth of his contributions is truly astounding, and it is an honor for the Laboratory to be able to recognize these contributions," said Goldston.

Neumeyer received a bachelor's degree in electrical engineering from the University of Virginia in 1975 and a master's degree in electrical engineering from the Polytechnic Institute of New York in 1987. His career has included work both at PPPL and in industry, with specialization in the field of high-power electrical and electromagnetic systems for advanced technology research. Earlier this year, he received the Mercer County Professional Engineering Society "Engineer of the Year" award.

Goldston said, "Charlie Neumeyer is an energetic and creative engineer who has brought a very gratifying combination of insight, persistence, and good humor to fusion research. It is hard to imagine the successes that PPPL has achieved without Charlie making things work. It is a pleasure to be able to recognize his contributions."

Congratulations, Ron, Ed, Rip, and Charlie! ●

Long and Winding Road ...

From spectroscopy to novel measurements of the dynamics of plasmas to winning PPPL's Kaul Prize, the paths of Ed Synakowski and Ron Bell have crossed many times during the past two decades. Bell and Synakowski first became acquainted in 1979 at Johns Hopkins University, when Ed was a sophomore and Ron a graduate student. Synakowski took a work-study job with the University's plasma spectroscopy group, and soon changed his focus from astrophysics to plasma physics.

"I was hired to build electronics. Ron was working on his Ph.D. and involved in spectroscopy. That's how I met Ron, as well as Brent Stratton, and also how I became interested in plasma physics," recounts Synakowski. "I built some of a first-of-a-kind control system electronics for a spectrometer that Ron designed and built. I later designed and built some of the control systems for Brent

Stratton's spectrometer." When Bell received his Ph.D., he came to PPPL. Ed completed his bachelor's degree at Johns Hopkins and went to work on his Ph.D. at the University of Texas. "As I neared graduation, I found out PPPL had a position available in plasma spectroscopy for TFTR," Synakowski said.

At PPPL, Synakowski worked for a number of years with Stratton, whom he knew at Johns Hopkins, as well as at the University of Texas, and then with Bell on the TFTR plasma spectroscopy. "Ron likes to say his strengths complement mine. I have some background in atomic physics that we drew on to perform calculations to interpret flow measurements on TFTR. Ron is extremely creative in any system he builds, whether it is hardware or software. We worked well in pulling together atomic physics and implementing complex programs to analyze data. Interactions like this are typical of much of the work we've done together. Because of this, it is doubly rewarding receiving this award together," Synakowski said. ●

Up, Up and Away

Crews Complete Umbrella Lift at the Tokamak Fusion Test Reactor

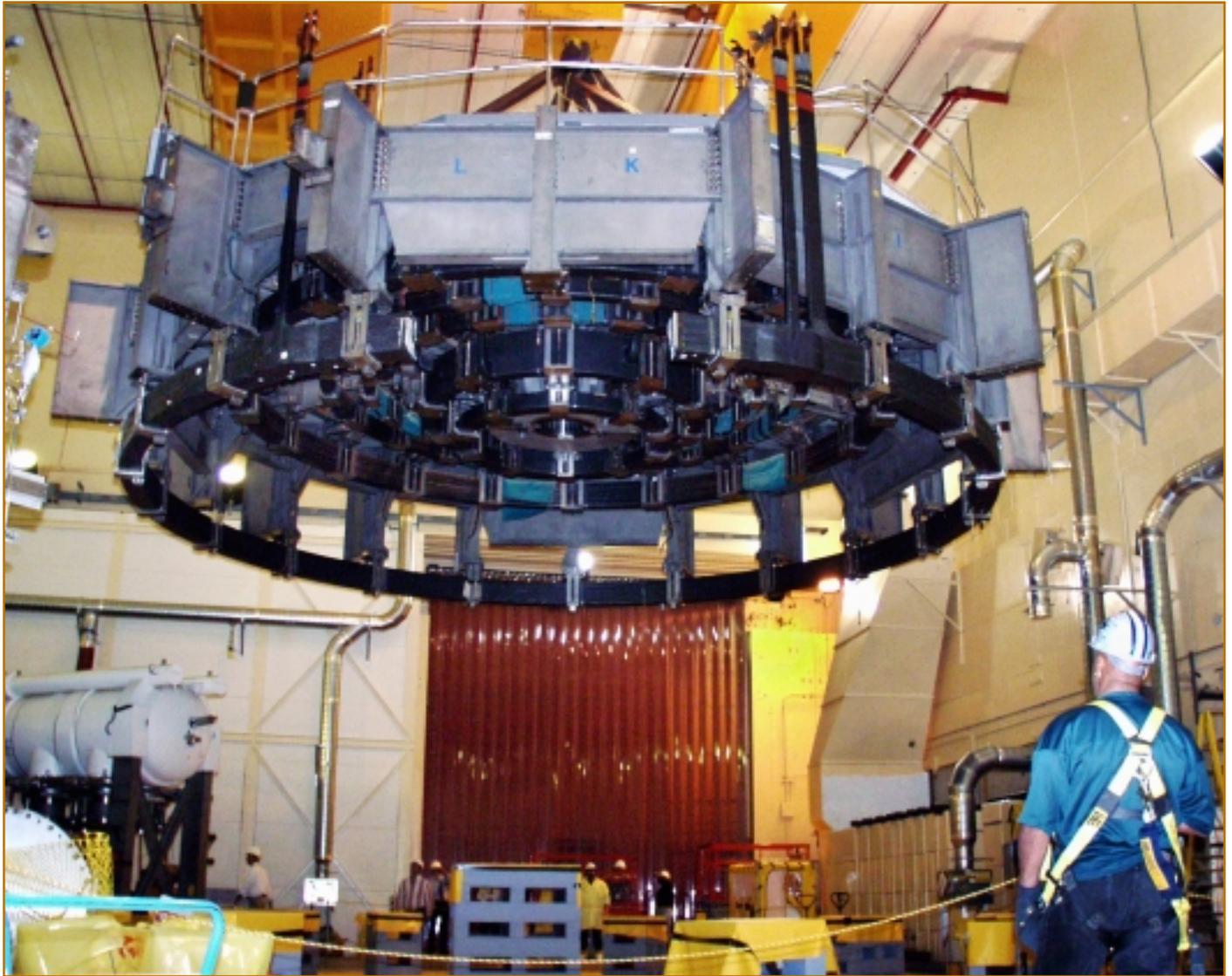


Photo by Elle Starkman

On November 8, the umbrella structure and upper magnetic poloidal-field coils were lifted off the top of the Tokamak Fusion Test Reactor (TFTR). Workers used the 110-ton capacity overhead bridge crane to make this 92-ton lift. Preparation for this critical lift began several months ago. The lift procedure began on November 7, with the installation of the necessary rigging. The next day, the load was balanced and it took two hours for the umbrella structure and coils to be raised, moved, and lowered to floor level. The structure and coils were removed as part of the disassembly of TFTR, which is expected to be completed by September, 2002. Special thanks to rigging team members Geoff Gettelfinger, Mike Viola, Fred Simmonds, Kris Gilton, Sly Vinson, Manny Fernandez, Roland Snead, Red Delany, Will Derry, Ron Jakober, Joe Gurba, Charlie Sands, Dick Weisel, Steve Sissman, and John Horner; and support staff members Erik Perry, John Semler, Frank Terlitz, Don Gallant, Dennis Gallagher, Bob Hitchner, Andrea Donovan, John Boscoe, Frank Murphy, Elle Starkman, Tom Meighan, Lorraine Oliver, Debra Anderson, Carrie Jones, and Ray Camp.

A photo story of the TFTR umbrella lift can be found by going to the PPPL Home Page (<http://www.pppl.gov>), clicking on the Research Projects button, and then selecting "TFTR Umbrella Structure Removed," or by going to http://www.pppl.gov/projects/pages/tftr_lift/tftr_lift_pics.html. ●