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Hotline

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

1996 APS Fellows Named

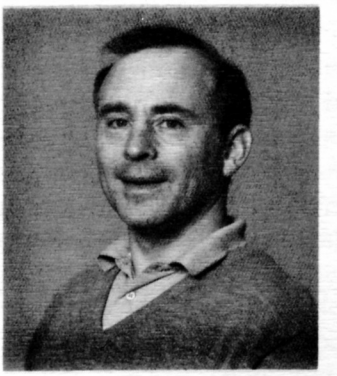
Physicists Mynick, Rewoldt, and Peng Receive Lifetime Appointments

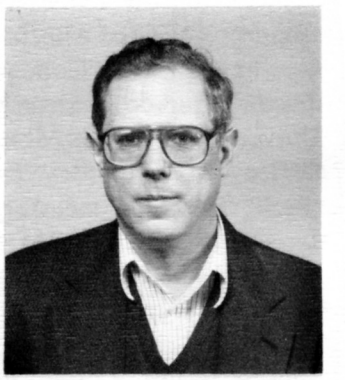
In recognition of their contributions to the field of plasma physics, two PPPL physicists and a long-term PPPL visitor were recently named Fellows by the American Physical Society (APS).

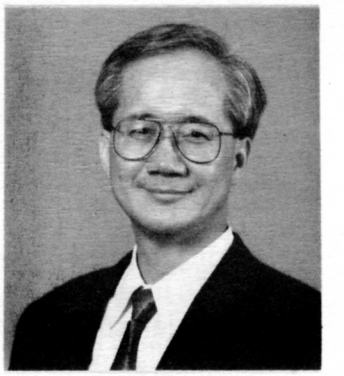
The three elected to the rank of Fellow are PPPL physicists Harry Mynick and Gregory Rewoldt and visitor Martin Peng, who is at PPPL on a long-term assignment from the Oak Ridge National Laboratory (ORNL) in Tennessee. Mynick and Peng received the lifetime appointments from the APS's Division of Plasma Physics during the November APS meeting held in Denver, Colorado. Rewoldt received his Fellowship from the APS's Division of Computational Physics, which will hold its annual meeting this summer. The APS rules limit the maximum number of Fellows selected each year to be half of one percent of the Division membership.

Mynick

Mynick, a Principal Research Physicist at the Laboratory, was cited in his Fellowship Certificate "For major contributions to the understanding of transport in toroidal systems, including nonaxisymmetric and turbulent transport of thermal and energetic particles in tokamaks and stellarators." He received a bachelor's degree in physics and mathematics from Yale University in 1972 and a Ph.D. in physics from the University of California at Berkeley in 1979. Mynick joined PPPL's staff in 1983.







At top left is Harry Mynick, top right is Gregory Rewoldt, and above is Martin Peng.

Peng

Peng, who is the Program Director for the National Spherical Torus

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Meixler Wins National Technology Transfer Award

Lewis Meixler, Head of the Office of Technology Transfer at PPPL, has been selected as the 1996 Representative of the Year by the Federal Laboratory Consortium (FLC). The award, which is being presented to Meixler during the FLC National Technology Transfer meeting in Albuquerque, N.M., this month, recognizes his "significant contribution to the Consortium" in its effort to transfer federal technology to U.S. industry.

"Lewis Meixler has energetically promoted the FLC, and federal laboratories in general, to potential industrial partners, schools, and state and local government agencies," said Tina McKinley, FLC Chair, in a letter to PPPL Director Ronald C. Davidson. McKinley also noted Meixler's "critical contribution" to the FLC northeast

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Meixler

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region's technology transfer videotape, as well as his helpful analysis of media articles about the research and development community. "We are grateful to Lew and to PPPL for his hard work and I know from personal experience that this award is richly deserved," she said.

Stimulating Technology Transfer Activities

PPPL Director Davidson congratulated Meixler on receiving the award, noting, "Lew Meixler has done an extraordinary job in stimulating technology transfer activities at the Laboratory, and is highly deserving in receiving this prestigious award."

Meixler, who came to PPPL in 1975 as an electronics engineer, received a bachelor's degree in electrical engineering from City College of New York in 1964 and a master's degree in electrical engineering from Rutgers University in 1973. Meixler became Head of PPPL's Office of Technology Transfer in 1992. Meixler has taught various engineering subjects at the College of New Jersey (formerly Trenton State College) and also consults with small high-tech industries in the bioengineering and laser fields. Upon receiving the award, Meixler said, "I am honored to be named the FLC Representative of the Year. For a decade, technology transfer has been an important mission of PPPL and the other federal laboratories and we are continuing to actively work to establish collaborations with industry. It's exciting to head up such an effort, especially since it is so important to increase the international competitiveness of the U.S." ●

Lewis Meixler

Fellows

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Experiment (NSTX), an innovative national fusion science project approved for construction at PPPL, was recognized in his Fellowship Certificate "For the development of the low aspect ratio 'spherical' tokamak concept." Peng received a bachelor's degree in electrical engineering from the National Taiwan University in 1967 and a Ph.D. in applied physics from Stanford University in 1974. He joined the staff at ORNL the same year. Peng began his assignment at PPPL in March.

Rewoldt

Rewoldt, a Principal Research Physicist at PPPL, was honored "For his authorship of comprehensive codes for linear toroidal eigenmodes with realistic geometry and kinetic effects and his extensive contributions to the understanding of microinstabilities in tokamaks." Rewoldt received a bachelor's degree in physics from the California Institute of Technology in 1970 and a Ph.D. in physics from the Massachusetts Institute of Technology in 1974. He came to PPPL in 1975.

Fellows Recognized in Their Fields

PPPL Theory Division Head Bill Tang said of Mynick, "Dr. Mynick is well appreciated in the plasma physics community for his contributions to energetic particle studies and to transport theory in tokamaks as well as stellarators. His pioneering work on the transport of energetic particles by long-wavelength magnetic perturbations has led to innovative experimental proposals which are among the leading candidates for alpha-ash removal in burning plasmas."

Commenting on Rewoldt, Tang said, "Dr. Rewoldt is internationally recognized as the principal architect of the most realistic and comprehensive set of codes for the kinetic analysis of the stability properties of toroidal plasmas. It was Rewoldt's calculations which led to the revolutionary conclusion that under specific achievable conditions, neoclassical levels of confinement could be accessible in reversed magnetic shear plasmas — a key finding which was subsequently borne out in carefully-diagnosed experiments on TFTR, DIII-D, and JT60U."

PPPL Advanced Projects Department Head John Schmidt said of Peng, "Martin is the key individual in one of the most successful collaborative activities that PPPL has been involved in. He is clearly a very forward thinking and creative scientist." ●

Congratulations to the 1996 APS Fellows!

PPPL Joint Project is Finalist in National Awards Program for Communication Technologies

The Remote Experimental Environment (REE) in Fusion Energy Research Project — a "collaboratory" among PPPL, the Lawrence Livermore National Laboratory, General Atomics Corporation, and the Oak Ridge National Laboratory — has reached the Finalist level in the 1996 National Information Infrastructure (NII) Awards program, the world's leading forum for the recognition of extraordinary achievement on the Internet and information highway.

The REE is one of 60 Finalists — chosen from a field of nearly 1,000 nominees — in the NII Program's search for the country's most creative and beneficial uses of communication technologies. The Program recognizes work in 10 different categories that touch on all areas of America's work, play, and community life. PPPL's project is a finalist in the Next Generation Award category.

"I am particularly pleased as this award is an indication that computing and enabling technologies are becoming recognized not only as services to research efforts, but also as real partners to that research."

—Dori Barnes

"I am particularly thrilled to have the REE Project named as a finalist for the NII Next Generation Award for two reasons. First, because this national recognition spotlights and highlights another aspect of the significant accomplishments of the national fusion program at a time when our friends in Washington are looking for more good reasons to support fusion research. Secondly, I am particularly pleased as this award is an indication that computing and enabling technologies are becoming recognized not only as services to research efforts, but also as real partners to that research," said Dori Barnes, Head of PPPL's Computer Systems Division.

The REE provides off-site collaborators with the ability to actively participate in real-time experiments in fusion energy research through audio/video technologies. It is a testing environment for advanced control and collaboration concepts applicable to current and future experiments.

Creativity in Using Electronic Communications

"The status of REE as an NII Finalist is an outstanding achievement. It is a real acknowledgment of their creativity in using electronic communications to solve problems and create new possibilities," said James Hake, Chairman of the NII Awards Program. "REE serves as an example of the kind of leadership and dedication that are critical to our continued development as an information era society." The winners will be announced at a major awards ceremony to be held December 3 in New York.

Nominees in the NII Awards Program range from corporations to entrepreneuers to grassroots community organizations to individuals. They are competing for awards in Arts and Entertainment, Business, Children, Community, Education, Next Generation, Government and Health, and in two special awards, the NII Public Access Awards, sponsored by the U.S. Postal Service, and the NII Telecollaboration Award, sponsored by AT&T. Categories are presided over by separate panels of judges comprised of recognized experts in each area.

This year's NII Awards Finalists display an impressive range of talents and solutions. Participants include publishers of on-line magazines and newspapers, designers of children- and teenager-oriented World Wide Web sites, manufacturers of semiconductors, teachers, scientists, and community organizers.

"This is the second time I've been a judge in the NII Awards program, and again I've found the whole process fascinating," said Bob Lambert, Senior Vice President for New Technology and New Media at the Walt Disney Company. "I'm amazed by the depth and breadth of the entries — so many surprising things have popped out of the woodwork of America from both small groups and large organizations that have developed some truly clever applications of the information infrastructure."

Only two years old, the NII Awards Program, which is supported by more than 70 sponsors, has emerged as the most important competition for the recognition of information highway uses, and has won praise from a broad range of industry and community leaders, including Vice President Al Gore, who cited the NII's efforts to reward and showcase these especially beneficial uses of the information highway. ●

Rothman Creates a Murderous Brew of Science and Crime in Fusion Lab

By Patti Wieser

The clock is ticking. The Laboratory has six months to reach ignition — a self-sustaining fusion reaction — or the plug will be pulled on the project. It would mean the end of the Lab, and very likely the end of the national fusion effort.

Luckily, the ignition deadline is not imposed on PPPL, but rather on the fictional Controlled Fusion Research Center (CFRC), the setting of Tony Rothman's recently completed thriller, *Firebird*. At CFRC, commonplace tools of the fusion trade such as deuterium and a busbar turn into instruments of death. And lab directors fall victim to prey as quickly as the temperature of a plasma hitting a wall.

"Sometime around 1984, I came to the Lab to visit and Bill Hooke, who used to work here, told me this idea he had for a mystery that would take place in a plasma physics lab. It sounded pretty intriguing," said Rothman, a visitor at PPPL for the past year.

Mystery-plus weaves Suspense with Science

About 16 months ago, Rothman, a physicist and writer, began the novel, which has turned into a 500-page "mystery-plus" that interweaves suspense, subplots, and crime with experiments, science, and a declining fusion budget.

"I've tried to keep the science in the book absolutely accurate. Coming here gave me access to all these details. There have also been a lot of real-life incidents and technical aspects of fusion that I picked up, which made it more realistic," said Rothman. For instance, there is a bomb scare at CFRC — just like the one at PPPL last spring — when a suspicious package arrives as a bulging envelope with postage from outside the U.S. Authorities later discover a scientific manuscript and floppy computer disk, which had been submitted to a professional journal edited by a staff member.

"Basically, I've been picking people's brains for the book. I've been a little surprised, favorably. When I told people I was working on this, I might have expected them to get very nervous, but, in fact, people were very forthcoming. Al von Halle, in particular, has been a gold mine," noted the author.

While Hooke provided the original idea, "I came up with a more diabolical murder weapon and former PPPL employee Paul La Marche came up with a yet more diabolical thought, which I used," said Rothman, adding that current staffers Charles Neumeyer and Al von Halle, among others at PPPL, also contributed ideas. "In some ways it's been written by the whole Laboratory," noted Rothman.

"In some ways it's been written by the whole Laboratory."
—Tony Rothman

It is little surprise that Rothman feels at home at PPPL since he grew up climbing around the Model C Stellarator. "My father came to the Lab in 1959 and worked here closely with Bill Hooke and a few other people on the C-stellarator," said Rothman, whose father, Milton, left the Lab after 10 years to teach at Trenton State College. He is now retired.

Rothman, who has published six books — a combination of fiction and nonfiction — and written three plays, is both a scientist and a writer who dons a multi-professional cap rather than going from one profession to the other. "I find the process of creation very similar in both science and writing. I don't jump between the two but have always done both," he said.

Rothman said the stages of creation in writing and science are similar, although the details and the part of the brain used are different. "But there's always this initial inspiration stage where you have this idea either for your novel or for your scientific research and you have this very vague notion of how good it is. It's the 'Eureka!' phase. Then's there's this long period — the 'perspiration phase' — in which you are actually banging it out and going through all the details," he said. "Finally, there is a quick wrap-up stage when everything comes together or falls apart."

Structuring the book proved challenging and at one point, the PPPL visitor wondered if he would finish it. "Usually in my head when I write a novel, I see a structure

geometrically. I had a very hard time finding that in this book...but adding this ignition deadline helped," said Rothman. The deadline is imposed by an investor in the Laboratory, which had become a private research facility.

Rothman said he hopes people who read the book, which he has just begun to show editors and agents, get a greater appreciation for how science operates and what the outlook of a scientist is. "There are very few novels, if any, written from the scientist's point of view...I wanted to use this as an example of how science is actually done, especially in a big lab," said Rothman.

The main character of *Firebird*, Nathaniel Machuzak, is a plasma physicist and an experimentalist. While written in the first person, Rothman said he doesn't consider Machuzak to be him, noting that he (the author) is a theorist whose scientific specialty is cosmology. He acknowledged, however, that there are three characters in each of his novels who tend to be based on him. "The three represent various facets of my personality — one is a monkish, sheepish character, another is an eccentric, romantic extrovert, and the third is a scientific/analytical person. "I'm sort of three people. I've never quite integrated myself," he added with a smile.

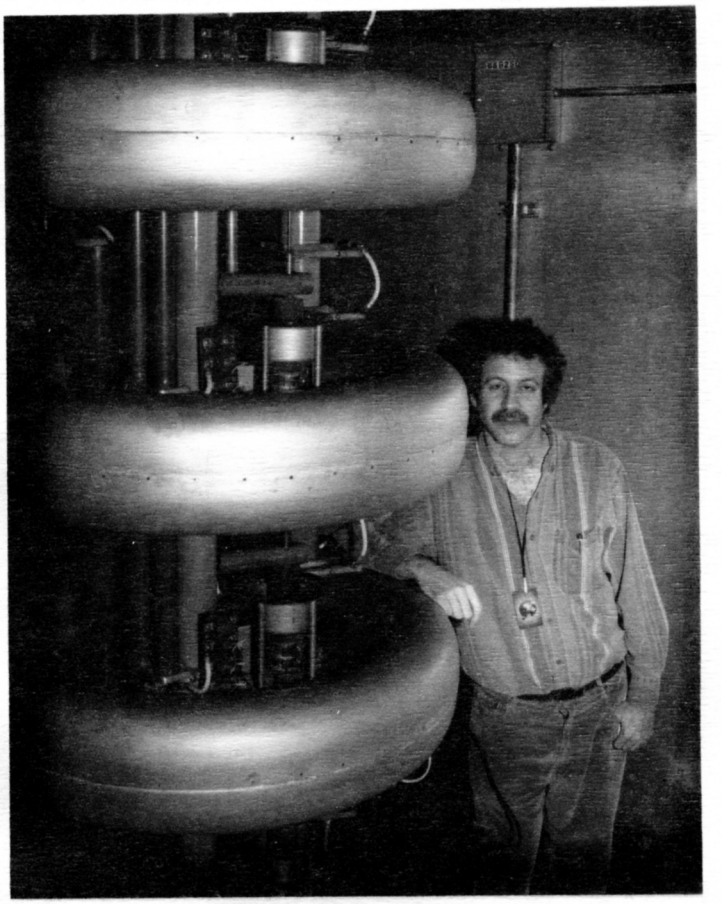
Scientist-writer

The scientist-writer, who has a bachelor's degree in physics from Swarthmore College and a Ph.D. from the Center for Relativity at the University of Texas, noted that in the U.S., people are poorly educated in science but continue to be interested in it. "People are fascinated with cosmology, superstrings, and extraterrestrial life. There's no question there's an interest, but it is also a bit warped. I think Hollywood does a real disservice in portraying scientists as Frankensteins and also in confusing science with magic....The public doesn't seem to know what constitutes science. That's why I think scientists have to become more visible," said Rothman, a former member of the Editorial Board of *Scientific American*. and a present Associate of the Harvard College Observatory.

The author, who spent five years abroad in Europe, Russia, and Africa, noted that in other countries, most scientists are also scholars, intellectuals, and artists. Many are involved in public activity. In his book, *A Physicist on Madison Avenue,* which was nominated for the Pulitzer Prize, Rothman writes, "The scientist/writer split seems to be an American phenomenon. If so, it is not merely the result of increasing specialization but a part of the general divorce of science from the rest of society."

Through his novel, which renders concise, descriptive passages about science in a fast-paced suspense story, Rothman may help close the gap. ●

[Watch for Rothman's article about fusion — and PPPL — in the upcoming issue of *The New Republic.*]



Tony Rothman visits the scene of the crime, the neutral beam crowbar assembly.

And now, a word from the critics...

"I've only just begun to read Firebird and was immediately grabbed by the opening chapter. If you ever dared think fusion research mundane...think again. Tony has taken his sound grasp of the topic and woven it into a tale of suspense and intrigue made appealing to both the layman and the physicist."

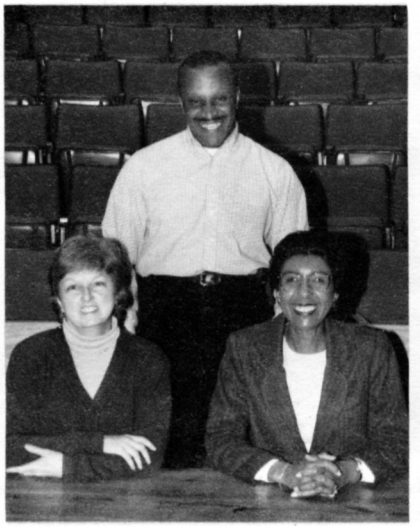
—Mike Kalish, Tritium Group

"Tony has done an admirable amount of research for his very suspenseful novel and has captured the flavor of the hard work we do here nicely. His authenticity as a physicist comes through in his clear science explanations, and his credentials as a good writer are evident in the interesting characters he has created. I enjoyed the novel thoroughly and wish him well in his efforts to publish."

—Tim Stevenson, Neutral Beams Operations

What's Happening at PPPL

Ten PPPL'ers Honored During Civility Month



The Civility Month honorees from the Laboratory are Lynne Yager, John Clark, and Linda Harmon (left photo), Wilbert Barlow and Steve Green (top middle photo), Chris Ritter (middle photo), and Charles Bush (right photo). Not pictured are Joellyn Lumberger, Westley Reese, and Robert Tucker.

Ten PPPL'ers were among the Civility Month honorees recently recognized by Princeton University. The University's Ombuds Office asked staff to nominate individuals "whose attitudes and actions reflect the values of mutual respect and consideration for others." The nominees were honored at a November 7 reception on main campus. University officials said, "Our intent is to thank all those who in some way make the campus a more friendly and joyous place to live, work, and study. We are recognizing those at the reception as representatives of all staff whose acts of civility enrich the life of the university community." Congratulations to the honorees! ●

The Laboratory's United Way meeting for all employees is scheduled for Tuesday, December 10, at 10 A.M. in the LOB Auditorium. Everyone is invited! There will be refreshments, door prizes, and entertainment. So mark your calendars.

Touch a Life Everyday Share your Heart United Way

Laboratory Holiday Schedule

The Laboratory will be closed Monday, December 23, 1996, through Wednesday, January 1, 1997, in observance of the Christmas and New Year's Holidays. PPPL will reopen on Thursday, January 2, 1997. The dates of the Laboratory Holiday Schedule are as follows:

Monday	December 23	Laboratory Closing
Tuesday	December 24	University Holiday
Wednesday	December 25	University Holiday
Thursday	December 26	Laboratory Closing
Friday	December 27	Laboratory Closing
Monday	December 30	Laboratory Closing
Tuesday	December 31	University Holiday
Wednesday	January 1	University Holiday

All staff members will have the option of charging the four "Laboratory Closing" days (December 23, 26, 27, and 30) as vacation, or they may use their two Optional Holidays in conjunction with vacation.

Those who anticipate special problems are urged to talk to their supervisors or to contact the Human Resources Divison as soon as possible.

Payroll checks will be available on your choice of two dates (according to the following schedule) **ONLY** at the following Pick-up locations:

Staff	Pick-up Dates and Times	Pick-up Locations
Exempt & Hourly	Thursday, December 19 — After 3 P.M. Friday, December 20 — 9 A.M.-noon	PPPL Payroll Office (Mod II)
Bi-weekly	Thursday, December 26 — 3:30 P.M.-5 P.M. Friday, December 27 — 9 A.M.-noon	Main Campus Payroll Office (New South Bldg., First Floor)

TRANSITIONS

Births

Congratulations to **Rich Myslinski,** of the Technical Systems Division, and **Sara Flohr,** of the Facilities and Environmental Management Division, on the November 1 birth of their daughter, Elise.

Retirements

Hulbert Hsuan, a Principal Research Physicist for TFTR Diagnostics, retired on October 1. Hsuan had been at the Lab for 23 years.

Director's Advisory Committee on Women

Sharon Warkala, Chairperson
Molly Tompkins, Co-Chairperson

Members

Dori Barnes
Dolores Bergmann
Mary Ann Brown
Margaret King
Dolores Lawson
Pamela Lucas
Chris Ritter
Cheryl Such
Patti Wieser

Ex officio Members

Diane Carroll
Martha Redi
Sue Hill
Michael Williams
Sue Murphy-La Marche

If you have issues you would like to bring to the DACW's attention, please contact Committee Chairperson Sharon Warkala at ext. 2691 or e-mail swarkala@pppl.gov or call any member of the Committee.

Happy Thanksgiving!

PPPL's own wild turkey

HOTLINE

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