

HOTLINE

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

American Association for the Advancement of Science Names Meade and Sauthoff Fellows

In recognition of their exceptional research contributions to and leadership in magnetic confinement fusion science, PPPL's Dale Meade and Ned Sauthoff have been elected Fellows of the American Association for the Advancement of Science (AAAS). New Fellows will be honored on Saturday, February 19, in Washington, D.C., at the AAAS Fellows Forum, a part of the association's annual meeting.

PPPL Director Rob Goldston said, "We are very pleased that the AAAS has chosen to honor two of the leaders of our Laboratory. Dale and Ned both have long records of scientific accomplishment and leadership, and this award is very well deserved."

Meade is Program Head of the PPPL Off-Site Research Department and leads the Next Step Options Division at the Laboratory. He came to PPPL in 1973 after serving as a professor of physics at the University of Wisconsin and was Deputy Director of the Laboratory from 1991 to 1997. From 1986 to 1991, he was Head of the Tokamak Fusion Test Reactor project and of Experimental Physics in the Research Department, and prior to that headed many experiments. Meade received a bachelor's degree in electrical engineering in 1961, a master's degree in physics in 1962, and a Ph.D. in physics in 1965, all from the University of Wisconsin.

He is a Fellow of the American Physical Society and received the University of Wisconsin's Distinguished Alumni

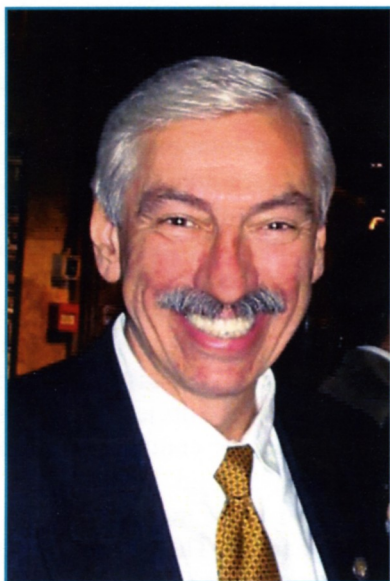
Fellow Award in 2002, the Fusion Power Associates' Leadership Award in 1999, the Department of Energy Distinguished Associate Award in 1994, and the University of Wisconsin-Madison College of Engineering Distinguished Service Citation in 1990.

Sauthoff is a principal research physicist at PPPL and a leader in the coordination of international fusion re-

search activities. He was recently named U.S. ITER Project Manager. Sauthoff has headed numerous departments at PPPL, including the Off-Site Research Department, Plasma Science and Technology Department, Physics Department, Experimental Projects Department, and Computer Division.

Sauthoff is the author of more than 100 papers and articles in fusion science and computer systems publications. He is a Fellow of the American Physical Society and was President of the Institute of Electrical and Electronics Engineers, Inc.-USA in 2001. Sauthoff received a bachelor's degree in physics in 1971 and a master's degree in nuclear engineering in 1972, both from the Massachusetts Institute of Technology, and a Ph.D. in Astrophysical Sciences, Program in Plasma Physics, from Princeton University in 1975.

Each year, the AAAS Council elects members whose "efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished." The honor of being elected a Fellow of AAAS began in 1874 and is acknowledged with a certificate and a rosette. ●



Dale Meade



Ned Sauthoff

Lab Implements New Business Computing System



The team members, from left, are (front row) Ed Winkler, Emma Torres, Steve Baumgartner, Jim Mactaggart, Jerry Siminoff, (second row), John Wheeler, Jo Lumberger, Connie Cummings, Magdalena Liebnitz, Penny Neuman, Fran Cargill, Spence Holcombe, (third row) Larry Sutton, Sharon Warkala, Jackie Pursell, Sallie Meade, Skip Schoen, Theresa Gillars, Kathleen Lukazik, Kevin Ranahan, (back row) Rod Templon, Matt Lawson, Marie Iseicz, Arlene White, John Luckie, Tony Bleach, and Madeline McMullen.

During the past year, PPPL began fully operating its upgraded business computing system, which includes budget, accounting, procurement, and property management components. The new system was adapted using Great Plains Enterprise Resource Planning software — an up-to-date commercial product.

“The Business Operations Department staff and Materiel and Environmental Services staff, supported by the Business Computing Branch, dedicated a significant amount of time and effort to implement this project over a thirty-one month period commencing in October of 2001. The PPPL implementation team supported this project with a minimal amount of additional back-fill support, effectively supporting the project implementation while continuing to perform their ‘normal’ job requirements,” said PPPL Business Operations Head and Chief Financial Officer Ed Winkler. “This represents a truly remarkable achievement, and one which all of the participating staff can be very proud.”

Prior to the installation, the Laboratory had been using a 20-year-old mainframe to operate its business information systems. The Great Plains Software, tailored for each area, uses client-server technology, as well as web applications, and is comprised of four new servers. PPPL Procurement Head Rodney Templon said, “For us, this system represents a real leap forward in terms of integrating contract data. It was difficult in the former system to pull together and analyze procurement information and make it available to stakehold-

ers, including requisitioners, management, the Department of Energy, and, to some degree, our vendors. This new system is becoming a powerful tool that will help us meet information demands.” Marie Iseicz, PPPL Budget Office Head, noted that the system allows “greater flexibility.”

Added PPPL Accounting and Financial Controls Head Tony Bleach, “It has given us a real accounting system. It has provided us with a more efficient system, eliminating duplication of effort among Accounting, Procurement, and Materiel Control. It has also improved our capabilities to perform account analysis and compile and submit our financial data to DOE.”

Steve Baumgartner, PPPL Business Computing Head, lauded the team effort involved in the project. “Most people underestimate the amount of effort required to implement new systems. It’s not as simple as upgrading to a new version of Word. This project was even more

difficult because we were replacing a wide span of applications — modules in Procurement, Accounting, Projects and Budgets, and Materiel Control — and the modules all needed to be brought up live at the same time. Throughout the implementation, the project team thoroughly reviewed its processes and procedures, reviewed the new system’s capabilities, decided on process changes where necessary, and justified any modifications to the software.”

Baumgartner added that as modules were delivered, the project teams had to constantly test to make sure the systems not only worked as designed, but satisfied PPPL’s operating requirements. “It was very gratifying to see how everyone involved in the project took ownership of the new systems and made the commitments necessary for the project to succeed,” he said.

Two more modules, which are in the testing phase, will be added. These include Shipping Orders, a web-based shipping request system, and Travel, a web-based system encompassing trip requests and authorizations, as well as travel vouchers. Shipping Orders is expected to “go live” in February, and Travel will be tested the following month.

Business Management International supplied the Great Plains Software and tailored it for the Lab’s needs. “PPPL was very fortunate to have a contractor who was committed to the project with a highly proficient team that included Craig Greitzer, Susan Adamson, and Ruth Mermelstein,” said Baumgartner. ●

Grad Student Liu Garners 2004 Stix Prize

For years, two names in the field of physics have stood out for Wei Liu. The first is Albert Einstein, who became Liu's idol when the latter was a small boy growing up in China and fascinated by science. Later, as a college student at the University of Science Technology of China where he received a bachelor's in plasma physics and a master's in engineering, Liu heard a second name — Thomas Stix. He'd read, "The Theory of Plasma Waves," the classic text written by Stix in 1962, and knew of the physicist even earlier. "Stix was well known," said Liu.



Wei Liu

Liu wished to meet the professor he admired some day, but never got the chance; Stix died in 2001. In 2004, however, a link developed between the two when Liu was named the recipient of the Thomas H. Stix '54 Plasma Physics Prize. "It was an honor," said Liu, who is the second person to win the prize. Prateek Sharma received the first prize in 2003.

Stix was the founder and longtime director of graduate studies for the University's Program in Plasma Physics and a leader in the development of plasma physics. A fund was created in his memory to establish a prize for first and second-year graduate students studying plasma-related topics. The prize would enable international travel for conferences or research.

Liu, a second-year graduate student in Princeton University's Program in Plasma Physics, used the prize to attend the Computational Fluid Mechanics 2004 summer program at the Golm campus of the University of Potsdam in Germany. The program at Potsdam, from August 23 to September 17, focused on computational fluid physics and MHD [magnetohydrodynamics] simulations.

While at Golm, he gave an informal talk to those who attended the program, discussing the research he is involved in at PPPL on the Magnetorotational Instability (MRI) project. He also went to the University of Cottbus in Germany to visit a lab and hear plasma physics talks. In addition, he attended many dinners and participated in discussions with others in the program.

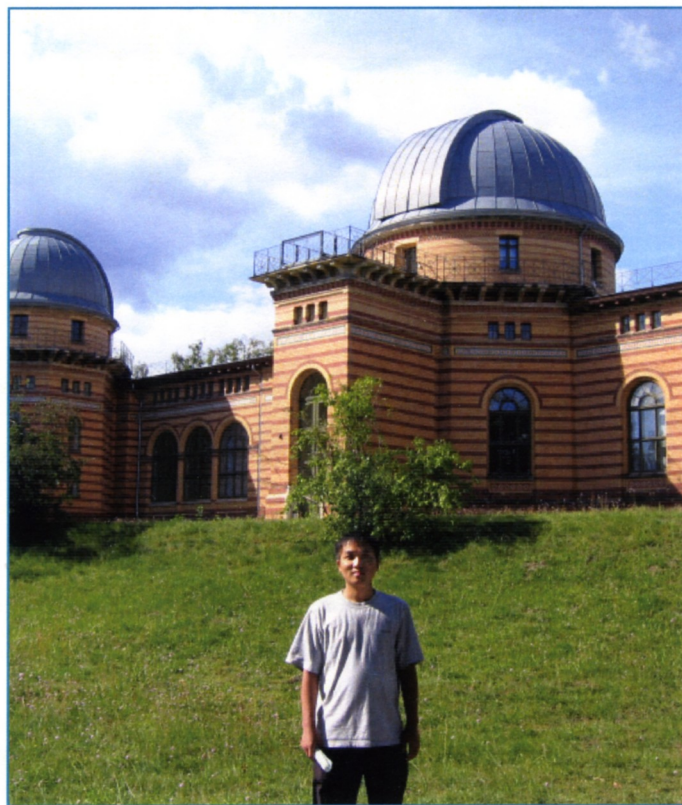
Attending the conference gave Liu many ideas about how to do the MHD simulations on MRI, now underway in the Lab's L-wing. "This summer school was very important to me," said Liu, who is advised by PPPL's Hantao Ji and Princeton University's Jeremy Goodman on the MRI project. "I think I have a further understanding about simulation and MRI. The experience was very helpful."

As a first-year graduate student, he did research on the Paul Trap Simulator Experiment with Ron Davidson as his advisor.

Liu said that besides his studies in Germany, he was able to see some of the sites, socialize with his fellow students, and learn more about the German culture. While there, he lived with a family. The experience was pleasant, but had one minor drawback — the family did not speak English and Liu does not speak German. "We had a little bit of difficulty understanding one another, but we used a sort of sign language to get by," said Liu.

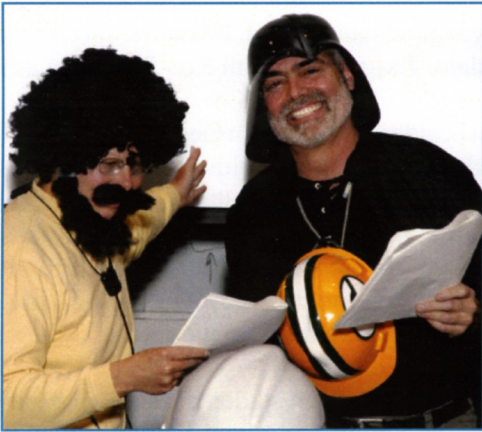
A final treat for the program students was to visit Haver River and the home and office where Einstein lived and worked, as well as to attend a beer party featuring German refreshments and a boating expedition. Liu said he enjoyed making many friends in the field and developing contacts from all over the world. The 37 students involved in the summer program were from many countries.

"I attended lectures and classes, and participated in many discussions with scientists from 30 other countries. The most exciting thing is that Albert Einstein was working there before he came to the U.S.," said Liu. "Albert Einstein has been my idol since I was very, very young," he added. ●



Wei Liu at the Observatory of the Astrophysical Institute of Potsdam, where Einstein had worked.

Staff Come Together to Celebrate the Holidays



On December 23, PPPL staff enjoyed a holiday celebration that featured lunch, music, and a skit, "Rob Trek." At top left, "Captain Rob," portrayed by former PPPL'er Gretchen Zimmer, has a word with "Darth Meade," played by Al von Halle, during the skit. At top middle, Martin Peng (left) and Joanne Savino chat during the party and at top right, Linda Harmon (left) and Margaret Kevin-King go through the food line. At middle left, PPPL engineer Ray Camp plays "Spock Hawryluk" in "Rob Trek" and at middle, Andrew Post-Zwicker plays "Ambassador Sauthoff." At middle right, a group takes a break for lunch. From left are Sue Hill, Bobbie Forcier, Jean Wernock, Sonja Patterson, and Allen Patterson. At bottom left, Jerry Levine (left) and Elle Starkman hit the food line and at bottom right, the *Not Ready for Tritium Players* perform in the skit. From left are Ray Camp, Ted Biewer, Gretchen Zimmer, Mike Kalish, and David Gates. ●

PPPL's United Way Campaign Exceeds Goal



PPPPL employees continued their generosity toward the United Way in 2004, donating a total of \$32,173 for the Laboratory's annual campaign — topping this year's goal of \$30,000. About 37 percent of the Laboratory participated.

One-day Campaign

PPPL held a one-day campaign on December 8, which included information about United Way programs and a feature presentation by Better Beginnings Daycare Center Executive Director Luz Horta, as well as refreshments and a tricky-tray raffle. Those who contributed to the campaign were entered in the Grand Prize drawings on December 22. The Grand Prize, won by Daren Stotler, was a \$200 Gift Certificate to Rats Restaurant at the Grounds for Sculpture, donated by PPPL. Thanks go to everyone at PPPL who made the campaign such a success. ●

At left, from left, are United Way committee member Sonja Patterson, United Way Campaign Grand Prize winner Daren Stotler, committee chair Rose Fuchs-Smith, and committee member John Bennevich.

PPPL'ers Honored as "Green Machines" during America Recycles Day Festivities

PPPPL honored several staff members for their extra recycling efforts during the PPPL America Recycles Day presentation on December 1 in the MBG Auditorium. PPPL Deputy Director Rich Hawryluk presented awards to those who helped the Laboratory reach high recycling rates. The honorees include Calvin Armstrong, Kareem Armstrong, Henry Carnevale, Jill Foley, Steve Green, Jo Lumberger, James Nah, Tony Morgado, Don Perez, and Mike Widdis.

The event also included a presentation by organizers Margaret Kevin-King and Tom McGeachen. "In FY04, PPPL reached a Municipal Solid Waste recycling rate of 51 percent and a Construction and Demolition recycling rate of 55 percent. These excellent rates were attained through the efforts of all PPPL staff," said McGeachen.

The goal for FY05 is higher. "This year, we hope to reach a Municipal Solid Waste recycle rate of 55 percent," said Kevin-King. The Lab is off to a good start. For the first quarter of FY05, the PPPL Municipal Solid Waste recycling rate is 50 percent! ●

Photo by Rob Sheneman



PPPL America Recycles Day event coordinators Tom McGeachen (far left) and Margaret Kevin-King (far right) give T-shirt prizes to this year's "Green Machines." From left are McGeachen with honorees Henry Carnevale, Tony Morgado, Steve Green, Calvin Armstrong, Jo Lumberger, Jill Foley, Kareem Armstrong, Don Perez, and James Nah, and Kevin-King. Not pictured is honoree Mike Widdis. Congratulations!

Science Bowl Volunteers Needed

About 40 volunteers are needed for the New Jersey Regional Competition of the National Science Bowl®, which will be held at PPPL on Saturday, February 26. If you are interested in serving as a judge, timekeeper, moderator, or scorekeeper, please e-mail James Morgan at jmorgan@pppl.gov. No experience necessary. ●

PPPL Designs and Builds Jupiter II Magnet for UCLA

Photo by Regina Worthy



The PPPL team involved in designing and building the electromagnet for the Jupiter II Project are, from left, (standing) Tom Meighan, Red Delany, Charlie Sands, Fred Simmonds, Bob Clark, and Bob Woolley, and (kneeling) Mike Kalish, Manuel Fernandez, Joe Bartzak, and Bob Horner. Not pictured are Steve Kemp and Mike Messineo. Behind the team is the magnet.

A collaboration between PPPL and UCLA led to the design and construction of a 41,000-pound electromagnet for the Jupiter II Project. The six-year Jupiter II Project is a collaboration funded by Japan and the U.S. Department of Energy for the utilization of unique U.S. facilities by Japan and U.S. researchers. PPPL's Bob Woolley designed the magnet and the mechanical details were developed under the direction of PPPL's Mike Kalish, who also supervised the magnet's fabrication. In addition to Woolley and Kalish, PPPL's contributing to this effort included Joe Bartzak, Bob Clark, Red Delany, Manuel Fernandez, Bob Horner, Steve Kemp, Tom Meighan, Mike Messineo, Charles Sands, and Fred Simmonds.

The steady-state electromagnet provides a magnetized region 15-centimeters wide by 25-centimeters tall, which is more than 140-centimeters long, and it develops up to 2-Tesla transverse magnetic field strength within that region. Its water-cooled electrical coils, wound by Everson Electric under a PPPL subcontract, are designed for continuous operation using a former Tokamak Fusion Test Reactor power supply previously transferred to UCLA in support of other fusion engineering experiments. For economy, the magnet's self-supporting flux path structure was designed as a laminate requiring the precision cutting into various cross-section patterns of 226 inexpensive hot-rolled one-quarter-inch thick low-carbon steel plates. The steel cutting was accomplished by PPPL's numerically-controlled water-jet cutter during a six-week period.

After completing final assembly in January, the magnet was shipped to California for installation in the Thermo-Fluids Laboratory of UCLA's Fusion Science and Technology Center. Engineering experiments will be conducted there to study how the strong magnetic fields in future fusion reactors would affect the heat transfer properties of proposed fusion blanket coolants, using a 3.5-inch diameter transparent pipe carrying a flowing liquid. ●



Name: Sharon Warkala

Position: Senior Subcontract Administrator in the Procurement Division, with responsibility for purchasing a wide range of goods and services — primarily computer items — for the Laboratory. Warkala also is the administrator of the Lab's PCard Program and is involved in the Open Order project.

Quote: "I came to PPPL 15 years ago. I love PPPL – I've loved it since the first day I started here. It is a fascinating place to work. The mission of the Lab is exciting. Searching for a solution to the energy problems of the world is both fascinating and noble, and I am proud to be a part of this quest. I look forward to the day when the Lab's goal of fusion as an energy source is realized."

The best part of my job is my interaction with the people here, including those I work with and for, and those I support. I am privileged to be associated with such an incredible group of people."

Other interests: Warkala and her husband, Chris, are Wizard of Oz collectors and football fans, although each supports a different team. Chris is for the Philadelphia Eagles and Sharon, a Pittsburgh native, is for the Steelers. Warkala quips that the football team differences could lead to some "household trouble, but each of us tries to be a good winner and not gloat too much over our wins." Although disappointed by the recent Steelers' loss in the AFC Championship game, Sharon will be cheering for the Eagles in the Superbowl.

One thing the two are in total agreement over is their shared enthusiasm for the Wizard of Oz and for collecting Oz memorabilia, in particular books. "Our collection has evolved over the past 20-plus years and now focuses on antiquarian books and ephemera. We have more than 250 books, including Oz and related books, as well as books that have some connection, such as featuring the same illustrators as the Oz books," said Warkala. The couple's home office is the official "Oz Room" and the family room contains the book collection, but, says Warkala, "There's a little Oz in every room of the house." The couple continue to add to their collection through Ebay, auctions, and other sources.

The Warkalas are the registrars for the East Coast ("Munchkin") Chapter Convention of the International Wizard of Oz Club. The annual convention, held the first weekend in August in Harrisburg, Penn., usually attracts about 120 devotees or "munchkins," so named because the munchkins in the story are from the East in the Land of Oz. Conven-



tions include a memorabilia auction, displays of books and other memorabilia, and often special guests such as actors who played munchkins in the MGM movie, Oz book illustrators and authors, and Baum family members. L. Frank Baum wrote "The Wonderful Wizard of Oz," which was published in 1900. The 1939 MGM movie, "The Wizard of Oz," was based on it. Baum wrote 13 other books around the Oz theme and other authors continue to produce stories around this theme. [The Broadway musical "Witches" is based on one of the latest.]

Not surprisingly, one of the two cats at the Warkala home is named "Ozzie." The other cat is called Bada Bing, but is mostly referred to as "the weasel."

Another area of interest is health and weight loss. Warkala has lost 140 pounds in the last year and a half. "I feel so much healthier," she said, pointing out a "before" photo in her office. After developing some weight-related health problems, becoming concerned about a family history of heart problems and diabetes, and a having a lifetime of failed attempts to lose weight, Warkala opted for gastric bypass surgery. "I have had a totally positive experience with the surgery and am lucky to have had no complications. I follow the dietary rules I need to follow for the rest of my life," she says, noting she works out on a regular basis and tries to eat right. "I have to work at it every day just like everyone else. The surgery is no 'magic bullet.' It is a tool to help you achieve your goal and stay there. It's been an incredible journey with amazing results, but the hard work of maintaining the weight loss is still ahead of me." ●

2005 Science-on-Saturday Lecture Series Begins

For the twentieth year, PPPL is offering its popular wintertime Science-on-Saturday lecture series. Beginning this month, you can find out about gorilla research, high-power lasers, infectious diseases, and molecule behavior, among other subjects featured on several January through March Saturdays at 9:30 a.m. The talks, which are free, are geared toward high school students, but open to everyone. Students, teachers, parents, community members, and PPPL staff and family are welcome to attend any or all of the talks. This year's series is being co-organized by PPPL's Ronald Hatcher and James Morgan. Below is the remainder of the schedule for 2005.

February 5

GLASS, THE CANVAS FOR SCIENCE: FROM THE SCIENTIFIC GLASSBLOWER'S PERSPECTIVE

by Mr. Michael Souza, Department of Chemistry, Princeton University, Princeton, NJ

February 12

LINKING PERCEPTION TO ACTION: MECHANISMS OF THE BRAIN THAT GIVE RISE TO QUALITIES OF THE MIND

by Prof. Joshua Gold, Department of Neuroscience, School of Medicine, University of Pennsylvania, Philadelphia, PA

February 19

INVADING THE VIRUS WORLD: DETECTIVE STORIES IN INFECTIOUS DISEASE

by Prof. Joseph B. McCormick, Assistant Dean, and James H. Steele Professor, University of Texas, Houston Health Science Center, School of Public Health, Houston, TX and Prof. Susan Fisher-Hoch, Biological Sciences, University of Texas, School of Public Health at Brownsville, TX

February 26

NO PROGRAM — NEW JERSEY REGIONAL SCIENCE BOWL®

March 5

MORE PERFECT THAN WE IMAGINED: A PHYSICIST'S VIEW OF LIFE

by Prof. William Bialek, Joseph Henry Laboratories of Physics, and the Lewis-Sigler Institute for Integrative Genomics, Princeton University, Princeton, NJ

March 12

HIGH POWER LASERS: ANOTHER PATH TO FUSION ENERGY

by Dr. John D. Sethian, Manager, High Average Power Laser Program, Laser Plasma Branch, Plasma Physics Division, Naval Research Laboratory, Washington, DC

March 19

WHAT IS THE VALUE OF CONTINUED LONG-TERM RESEARCH ON WILD MOUNTAIN GORILLAS?

by Dr. H. Dieter Steklis, Professor Emeritus of Primatology, Rutgers University, New Brunswick, NJ and Vice-President for Conservation Science – The Dian Fossey Gorilla Fund International

Hotline

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