

At PPPL THIS WEEK

WEDNESDAY, APRIL 24

Administrative
Professionals
Day
Wednesday : April 24

PPPL Colloquium

4:15 p.m. ♦ MBG Auditorium

Environmental Condensed
Matter Physics

Brad Marston, Brown University
Refreshments at 4 p.m. in the LSB Lobby

WED., THU, FRI., APRIL 24-26

PPPL Advisory Committee Meeting

THURSDAY, APRIL 25

GFDL Seminar

2 p.m. ♦ Geophysical Fluid
Dynamics Laboratory (GFDL)

Smagorinsky Seminar Room

Precessional Forcing, Monsoons and
Isotopic Composition of Precipitation

David Battisti (Univ. of Washington)

www.gfdl.noaa.gov/events

(Gov't, University or 2 other I.D. needed)

SUNDAY, APRIL 28

Communiversy Festival of the Arts

1 - 6 p.m. ♦ Downtown Princeton

Featuring PPPL Display

UPCOMING EVENTS...

June 1

PPPL Open House

9 a.m. - 4 p.m. ♦ Lab wide

Inside...



China Partners

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Ed Frieman 1926-2013..

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PPPLers Clean Up

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Cafe @ PPPL Menu

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Director's Corner

Meetings with Laboratory staff yield wide range of suggestions



By **STEWART PRAGER** — Director, Princeton Plasma Physics Laboratory

Dear PPPLers,

In October, I reignited a process started soon after arriving at PPPL. Over the past six months, I have been engaged in an exceedingly interesting series of discussions with Lab staff to receive feedback on any and all aspects of PPPL. Through gatherings of between 15 and 20 people, I have, to date, met with about three-quarters of the staff. At these meetings, there is no agenda. The direction of discussions is determined by topics raised by those at the meeting. I have been impressed, but not surprised, by the interest and dedication of the staff, and by the utility and creativity of your suggestions. Comments range from specific issues (“my office is infested with bugs”) to big picture concerns (“the Lab needs to diversify further its research portfolio”).

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Rich Hawryluk recalls “exciting and challenging” years working on ITER

By **John Greenwald**

What is it like to be at the center of ITER, the huge international fusion experiment that is under construction in Cadarache, France? “It’s both exciting and challenging,” said physicist Rich Hawryluk, who recently returned to PPPL after a two-year stint as deputy director-general for the Administration Department of ITER. “It’s exciting in the scope and scale of this effort, and challenging in bringing such a large project to completion.”

Hawryluk had many diverse responsibilities at ITER. He oversaw functions ranging from human resources to finance and budgeting to procurement and information technology. “A project this large is almost a continuous cycle of oversight and reviews,” said Hawryluk. “You’re essentially going from one major review to another every few months, and this kept us extremely busy.”

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Flowers and laughter



Richard Yager, a PPPL employee of 51 years, and Princeton University President Shirley M. Tilghman share a laugh after Yager presented Tilghman with a bouquet of flowers at the Princeton University Service Recognition Luncheon on March 19. Yager, who started work at PPPL on Feb. 22, 1962, is one of the longest employed people working for the University, and was asked to present the flowers to Tilghman, who is retiring as University President this year. Yager recalled that when he gave Tilghman the bouquet, she whispered to him, “How did they rope you into doing this?” He replied: “Since I was a little boy I wanted to be a flower boy. I wanted to give you flowers and you should enjoy your retirement.” She just laughed.”

Hawryluk

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Hawryluk arrived in Cadarache in April, 2011, a year after construction of the ITER complex began on a 445-acre site in 2010. Contracts now are being prepared and awarded to assemble the six-story-tall fusion facility, or tokamak, that will be at the heart of the complex.

Hawryluk is no stranger to exhaustive oversight duties. He served as head of PPPL's Tokamak Fusion Test Reactor experiment from 1991 to 1997, and as deputy director of PPPL from 1997 to 2008. He also was a member of the U.S. delegation to the ITER Management Advisory Committee, which reports to the ITER Council. "But there's a big difference between being an outsider on the advisory committee and dealing with day-to-day issues," he said. "Getting immersed in and resolving the many issues that we had talked about was a major change."

Among the key challenges was recruiting scientists, managers and other staffers from all seven partners in the ITER venture, whose participating countries represent more than half the world's population. Funding the \$20-billion-plus project are China, the European Union (EU), India, Japan, Korea, Russia, and the United States. "We wanted to have top-notch people working on ITER and a diversity drawn from the member states," said Hawryluk. Expansion of the ITER Organization, which is building and will operate the fusion experiment, was another challenge during this period.

Hawryluk was struck by the extent of local community support for ITER. Neighboring locales have put up nearly 467 million euros, or some \$600 million, to build schools, roads and other infrastructure improvements that benefit ITER. "This was a real testament to support for this major international project by the local community," Hawryluk said.

The European Union, which is shouldering 45 percent of the cost of ITER, remains strongly committed as well. The EU allocated a supplementary 1.3 billion euros, or \$1.7 billion, of additional support for ITER for 2012-2013, despite the financial crisis that has engulfed European economies



Rich Hawryluk in his office at ITER


Photo courtesy of ITER

in recent years. The impact of the investment is clearly growing. "Go to the ITER site and you'll see an extremely large construction activity under way," Hawryluk said. "Go around the world and you'll see factories being set up to build major components for ITER. And this is all taking place on a scale that was previously unheard of in the fusion program."

Key contributors to ITER include PPPL, which contracts with US ITER headquarters at the Oak Ridge National Laboratory to perform critical functions. These include designing certain diagnostic and electromagnetic systems for the ITER tokamak, and procuring the electrical power supplies for the tokamak building, which will stand some 30 feet taller than the 162-foot-high Arc de Triomphe in Paris.

On a personal level, Hawryluk found the local French community to be highly hospitable despite his linguistic shortcomings. Though Hawryluk took classes in French, he never really mastered it. "But people, like the local baker and doctor, went out of their way to be very helpful." Fortunately at work, everyone spoke English.

While stationed at ITER, Hawryluk maintained a 4,000-mile commuting relationship with his wife, Mary Katherine, a school psychologist who stayed in New Jersey to work with special-needs students at the New Road School in Parlin. The couple mainly kept in touch through the video messaging system iChat. Joining some online chats were sons David, an Apple employee in Los Angeles, and Kevin, a senior at the University of Michigan.

Reflecting on ITER and his two years there, Hawryluk observed, "In a world where there's vigorous debate about everything, there has still been strong financial support for ITER. And it will be important for the project to maintain that support by continuing to demonstrate progress. The world needs new energy sources, and we have a unique opportunity to determine if fusion will be part of the solution." 



Aerial view of the ITER site showing the pit for the tokamak building at the center.

Photo courtesy of ITER

Director's Corner

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Here is a sampling of discussion points from the meetings, listed in random order:

- **Information technology assistance:** Concerns were raised that the Help Desk is overloaded and, in particular, the use of engineering software is impeded by various restrictions. In response, we formed an "IT User Group" to be operated through the IT and Engineering Departments. This group will seek solutions to these issues, merging the perspectives of the IT experts and users.
- **Flexible working arrangements:** Some expressed interest in working a reduced number of days (e.g., four 10-hour days) and, upon occasion, working from home. Clearly, this would not make sense for many jobs, but would for some. The Lab has policies for such working arrangements. For example, in the summer we offer a variant of the four-day workweek for specific work units. Generally, we do not have a one-size-fits-all work schedule, an impossibility for an organization like ours with such a wide range of job responsibilities. Our policy is that any employee who desires either to telecommute on some days or work a reduced number of workdays should approach his/her supervisor. We are open to alternative arrangements that effectively accomplish our work goals.
- **Signage:** For visitors to find the Lab from Route 1 and to navigate within the Lab complex, more and better street signage is needed. We will add signs that better direct visitors to the Lab, and we will assess adding signs within the Lab.
- **Lab strategy:** Many discussions included good suggestions and questions regarding PPPL strategy and planning. One point repeated by many is that our current Lab strategy is not sufficiently communicated to Lab staff. As a result, we will write a concise description of PPPL strategy, distribute it to staff, and update it annually. We will also convey the strategy for discussion and feedback at departmental or other meetings.
- **Family events:** With PPPL being "in the middle of nowhere" and behind a guarded gate, family members of staff do not frequently get to either see the workplace or meet our co-workers. Many felt that occasional social events including families would be great. One upcoming event that will help is the next PPPL Open House that is scheduled for Saturday, June 1. While this event opens the Lab up to the public, it is also a wonderful opportunity for our families to see all the nooks and crannies of the Lab. We will also consider other family-centered social events.
- **Grassroots input to safety practices:** In several meetings valuable input on safety practices was offered by those on the front lines — those that work with hazardous equipment. These insights from hands-on experience are exceedingly important to incorporate into our safety practices. To make sure we capture such input, we have formed the Safety Champions Committee, described recently in the PPPL Weekly.
- **Salary raises:** The three-year near-freeze of staff salaries has been bitter and undeserving — one of my greatest frustrations these past few years. These low salary increases were mandated by DOE for all national labs, and for us followed one year of a near-freeze by the university. This period of low raises clearly reflected the economic downturn in the U.S. Looking forward, we expect that we will now return to normal

salary increases and the days of such freezes are over. We will work with full vigor to get approval from DOE for healthy and fair salary increases, despite the burdens of sequestration and other budget stresses. The small salary growth over the past three years also points to the importance of fair and accessible promotions, a goal for which we will redouble our efforts.

- **Succession planning:** There is fairly widespread concern of the necessity to train the next generations of staff for a healthy future for PPPL. I was impressed at the foresight of the younger staff on this issue, the advice of the senior staff, and the overall enthusiasm and concern of everyone for the greater good of PPPL. We spend substantial effort assessing the demography of our workforce and assuring, as best we can in these tight budget times, that all our capabilities will be intact as critical staff retire. At all times, we must bring in new, early- and mid-career staff, and we indeed have done so continuously over the past several years. On this issue, despite all the budget uncertainties of our times (at PPPL and everywhere), I am quite optimistic.

The above examples are only a subset of the topics discussed. All the suggestions from these meetings have been logged, discussed and tracked (if an action is warranted). John DeLooper is maintaining a database of all the suggestions, as well as our responses. Most suggestions are acted upon. All are discussed thoroughly.

If you raised a suggestion and you are wondering where it stands, please send me an email. I will complete meetings with the remaining one-quarter of the staff over the next two months. Probably, after a pause of about a year, I will restart another round of meetings to harvest new suggestions and concerns that will undoubtedly arise with time.

Thanks to everyone for participating in this process and sharing your wisdom.

Stet C. Pray



PPPL officers lend a hand with fire

PPPL Emergency Services Officer John Mazukewicz, left, and Driver/Operator Wes Foraker, right, responded to a fully-involve garage fire on Plainsboro Road in Plainsboro on April 16.

Photo by Jamie Dunnigan

PPPL partners with China in an ambitious new center for fusion research

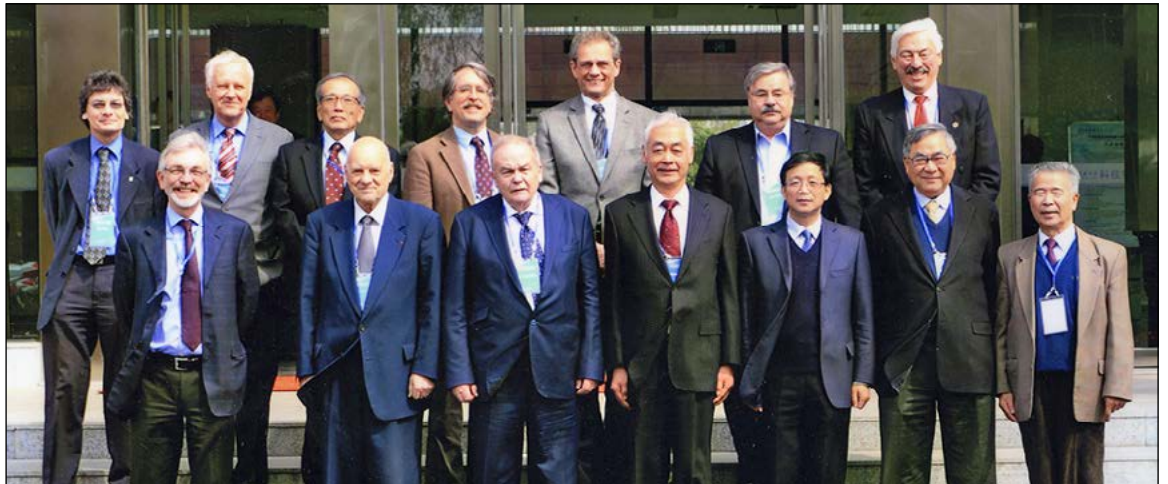
By John Greenwald

The U.S. Department of Energy's Princeton Plasma Physics Laboratory (PPPL) has joined with five leading Chinese research institutions to form an international center to advance the development of fusion energy. Creators of the center organized its framework in March at a two-day session in Hefei, China, that brought together leaders of the world's major fusion programs.

The new venture, called the Collaborative Innovation Center for Advanced Fusion Energy and Plasma Science (CIC), will promote cross-border lectures and workshops and joint experiments on fusion facilities in China and the United States. "This will provide another mechanism for strong collaboration with our partners in China," said Michael Zarnstorff, PPPL deputy director for research, who will serve on the CIC science and technology committee that will guide the center's research agenda.

The new venture seeks funding from the Chinese government under a program to establish up to 100 scientific enterprises at universities throughout China. Start-up funds for the center come from the University of Science and Technology of China (USTC), which houses the center and co-founded it last year with PPPL and the Chinese Academy of Sciences Institute for Plasma Physics. Three more Chinese science and engineering institutions have since joined the venture.

Plans call for the center to build a world-class work force to advance fusion development in China. Research programs will stress innovation and contributions to ITER, the international fusion experiment under construction in France. Also planned are design and construction of



Chinese center organizers, front row from left: David Campbell, ITER Organization; Paul-Henri Rebut, France; Evgenij Velikhov, Russia; Osamu Motojima, ITER director-general; Jianguo Huo, USTC president; Yuanxi Wan, dean of the USTC's School of Nuclear Science & Technology. Back row from left: Tom Todd, Culham Centre for Fusion Energy; Friedrich Wagner, Max Planck Institute for Plasma Physics; Yasuo Shimomura, Japan; Mike Zarnstorff, PPPL; Hutch Neilson, PPPL; Tony Taylor, General Atomics; Dale Meade, PPPL (retired).

(Photo courtesy of USTC).

the China Fusion Engineering Test Reactor, the country's next-step fusion facility.

PPPL already partners with China on fusion and science-education programs. PPPL researchers collaborate in experiments on EAST, China's main fusion facility, for example. Hong Qin, a principal research physicist at PPPL, is also a professor of physics at USTC and will head the new center's science and technology committee.

PPPL participants in the center include PPPL Director Stewart Prager, who serves as deputy director of the center council, which functions as a board of directors. Retired PPPL physicist Dale Meade sits on the international advisory committee that will provide outside guidance to the center.

The new venture could speed the development of fusion in China, which aims to reduce its heavy reliance on coal to generate electricity. "A new fusion center anywhere in the world is a good thing," said George "Hutch" Neilson, the head of advanced projects at PPPL and a member of the center's science and technology committee. "A center like this serves to create more momentum for fusion." 📷

Agility testing for PPPL's ESU officers



Emergency Services Officer Aaron Green raises a 74-pound bag to the firehouse roof, while Capt. Kevin Rhoades serves as a spotter during the platoon's Emergency Service Unit's annual physical agility testing at PPPL on April 15.



Green climbs the extension ladder 24 feet to the top of the Emergency Services Building during the training.

(Photos by Sean Galie).

Interdisciplinary Plasma Theory Workshop



Interdisciplinary plasma theory workshop: PPPL post-doctoral fellow Ammar Hakim, center, describes his poster on unified methods for simulating plasmas to physicists Steve Cowley, left, director of the Culham Centre for Fusion Energy in the United Kingdom and a member of the PPPL Advisory Committee; and Frank Jenko of the Max Planck Institute for Plasma Physics in Germany. The researchers were among some 50 scientists from around the world who gathered on the Princeton main campus during the week of March 8 for a workshop on “Stability, Energetics, and Turbulent Transport in Astrophysical, Fusion and Solar Plasmas.” The Princeton Center for Theoretical Science sponsored the weeklong event with additional support from the Max Planck-Princeton Center for Plasma Physics, whose members include PPPL and the Princeton Department of Astrophysical Sciences.

Fusion pioneer and PPPL leader and educator Edward Frieman dies at 87

Edward Frieman, a former associate director of PPPL and a close colleague of the Laboratory’s founder Lyman Spitzer, died in San Diego on April 11 at the age of 87.

Frieman joined PPPL in 1952 and headed the fusion theory group from 1954 to 1964 before becoming associate director from 1964 to 1979. He then served as director of the DOE’s Office of Energy Research, now called the Office of Science, and went on to become director of the Scripps Institution of Oceanography at the University of California-San Diego.

Frieman had a profound influence on fusion policy during the 1970s and taught a number of future fusion leaders at PPPL. Among his graduate students at the Laboratory were former PPPL directors Ronald Davidson and Robert Goldston; physicist William Tang; and Ned Sauthoff, project manager for U.S. contributions to ITER, the international fusion experiment under construction in France.

Davidson recalled Frieman’s exceptional scientific and personal qualities. “In addition to being an outstanding theoretical physicist and pioneer in establishing the very foundations of modern physics, he was a highly thoughtful and patient human being, and a truly inspiring scientific leader throughout his long and distinguished career.”



Edward Frieman
photo circa 1960

Such admiration was widespread. “We all share a common respect and appreciation for Ed’s many outstanding contributions to science, as well as for the unique capability that he demonstrated for the proper way to manage scientific research and development,” Tang said.

Frieman had a distinctive classroom presence at a time when cigarette smoking was more common than it is today. “Ed uniformly chain-smoked as he covered the blackboards with equations, lighting one cigarette from the previous one,” Goldston recalled. “He never paused, and he never smoked the chalk nor wrote on the board with the cigarette.

Once, at a gathering of plasma graduate students at Argonne National Laboratory, he managed to take off a heavy Greek fisherman-style pullover sweater while chain-smoking and writing equations on the board, and still did not miss a beat. As proud as we were of Ed’s science, and grateful as we were for his thoughtfulness towards us, it was this performance that actually elicited a standing ovation.”

Goldston added: “In later years, Ed was a wonderful counselor to the Laboratory and to me as director. He was deeply knowledgeable of the political world, and extremely supportive of fusion and the Lab. Ed was one of the giants on whose shoulders we stand, and he will be dearly missed.”

Dozens keep PPPL’s grounds beautiful for Earth Week

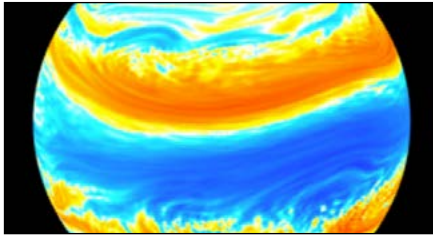


Some 32 people volunteered for PPPL’s Earth Week clean-up on April 17. Here, Carol Ann Austin and several other employees pick up trash behind the LSB.



Volunteers collected 350 pounds of trash from PPPL grounds and surrounding areas and another 35 pounds of leaves for composting. Margaret Kevin King, grounds and facilities manager, and Ed Jenkins, facilities project manager, are all smiles after weighing the trash following the cleanup.

COLLOQUIUM



Environmental Condensed Matter Physics

BRAD MARSTON
Brown University

Wednesday, April 24

4:15 p.m. (Coffee/Tea at 4 p.m.)
M.B.G Auditorium, Lyman Spitzer Building

Telecommunications Tip of the Month:

Did you know that you can access the PPPL Audix Voicemail System anywhere from outside the Lab by dialing 609-243-3999? When prompted enter your 4 digit ext. number and pass code.

For telecommunications questions or support email telecom@pppl.gov.



VOLUNTEER FOR COMMUNIVERSITY APRIL 28

Volunteer and join in the fun at Commu- niversity Festival of the Arts on Sunday, April 28 from 1 to 6 p.m. The annual event, sponsored by Princeton University and the Arts Council of Princeton, attracts thou- sands of visitors and features more than 200 artists, crafters, merchants and or- ganizations from the area. We need PPPL volunteers at the PPPL booth to give one or two hours of their time to talk to mem- bers of the public, help with demon- strations and hand out prizes. Please contact Jeanne Jackson DeVoe, jjackson@pppl.gov, ext. 2757 to volunteer. More informa- tion about Commuiversity is available at the Arts Council of Princeton website.

JUST BREATHE

Mindfulness Series

Mindfulness is the practice of purposely focusing your attention on the present without drifting into concerns about the past or future.

Fridays: 4/26, 5/10, 5/24, 6/7

12-12:30 p.m. Furth Plasma Physics Library

FOR PPPL STUDENTS, FACULTY, AND STAFF

Drop in as often as you can! No registration is required.

Learn to quiet the mind and ease physical dis- tress. This mindfulness series will provide an opportunity to slow down in this fast-paced set- ting, and to experience balance and a sense of calm.






Facilitated by Shefalika Gandhi, LCSW, Univer- sity Health Services. Sponsored by Princeton Plasma Physics Laboratory (PPPL). Email mgonzalez@pppl.gov for more information.



Café at PPPL Menu

BREAKFAST 7 a.m. • 10 a.m.
CONTINENTAL BREAKFAST 10 a.m. • 11:30 a.m.
LUNCH 11:30 a.m. • 1:30 p.m.
SNACK SERVICE until 2:30 p.m.

Mark Gazo, Chef Manager

	MONDAY APRIL 22	TUESDAY APRIL 23	WEDNESDAY APRIL 24	THURSDAY APRIL 25	FRIDAY APRIL 26
COMMAND PERFORMANCE CHEF'S FEATURE	 VEGETABLE STIR FRY INDIAN RICE BOWL	 CHICKEN MARSALA	 SALISBURY STEAK	 BREADED BAKED PORK CHOPS W/ RICE PILAF	 POTATO & CHEESE PIEROGIES ✓
EARLY RISER	Vegetable & Bean Breakfast Burrito ✓	Ham & Egg Panini Wrap	Chicken Tenders with Eggs	Philly Steak, Egg and Cheese Wrap ✓	Blueberry Pancakes with Sausage
COUNTRY KETTLE	Vegetable Rice	Cream of Tomato Bisque ✓	French Onion Soup	Lentil ✓	Manhattan Seafood Chowder
GRILLE SPECIAL	Buffalo Popcorn Chicken Wrap	Grilled Chicken with Roasted Onions & Peppers on Roll	Turkey Burger with Turkey Bacon and Smoky BBQ Sauce	Chicken, Roasted Pepper & Provolone on a Kaiser Roll	Bacon Cheddar Burger with Fries
DELI SPECIAL	Egg Salad & Bacon Wrap	Liverwurst & Onion on Rye	American Hoagie	Roast Beef and Cheese Hoagie Wrap	Pastrami & Cheddar Panini
PANINI	Blue Cheese Steak Panini with Peppers & Onions	Blackened Chicken with Pepperjack Cheese	Sausage, Pepper and Mozzarella Stromboli	Hummus Veggie Wrap ✓	Zucchini, Spinach, Hummus and Feta on Flat Bread ✓

MENU SUBJECT TO CHANGE WITHOUT NOTICE

[CLICK HERE FOR A PRINTABLE WEEKLY MENU](#)

WEEKLY

Editor: **Jeanne Jackson DeVoe** ♦ Layout and graphic design: **Gregory J. Czechowicz**
Photography: **Elle Starkman** ♦ Web: **Chris Cane** ♦ Admin. support: **Pamela Hampton**

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Comments: commteam@pppl.gov ♦ **PPPL WEEKLY** is archived on the web at: <http://www.pppl.gov/ppplweekly.cfm>