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Hotline

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

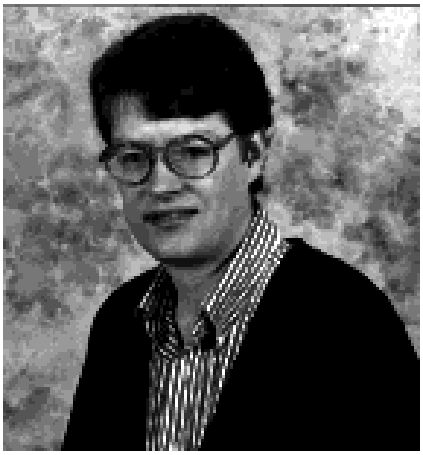
1997 APS Fellows Named

Physicists Bell, Hammett, and Park Receive Lifetime Appointments

In recognition of their contributions to the field of plasma physics, three physicists from PPPL recently were named Fellows by the American Physical Society (APS).

The three elected to the rank of Fellow are Michael Bell, Gregory Hammett, and Wonchull Park. Bell and Hammett received the lifetime appointments from the APS's Division of Plasma Physics during the November APS meeting held in Pittsburgh and Park received his Fellowship from the APS's Division of Computational Physics. All are Principal Research Physicists at the Laboratory. The APS rules limit the maximum number of Fellows selected each year to be half of one percent of the Division membership.

Michael Bell



Gregory Hammett

Bell, currently Head of Data Analysis for the Tokamak Fusion Test Reactor (TFTR) at PPPL, was cited "For contributions to plasma performance optimization and investigations of confinement and stability of tokamak plasmas and for contributions to the experiments which led to the production of 10.7 megawatts of deuterium-tritium fusion power in TFTR in November 1994." Those experiments set a world record at that time for fusion power production. Bell received a bachelor's degree in physics from Sydney University in Australia in 1969 and a Ph.D. in physics from Cambridge University in the United Kingdom in 1974, joining PPPL's staff in 1980.

Hammett, a theoretical physicist involved in computational simulations and theories dealing with plasma turbulence, was recognized "For development of fluid-like models containing Landau damping and gyro-orbit averaging important in the simulation of drift wave turbulence, and for bounce-averaged quasilinear theory of ion cyclotron heating." Hammett, who is also a lecturer at Princeton University where he co-teaches a plasma physics course, received a bachelor's degree in physics from Harvard University in 1980 and a Ph.D. in astrophysics from Princeton University in 1985. He joined the staff at PPPL in 1985.

Park, a computational plasma physicist in the Theory Divison, was honored "For his pioneering contributions to resistive magnetohydrodynamic theory and to computational physics; and for his careful and extensive application and comparison of these calculations with experiments." Park received a bachelor's degree in physics from Seoul National University in South Korea in 1971 and a Ph.D. in physics from Columbia University in 1978, coming to PPPL the same year.

Of Bell, PPPL Deputy Director Richard Hawryluk said, "Mike Bell has made major contributions to the development of operating regimes with world record values of fusion power. He has been a leader in the TFTR Physics Program and I am very pleased that the APS has recognized his contributions to the development of fusion energy."

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Rob's Notes...

We are learning together how to make the Lab work best; this involves a certain amount of experimentation and risk. So here I am experimenting with the idea of a monthly column in the HOTLINE. People have asked to hear my thoughts on a regular basis, more often than in the "State of the Lab" addresses.

After a little more than six months as Director, I realize what a difficult yet tremendously rewarding job it is. On the difficult side, the press predicts that the fusion budget for Fiscal Year (FY) '99 will be level with that of FY '98, despite the reports from the President's Committee of Advisors on Science and Technology and the Grunder Panel — which both called for a $250 million fusion budget in FY '99 — and despite strong unified efforts by the fusion community. Of course, we will work hard to help Congress understand why it is important to boost this number again, as it did in FY '98.

On the positive side of the ledger, the greatest rewards for me come from witnessing the amazing talent and devotion of the people in the Laboratory. Time and again I see our people rise to new challenges in ways that take my breath away. I am especially pleased with the energy and vision of the men and women who are taking on new leadership responsibilities. I am also tremendously impressed with the commitment and skill shown by staff, including those who came in on New Year's Day to take care of a water leak in the Laboratory Office Building. Under the leadership of Carl Potensky, this group included Bert Allen, Wilbert Barlow, Bob Brown, Mike Byrne, Bob Cancel, Al Davis, John Dolobacs, Joe Franchino, Rich Gallagher, Gerry Hart, Margaret King, Ron Koon, Mike Loh, Rich McDonough, Kevin Rhoades, Tom Ruffin, Dan Tomalin, Douglas Vorp, and Ray Whitley. Our diverse community really pulls together. This is the most deeply rewarding part of my new job.

As for the future, I believe that within the Laboratory we must keep "trimming the sails," optimizing how we do business. I look forward to a report from the Transition Monitoring Team and to a continuing process of creativity in improving how we work together. On the programmatic side, the National Spherical Torus Experiment (NSTX) is coming together beautifully. The Science Focus Groups are doing a great job supporting the physics and the Engineering and Technical Infrastructure Department is moving ahead at a lightning clip with construction of NSTX. The compact stellarator design project is also progressing well, with exciting new results showing that a high-beta stellarator plasma can be significantly more stable to large-scale plasma "kinking" than a tokamak. The mine of results from the Tokamak Fusion Test Reactor continues to produce gems. We are still learning how to optimize off-site research, but I see nice programs shaping up for us on the Alcator C-MOD project at the Massachusetts Institute of Technology and on the DIII-D project at General Atomics, as well as internationally. Some exciting possibilities are opening up in advanced computing that we hadn't fully anticipated, and these will find a natural home in the newly created Computational Plasma Physics Group. I am excited about our program for the future.

Outside the Laboratory, the fusion community continues to unite. I am bending every sinew to make this happen because I believe it is imperative for the success of fusion. At PPPL, we have great people and a great program — both here and around the world — and with a renewed sense of community, I believe we will succeed.

— Rob Goldston, Director
Princeton Plasma Physics Laboratory

HOTLINE

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APS

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Commenting on Hammett, PPPL Chief Scientist and Theory Department Head Bill Tang said, "Greg Hammett is internationally recognized for key contributions which have led to significantly improved understanding of transport phenomena in magnetically confined plasmas. He has also been highly successful in attracting and training excellent young scientists in the plasma sciences by guiding research areas which are both intellectually stimulating and practically relevant. Greg's advancement to APS Fellowship is well deserved recognition for his outstanding productivity."

Steve Jardin, Deputy Head of PPPL's Theory Department, said of Park, "We are very fortunate to have Dr. Park on our staff. The three-dimensional simulation model he has developed is the most complete one in existence, and it has already helped us significantly in our quest towards the realization of fusion energy as a practical power source." ●

Patent Issued for Steve Paul's Alternative Fuel

The U.S. Patent and Trademark Office recently issued a patent to Princeton University on a substitute for gasoline developed by PPPL physicist Steve Paul. The gas substitute is called P-series and the patent issued is entitled "Alternative Fuel." Pure Energy Corporation holds the exclusive worldwide license to manufacture and distribute the alternative fuel.

The fuel, which is nonpetroleum and as much as 70 percent renewable, is designed to operate in existing flexible fuel vehicles. P-series is a unique blend of ethanol, natural gas liquids, and a co-solvent. Both ethanol and the co-solvent can be derived from renewable resources such as cellulosic biomass. Use of the fuel as an alternative to gasoline will contribute to significant reductions in greenhouse gases and lower tailpipe emissions.

Pure Energy Corporation, with offices in New York and California, is a privately funded company. In 1996, Paul (at left in above photo) conducted emissions tests on his car as it ran on the alternative fuel. Next to Paul is Robert DePalma of Compliance and Research Services, an Environmental Protection Agency-recognized emissions testing laboratory in Linden, New Jersey. ●

The Year in Review

The Laboratory Concludes an Historic Project and Welcomes a New Director with a New Vision

The Lab names Pamela Lucas as its Diversity Officer, a newly established position created by former Director Ronald C. Davidson. Lucas oversees the Lab's diversity efforts and leads the newly formed Diversity Working Group at PPPL.

Carl Potensky, now PPPL's Maintenance and Operations Head for the Lab's Environmental, Safety, and Health and Infrastructure Support Department, helped "reinvent government" and received the prestigious Hammer Award from Vice President Al Gore for his efforts. Department of Energy Princeton Group Manager Jerry Faul (right) congratulates Potensky on receiving the award.

Using iron pipes, rubber tubes, old automobile parts, and a bit of ingenuity, PPPL staff and students from the Hopewell Valley Central High School designed and built a 96-pound robot. The team then took their creation to Rutgers University to participate in the Johnson & Johnson Mid-Atlantic Regional FIRST Competition, placing in the middle third out of 35 robots. FIRST — For Inspiration and Recognition of Science and Technology — is a national engineering contest that immerses high school students in the world of engineering. PPPL Engineer Alex Nagy worked with the students to create the robot.

The Science on Saturday lecture series was a hit, drawing nearly 2,500 people to PPPL for talks that ranged from earthquakes and science in the crime lab to diamond making and optoelectronics. At left, Princeton University Professor John Conway discusses "Knots, Tangles, and Bangles" as part of the series.

On April 4, experiments on the nation's flagship experimental fusion machine, the Tokamak Fusion Test Reactor (TFTR), concluded. TFTR received wide recognition when it set a world record of 10.7 megawatts of controlled fusion power in 1994 and in 1995 reached a world record plasma temperature of 510 million degrees Celsius. Staffers, reporters, and family and friends gathered around a monitor to watch the results of the final experiments.

Robert Goldston is named the Lab's fifth director on July 1.

During the summer, the Lab underwent a reduction-in-force that cut staff from 555 to about 395 in anticipation of a 15 percent decrease in funding for PPPL for Fiscal Year 1998. About 80 employees accepted voluntary separation options, greatly minimizing the number laid off. During a "best wishes" party for those employees, Phyllis Schwarz (left) and Pat Shangle cut cake.

Laboratory founder Lyman Spitzer, a giant in theoretical astrophysics and plasma physics, died on March 31, just a few days before the final TFTR experiment was run.

Honored by their co-workers for their "personal qualities and professional achievements," sixty-six PPPL employees, including thirty-two tour guides, received Employee Recognition Awards in 1997. The recipients are, from left (front row), Sue Pontani, John Dong, Henry Carnevale, Glenn Pearson, Stewart Zweben, Dick Majeski, Alex Ilic, Mel Gensamer, Bill Jackson, Bobbie Forcier, Jeanne Salerno, and John DeLooper; (second row) Harry Towner, Irving Zatz, Bill Blanchard, Tom Kozub, Larry Dudek, Jim Kamperschroer, Keith Rule, John Luckie, Richard Wieland, Kevin McGuire, Stefano Bernabei, Bill Davis, Ben LeBlanc, Patti Wieser, Phil Heitzenroeder, Bob Kaita, Hantao Ji, and Stephen Paul; (back row) Steve Elwood, Scott Larson, Steve Williams, Charles Ancher, Al von Halle, Skip Schoen, Larry Sutton, Tom McGeachen, and Susan Murphy-LaMarche. Not pictured are George Ascione, John Bavlish, Norton Bretz, Raymond Camp, Dave Ciotti, Vern Clift, Mark Cropper, Nero Fortune, Charles Gentile, Steven Green, Carol Hirschman, Steve Kemp, Donald Long, Mark Oldaker, Erik Perry, Steve Raftopoulos, Ed Rogers, Greg Schmidt, Carl Scimeca, Steve Scott, Charles Sims, Richard "Pete" Szaro, Timothy Vavricka, Michael Williams, Joe Winston, Ken Young, and Nazia Zakir.

Scientists Building Bridges

PPPL Participates in APS-DPP Plasma Sciences Expo in Pittsburgh

Students, teachers, and families attended the 1997 Plasma Sciences Expo at Pittsburgh in November, which featured presentations, hands-on displays, and exhibits, as well as a chance to talk to scientists specializing in fusion and plasma science. The Expo, along with a Science Teachers Day, was conducted by the American Physical Society-Division of Plasma Physics (APS-DPP) and coincided with the APS-DPP annual conference on plasma physics. Both are part of an effort to build a bridge between educators — as well as the public — and plasma physicists. The events were organized by PPPL, General Atomics in San Diego, and other institutions. Above, Tobin Munsat (left in white T-shirt) and Andrew Post Zwicker demonstrate hands-on activities at the Expo. At right, Post Zwicker discusses a presentation about global climate to Expo visitors. Below, PPPL'ers involved in the Expo are (from left) Bob Heeter, Martha Redi, Pamela Lucas, James Morgan, Tobin Munsat, Diane Carroll, and (kneeling) Andrew Post Zwicker.

Thank You

The PPPL Science Education Program would like to thank the following people for their outstanding effort at the 1997 APS-DPP Plasma Sciences Expo:

Joshua Breslau
Troy Carter
Robert Heeter
Scott Hsu
Bob Kaita
Richard Majeski
Dale Meade
Tobin Munsat
Martin Peng
Martha Redi
Daren Stotler
Hironori Takahashi
Michael Zarnstorff

The Expo was a huge success because of your contributions!

PPPL Staff Teaches "Science Over Supper"

Throwing light on the subject, local teachers Doris Gross (left) and Vera Talbert work with PPPL scientist Andrew Post Zwicker (middle) to understand the principles of electrical circuits. The workshop, held recently at the Patton J. Hill Elementary School in Trenton, was titled "Wire That House! — Understanding the Basics of Electricity." As part of PPPL's "Science Over Supper" series, area teachers are teaming up with PPPL scientists to explore the science concepts they teach in their classes. Besides electricity, topics cover geology, plate tectonics, earthquakes, energy, magnetism, and the solar system. A second series, organized by PPPL's Science Education Program staff, is being planned for this spring.

Science Bowl Volunteers Needed

Volunteers for the New Jersey Regional Competition of the National Science Bowl®, which will be held at PPPL on Saturday, February 28, are needed. If you are interested in serving as a judge, timekeeper, moderator, scorekeeper, or could assist with logistics, please call James Morgan at ext. 2116.

The Environmental Restoration/Waste Management and Maintenance and Operations Divison is planning Pollution Prevention Awareness activities for Earth Week 1998, which is in April. The group organized events last year to create an awareness about recycling and waste reduction at PPPL and to encourage children's involvement in the recycling and pollution prevention process. Members of the planning committee last year are (from left) Maria Pueyo, Margaret Kevin King and Jeff Makiel. Not pictured is Mark Snyder. Stay tuned for news about this year's upcoming events.

The Lab's United Way Campaign is a Success

Hats off to PPPL staff, who so generously donated a total of $18,709 to the Lab's 1997 United Way Campaign. About 40 percent of staff participated in the annual fundraising effort, higher than during the past two years. In 1995 and 1996, 38 percent of the staff contributed.

PPPL 1997 United Way Campaign Chairperson Mary Ann Brown said, "I would like to thank the United Way Committee for its efforts and the Lab's management for supporting our United Way Campaign. The generosity of PPPL staff has once again made our United Way Campaign a great success!"

The United Way meeting for employees took place on December 2 and featured information about the United Way, door prizes, and a magician act. All attendees were eligible for the door prizes and anyone who contributed to the campaign was entered into the Grand Prize drawing.

The Grand Prize, drawn on December 10, went to Carl Scimeca, who received a $300 gift certificate for travel arrangements.

A special thanks goes to all employees who contributed to the United Way Campaign at PPPL! ●

Photo by Rob Goldston

PPPL photographer Elle Starkman receives a prize from 1997 PPPL United Way Chairperson Mary Ann Brown during the Lab's United Way meeting in the Auditorium. Elle won a certificate for green fees and cart to the Princeton Meadows County Club.

PPPL's Joyce Bitzer (left) assists "Lin-cee" the magician with a bit of magic during a special presentation at the United Way meeting on December 2.

1997 PPPL United Way Campaign Chairperson Mary Ann Brown (left) presents Lena Scimeca with a certificate for the Grand Prize, a $300 gift certificate for travel arrangements. Lena accepted for husband, Carl.

So many to help ● So much to do ● United Way ● It's up to you