

At PPPL
THIS WEEK

WEDNESDAY, SEPT. 11



The Laboratory will be observing a moment of silence at 8:46 a.m. to honor those lost during the tragic events of Sept. 11, 2001. The time marks the moment when a plane struck the first of the two World Trade Center towers.

PPPL Colloquium

4:15 p.m. ♦ MBG Auditorium

The Future of Offshore Wind Energy and Transmission in New Jersey

Kris Ohleth, The Atlantic Wind Connection

Refreshments at 4 p.m. in the LSB Lobby

UPCOMING EVENTS

September 22

Installation Ceremony

1 p.m. ♦ Front Lawn, Nassau Hall

The installation of Christopher L. Eisgruber as the 20th president of Princeton University

September 26

Carebridge Seminar

11:30 a.m. ♦ Room A-104

Keeping Safe in Today's Cyber-world

October 11-12

Freshman Parents Tour

Princeton University Freshman Families Weekend tours of PPPL

INSIDE...



Zwicker's TED Talk ..

page 3



Bicycle safety

page 4



Cafe@PPPL Menu

page 4

Michael Williams: The engineer's engineer sets standard for excellence

By John Greenwald

As an early career engineer at PPPL, Mike Williams found himself in the midst of a frantic race. He led a team charged with building crucial neutral beam heating systems for the Tokamak Fusion Test Reactor (TFTR), the largest fusion facility in the world at the time. The deadline was impossibly tight.

"We worked 16-hour days, Monday through Friday, and came in every Saturday and worked eight-to-10-hour days," Williams said. "And we were successful — we got the beams on and they worked."

Such dedication, plus a singular knack for solving problems, helped propel Williams into his post as head of engineering and infrastructure at PPPL — a position he has held since 1991. The job calls for steering all engineering activities at the Laboratory, from the design of power systems to construction of the \$94 million upgrade of the National Spherical Torus Experiment (NSTX-U), PPPL's major fusion facility today. He oversees the Lab's heating, air conditioning and plumbing systems as well.



Mike Williams
Associate Director

continued on page 3

Colloquia broaden PPPL's horizons

By Jeanne Jackson DeVoe

For years, PPPL's colloquia have offered a feast for the intellect, with a vast array of topics, which have ranged in the past from a discussion on fracking to a literary discussion on Tolstoy and Shakespeare entitled "Centennial Comments on a Very Famous Feud."

Now a new committee, made up of Science Writer John Greenwald, and physicists Charles Skinner and Daren Stotler is taking on the daunting task of maintaining the nine-month-long speaker series' level of excitement and variety. With Greenwald as chair, the group is hard at work, selecting and attracting 39 speakers to the weekly talks on Wednesdays at 4:15 p.m.

The series begins on Sept. 11 with a talk by Kris Ohleth, director of permitting for the Atlantic Wind Connection, who will speak on "The Future of Offshore Wind Energy and Transmission in New Jersey." Other upcoming speakers include Dr. Steven Stahler, University of California-Berkeley, "The Formation of Stellar Groups," Sept. 18; and Dr. Michael Graziano, Princeton University, "Consciousness and the Social Brain," Sept. 25. The lectures conclude on June 25, 2014.

Central to the intellectual life of PPPL

The colloquia are open to the public and most topics are aimed at a broad audience. Deputy Director for Research Michael Zarnstorff says he views the talks as central to the intellectual life of the Laboratory. "I think it's actually a very important part of the Lab's ambience and intellectual context because it cross-links us with other parts of the physics world, other parts of the science world, and other parts of intellectual activity," he said. "Doing research is a matter of having new perspectives and looking for new ideas, so all these ideas are stimulated by different topics."

continued on page 2

Colloquia

continued from page 2

The committee has very few limitations on topics, Zarnstorff said, and the topics are not vetted by anyone outside the committee. Its directive is simply to pick topics “of intellectual interest to the Lab community,” he said. The only restrictions are that the talk cannot be used to sell products and cannot be connected to a political activity.

Past speakers

Previous speakers have included climatologist Michael Mann, Princeton economist and Nobel Laureate Paul Krugman and the late paleontologist and popular science writer Stephen Jay Gould.

Last year’s Colloquium Committee, made up of Ronald Bell, a principal research physicist; Bill Tang, chief scientist; and Kelsey Tresemer, a member of the engineering and scientific staff, came up with a mix of topics that included talks on the Higgs Boson by Princeton University Professor James Olsen; wind energy by Kenneth Jensen of Makani Power, Inc.; evidence of Ice Age colonization of the Americas by Michael R. Waters of Texas A&M University; and earthquake simulations by Jeroen Tromp of Princeton University.

While some topics directly related to plasma physics or magnetic fusion may be specialized, most scientific topics at the colloquia are accessible to a general audience. The talks are live-streamed within PPPL and are available on the PPPL website by clicking on the date of the colloquium in the events calendar, <http://www.pppl.gov/events/calendar>. A small group of science enthusiasts from outside PPPL attend the lectures each week.

A new perspective

The Colloquium Committee is typically made up of two physicists and an engineer. Zarnstorff said. He said he consults a list he keeps of researchers’ “community service” projects at PPPL in deciding who should be on the committee. Greenwald, a science journalist who was a writer and editor at Time Magazine for nearly 20 years, will bring a new perspective to the group, Zarnstorff said. “A key part of it is to have a broad set of interests and some connections, so I think John will work well,” he said.

“I think it will be fun,” Greenwald said. “I have a lot of interests that I like to read about and this gives me a chance to pull some of those things together and bring them in.”

The committee has a big job ahead of it. Each member must come up with at least 13 potential speakers and topics to

be approved by the full committee. Then, the committee members must make the initial contacts with speakers and arrange the dates of their talks. Carol Ann Austin, the executive assistant in the Office of the Director, follows up and makes the arrangements for the speakers. Members of the committee also host the speakers when they come to the Laboratory, introduce them during the colloquia and entertain speakers from out of town during a one- or two-day stay at PPPL.

Speakers from Princeton Univ. and across the U.S.

The colloquia have been a highlight of PPPL’s academic year for decades. Members of the PPPL colloquium committee point out that the talks attract top researchers from a variety of fields who interact with researchers and are exposed to cutting-edge pursuits at the Laboratory.

Charles Skinner, a principal research physicist who has been at PPPL for 33 years, is serving on the committee for the second time. The colloquia, he said, connect PPPL with top experts in related fields, such as energy and the environment, and bring some of the “most famous, deepest thinkers” at Princeton University to PPPL. “We’re a mile or two from campus and that can be a barrier, so this is a chance to get them here and give us a chance to hear what they have to say,” he said.

Skinner said he conceived of 24 topics by early July through his own interests and by combing through science journals and talking to friends and colleagues. His main criteria are that speakers must have “some intellectual weight,” he said. “They have to not just give us their opinions about something — it has to be evidence based.”

Skinner says the colloquia are at the heart of “the intellectual vitality of the Lab.” He noted that many fields of scientific research are becoming more and more interdisciplinary. “Most people don’t think of new ideas in a vacuum,” he said. “There could be a burning question on your mind and you might hear a colloquium on an issue in a different field that stimulates a new way of thinking about that question. The juxtaposition of your own set of experiences and ideas, a different set of perspectives can be fruitful.”

Stotler, who has been at PPPL for 27 years, is also serving on the Colloquium Committee for the second time. He said he gets some of his topics from ideas that interest him and through science magazines, and is considering topics ranging from the rise of phytoplankton to robot bees.

Broadening “scientific horizons”

Stotler said the colloquia help scientists and engineers at the Laboratory “broaden our scientific horizons,” and could lead to something that might apply to research at PPPL. “It may be some technique, some code they’re using, a theoretical methodology they’re using that someone could look up and say, ‘Oh geez, I could use that.’”

The Lab provides refreshments before the program starts in order for PPPL colleagues to meet and share ideas. “It’s another one of those water cooler moments,” Stotler said.

Zarnstorff said he rarely misses a colloquium when he is on site. “I’m pretty broadly interested in almost everything,” Zarnstorff said. “I actually enjoy them all.” 🍷



Members of the new Colloquium Committee from left to right: John Greenwald, the chair; Charles Skinner, and Daren Stotler.

Mike Williams

continued from page 1

"It's an enormous responsibility," PPPL Director Stewart Prager said of Williams' role. "His importance cannot be overstated since so much of what we do rests upon engineering—building things that would be difficult for other laboratories around the world to build. Mike makes these things happen through his oversight."

Williams, whose title includes associate director of PPPL, began tinkering with machines as a youngster in Hamilton, NJ. "I always had an aptitude for fixing and building things," he recalled. "I didn't play with radios or anything like that, but if the lawnmower broke I'd try to fix it."

He excelled in math and science but gave little thought to engineering until his senior year in high school. That's when a friend who was entering the Rutgers University School of Engineering showed Williams the first-year course load. "They were all math and science courses," Williams recalled. "I like math and science and I didn't know what an engineer did at the time. But the curriculum seemed interesting and that started me on my way."

A new era

PPPL was nearing a new era when Williams joined the Lab in 1976 as a Rutgers-trained electrical engineer. Just ahead lay construction of the TFTR, which was completed in 1982 and set world records for producing fusion heat and power before it was decommissioned in the late 1990s.

Williams moved to the TFTR project in 1981 as head of the engineering team for neutral beam systems that inject heat into plasma, the hot, electrically charged gas that fuels fusion reactions. The group, known as the "Beam Team," needed to get the beams up and running soon after TFTR began operating so that physicists could present the results to a high-profile conference that was just months away. "It wasn't obvious in any given week that we were going to meet the objectives for that week," Williams said. "We just worked super-long hours to make it happen. It was a lot of fun in retrospect but it was quite difficult."

Subsequent work on the huge fusion machine also proved consuming. "All the way through the TFTR days it was quite typical for many on the staff to work lots of hours because they enjoyed what they were doing," Williams said.

His skill at sleuthing out solutions to problems dazzled his colleagues. "Mike has some of the fastest brain circuits I've ever seen," said Tim Stevenson, who heads the PPPL project management office and was part of the Beam Team. "He'll assimilate details and come to a decision with the speed of thought. The uncanny thing was that he was almost always correct."

Williams rose rapidly at the Laboratory, becoming head of all TFTR heating systems in 1988 and then director of the Engineering and Infrastructure Department in 1991. He attributes his swift rise to his love for the work and to the "very notable people" who mentored him. "I developed a work ethic and desire to do well from those people," he said. At the same time, "The team that I worked with was very talented and that helped me shine as much as anything."

Deftly juggling

Williams deftly juggles tasks as the head of engineering. He oversaw construction of the NSTX, bringing it in within budget and six weeks ahead of schedule when the work was completed in 1999. The feat earned him the 1999 Kaul Foundation Prize for Excellence in Plasma Physics Research and Technology Development from Princeton University. "I recognized that time is money and the more time you spend trying to get ready to run the more money you're spending on the project," he said.

His intimate knowledge of the NSTX enabled him to guide efforts that pinpointed the cause of a short circuit that halted a fusion experiment a few months before the machine was to shut down for the upgrade. The probe traced the source to three tiny spots of solder in a 20-foot long copper coil in the NSTX center stack. "It was literally finding a needle in a haystack," Williams said. Engineers applied lessons learned from analysis of the spots to the design for coils for the upgrade.

Williams keeps a savvy eye on work on the upgrade, which will double the facility's heating and magnetic power when the job is completed in 2014. He joins every engineering review and offers up suggestions. "He's deeply immersed in the project," said Stevenson. "And I'm glad that he is."

National recognition

Williams' achievements are nationally recognized. His honors include the 2000 Outstanding Accomplishment Award from the American Nuclear Society Fusion Energy Division; the 1999 Excellence in Fusion Engineering Award from Fusion Power Associates; and the 1993 Fusion Technology Award from the Institute of Electrical and Electronics Engineers. All saluted his contributions to the design and construction of fusion facilities.

Williams unwinds by riding his mountain and road bikes and regularly working out at the gym. He and his wife, Sue, a technology teacher at Trenton Catholic Academy, frequently travel to Disney World in Orlando, Fla. — both for the fun of it and to see their older daughter, Christine, who works as a performer in the special events group. "My whole life I've loved Disney," said Williams, whose bookcase sports three Disney-themed Pez candy dispensers alongside work memorabilia. The couple's younger daughter, Michelle, recently became coordinator of gifted and talented programs for the Millstone School District.

While Williams no longer works 80-hour weeks, he finds ways to keep up with his job even when he's not on it. "I do a lot of work on my iPhone standing in line at Disney," he said. "The technology enables you to contribute productively no matter where you are." 📱

Magnetic Fusion Talk by Andrew Zwicker now on TED site

Andrew Zwicker's talk on magnetic fusion, "Creating a Star on Earth: the Path to Fusion Energy," has been posted on the [TED.com](http://ted.com) site.

Zwicker, head of Science Education at PPPL, gave the talk at a TEDx talk conference on "Future Utopias" at Saint Peter's University in Jersey City in March.

In the 18-minute talk, Zwicker discusses the limit of current energy sources and explains that fusion energy is clean, available, compact, affordable and safe and is not subject to the weather. As fusion research moves forward, the challenge is, "to design a magnetic bottle and create a star here on earth."

He predicts that fusion energy will change the world. "A perfect energy source is not a dream," he concluded, "and we are a very short time from it becoming a reality."

The talk can be viewed at <http://tedxtalks.ted.com/video/Creating-a-Star-on-Earth-The-Pa;search%3Azwicker>. 📺

COLLOQUIUM



The Future of Offshore Wind Energy and Transmission in New Jersey

KRIS OHLETH

The Atlantic Wind Connection

Wednesday, September 11

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

Upcoming Carebridge Seminars at PPPL

PPPL is offering the following Carebridge seminars:

September 26 at 11:30 a.m.

Visualization Wall Room, A104
"Keeping Safe in Today's Cyber-world"

December 18 at 11:30 a.m.

Visualization Wall Room, A104
"Communicating with Different Personalities"

March 19, 2014 at 11:30 a.m.

Visualization Wall Room, A104
"College Planning: An Overview"

April 29, 2014 at 11:30 a.m.

Visualization Wall Room, A104
"Financial Planning for Retirement"



Bicycle and pedestrian safety tips

Walking and biking tips from the Site Protection Division

Walkers:

Walk on the sidewalk or facing traffic.
Cross at crosswalks and check for cars before crossing.

Bikers:

Ride with the flow of traffic.
Always wear a helmet and bright colors.
Make sure your bike has reflectors & full tires.
Always lock up.

Be aware of your surroundings!

For more information, see page 7 of the April ESH&S newsletter.



Discounts for employees

Did you know that Verizon, AT&T, T-Mobile and Sprint all offer discount plans for Princeton University employees?

More information is available here: <http://www.princeton.edu/telecom/mobile-technology/personal-plan-discounts/>.



Princeton University employees are also eligible for discounts on a number of other services, including fitness clubs and travel. For more information, click here: <http://www.princeton.edu/hr/working/discounts/>.



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

	MON. 9 SEPT.	TUE. 10 SEPT.	WED. 11 SEPT.	THU. 12 SEPT.	FRI. 13 SEPT.
COMMAND PERFORMANCE CHEF'S FEATURE	 CHICKEN CHOW MEIN WITH RICE	 MEAT & CHEESE LASAGNA	 BEEF & BEAN BURRITO	 CHEESE RAVIOLI BOLOGNESE	 BLACKENED SALMON
EARLY RISER	Sausage, Egg & Cheese Croissant	Ham Steak With Two Eggs Any Style	Potato Pancakes & Apple Sauce	Florentine Omelete With Spinach & Feta Cheese	Craisin Pancakes with Turkey Sausage
COUNTRY KETTLE	Vegetarian Lentil	Chicken Vegetable With Rice	Cream Of Spinach	French Onion	Black Bean with Ham
GRILLE SPECIAL	Grilled Roast Beef & Provolone With Horseradish Cream	Buffalo Chicken Wrap	BBQ Beef on a Kaiser Roll With Onion Rings	BBQ Blue Turkey Burger	Grilled Middle Eastern Turkey Burger
DELI SPECIAL	Turkey Cobb Wrap with Bacon, Avacado, Tomato & Blue Cheese	Turkey, Ham, Swiss Russian Dressing & Coleslaw On Rye	Curried Chicken Salad With Greek Yogurt on Pita	Classic Italian Sub	Turkey, Cheddar & Bacon on Rye
PANINI	Philly Cheesesteak Panini	Seafood Salad Melt With American Cheese On Rye	Tomato, Fresh Mozzarella and Basil Ciabatta	Roast Veggie Wrap With Feta Cheese & Hummus	Chicken Parmesan Sub
BROCK VALUE MEAL ★\$6.25	½ Sandwich, Small Soup or Salad, Chips, 12 oz. Soda	2 Slices Pizza, Bag of Chips, 12 oz. Soda	Cheeseburger, French Fries, 12 oz. Soda	2 Hot Dogs, French Fries, 12 oz. Soda	Meatball Sandwich, Potato Chips, 12 oz. Soda

MENU SUBJECT TO CHANGE WITHOUT NOTICE

VEGETARIAN OPTION

[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**

The **PPPL WEEKLY** is published by the **PPPL Office of Communications** on Mondays throughout the year except for holidays. Deadline for calendar item submissions is noon on Thursday. Other stories should be submitted no later than noon on Wednesday. Comments: commteam@pppl.gov ♦ **PPPL WEEKLY** is archived on the web at: <http://w3.pppl.gov/communications/weekly/>.