PPPL PRINCETON PLASMA PHYSICS LABORATORY
A Collaborative National Center for Fusion & Plasma Research
U.S. DEPARTMENT OF ENERGY
WEEKLY
March 12, 2018

THIS WEEK

WEDNESDAY, MARCH 14

American Red Cross Blood Drive
8 a.m.–1 p.m.
See page 5 for details.

Council Café Lunch
12 p.m. ◆ Cafeteria
Raffi Nazikian
Head of ITER & Tokamaks

FRIDAY, MARCH 16

Public Tour
10 a.m.
Click here to register.

SATURDAY, MARCH 17

Science on Saturday
9:30 a.m. ◆ MBG Auditorium
On the Path to Clean Fusion Energy
Michl Binderbauer, TAE Technologies

Public Tour for SOS
11 a.m.
Click here to register.

UPCOMING

WEDNESDAY, MARCH 21

Council Café Lunch
12 p.m. ◆ Cafeteria
Valeria Riccardo
Head of Engineering

Colloquium
4:15 p.m. ◆ MBG Auditorium
High Power Electric Propulsion for the Next Generation of Space Exploration
Benjamin Jorns, University of Michigan, Dept. of Aerospace Engineering

THURSDAY, MARCH 22

Young Women's Conference
8 a.m.–2 p.m. ◆ Princeton University
See page 4 to volunteer.

INSIDE

First plasma for new machine to study mystifying process that occurs throughout the universe

By John Greenwald

A millisecond burst of light on a computer monitor signaled production of the first plasma in a powerful new device for advancing research into magnetic reconnection — a critical but little understood process that occurs throughout the universe. The first plasma, a milestone event signaling the beginning of research capabilities, was captured on camera on Sunday, March 5, at 8:13 p.m. at Jadwin Hall at Princeton University, and marked completion of the four-year construction of the device, the Facility for Laboratory Reconnection Experiment (FLARE).

Magnetic reconnection, the breaking apart and explosive recombination of the magnetic field lines in hot plasma — the fourth state of matter composed of free electrons and atomic nuclei that makes up 99 percent of the visible universe — has impact throughout the cosmos. Reconnection gives rise to Northern Lights, solar eruptions and geomagnetic storms that can disrupt electrical networks and signal transmissions such as cell phone service. In laboratories where scientists are trying to create a "star on earth," the process can degrade and even disrupt fusion experiments.

continued on page 3

New HR head aims to build bridges between PPPL and Princeton University

By Jeanne Jackson DeVoe

Jordan Vannoy, PPPL's new head of Human Resources, says she envisions herself as a bridge between PPPL and Princeton University that will allow PPPL to take more advantage of the University's resources and expertise.

Jordan Vannoy
(Photo courtesy of Jordan Vannoy)

"We need to build the connective tissue between the Laboratory and the University," Vannoy said. Making better use of Princeton's resources is especially important when budgets are tight, she said. "Why not borrow what they've already built and employ it at the Laboratory?" she added. "PPPL can add those layers required to meet DOE requirements but we don't need to reinvent the wheel."

As executive director of human resources and organizational development for PPPL and Princeton University, reporting to Rich Hawryluk, PPPL's interim director, and Romy Riddick, assistant vice president for Princeton University HR, Vannoy said her first task will be building relationships with Princeton's HR Department. She will focus on understanding the University's tasks and procedures and discovering where PPPL can borrow and deploy that expertise, such as in learning and development, she said.

continued on page 4

Machines migrate to C Site-MG Building as IOI project nears completion

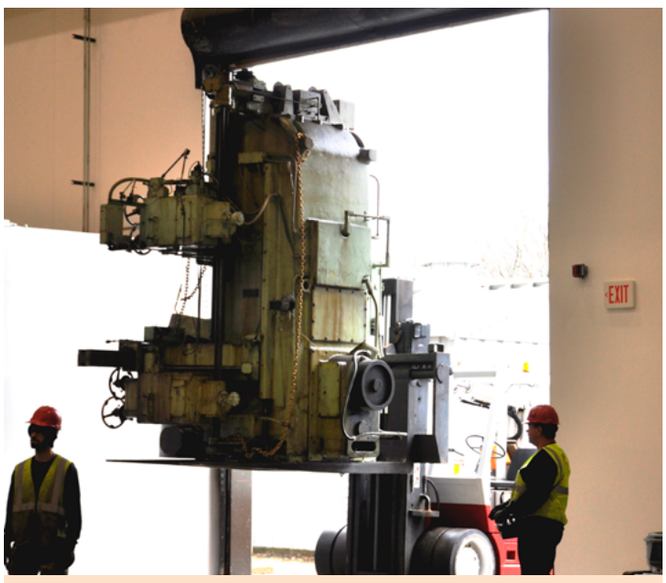
The transformation of the C Site-Motor Generator (MG) Building into a central shop for most of PPPL's large machinery is almost complete with most of the huge machines from the RESA building installed, culminating with the move last week of the massive 50-ton lathe appropriately called "the King Machine."

The King Machine, so called because it was made by King Machine Tool, is a vertical turret lathe with an 8-foot table that was used to machine pieces for the National Spherical Torus Experiment (NSTX). Moving it was a complicated business that involved lifting the machine onto a truck using a crane and a forklift and transporting it from the RESA Building to the C Site-MG Building, and then lifting it again by crane to position it in place.

Most of the contract work on the MG Building is complete. It now contains 54 pieces of machinery. The next step will be to install power, water, and air connections for the equipment, and to install metal gates around certain machines, said Tom Jernigan, deputy manager of the Infrastructure Operational Improvement (IOI) project. That work should be completed by the end of this month, he said.

Jernigan said the welding machines and water jets are a top priority to return to service because they are needed for the NSTX-Upgrade Recovery Project.

The RESA Building will be converted into a storage facility. Meanwhile, the Mod 6 office trailer has been demolished.



A forklift carries the Bullard 42" vertical turn lathe into the MG Building. *(Photo by Ken Bauer)*

A contractor uses a remote control to operate a forklift carrying a 12,000-pound CNC milling center to the MG Building. *(Photo by Ken Bauer)*

The Bullard lathe in the MG Building. *(Photo by Ken Bauer)*

Some of the machines in the building. *(Photo by Elle Starkman)*

The King Machine on the truck en route to the MG Building. *(Photo by Ken Bauer)*

A crane lifts the King Machine. *(Photo by Ken Bauer)*

FLARE first plasma

continued from page 1

Some members of the FLARE team. Front row from left: Guy Rossi, Kris Gilton, Lauren Callahan, Bill Dix. Second row from left: Tom Kozub, Ted Lewis, Jongsoo Yoo, Bob Cutler, Jonathan Jara-Almonte, Jim Kukon, Darryl Johnson, Hantao Ji. Third row from left: Mike Kalish, Julio Lopez, Matt Komor, Frank Hoffman, Aaron Goodman, Peter Slodoba, Geoff Gettlefinger. *(Photo by Larry Bernard)*

FLARE represents a more powerful version of the Magnetic Reconnection Experiment (MRX) at PPPL. The new facility is twice the diameter of the sport utility vehicle-sized MRX and features significantly increased research capabilities. For example, measurements of the Lundquist number, a parameter critical to the study of the puzzlingly rapid rate of reconnection, will be orders of magnitude greater in FLARE than in MRX.

Such capabilities "will enable a more faithful representation of the reconnection that occurs in nature throughout the universe," said Hantao Ji, a Princeton professor of astrophysical sciences and PPPL physicist who is principle investigator for the construction project and is proposing the subsequent FLARE research. "We will have more access to the large-scale working of the process through laboratory experiments."

Constructing FLARE, designed as a user facility for multiple institutions, was a team of physicists, engineers, designers, technicians and supporting staff for PPPL and Princeton, where the device was assembled. Support for construction of the project, whose future is being developed, came from the National Science Foundation with contributions from Princeton, the University of Maryland and the University of Madison-Wisconsin, with collaborators from Los Alamos National Laboratory, the University of California campuses at Berkeley and Los Angeles, and the Institute of Plasma Physics, Chinese Academy of Sciences.

Working through the storm: Facilities crew clears 18 inches of snow during snow day

Many PPPL staff members got a chance to sleep in on Wednesday, March 7, after the Laboratory closed due to a snowstorm that dumped 18 inches of heavy, wet snow on the area. But while they were dozing, a Facilities Department crew was busy clearing the heavy, wet snow from PPPL's parking lots and sidewalks on the 90-acre site. Most of the Laboratory's parking lots and sidewalks were cleared by the time PPPL reopened with a late opening on Thursday at 10 a.m. The crew of two contractors and 13 workers from the Facilities Department worked 28 hours to get the job done, with a four-hour break for sleeping.

Snowy views of the grounds from a truck during the snowstorm. *(Photo by Tom Ward)*

Jordan Vannoy

continued from page 1

Grateful to Andrea Moten

Vannoy said she is grateful for the help of Andrea Moten, who served as interim HR director for two years and has been named associate director of PPPL's HR Division. "Andrea will be critical to the PPPL HR Division's success as PPPL moves toward a new people strategy," Vannoy said.

Hawryluk also said he is grateful for Moten for serving as interim HR director. "I want to thank Andrea for guiding the HR Department so ably and leading many important initiatives," Hawryluk said. "At the same time, I am pleased to have Jordan take on a new position that will create more synergy with Princeton University. Jordan has the right mix of experience, energy, and ability to think strategically about HR issues for this new position."

A native of Kennewick, Washington, Vannoy grew up near the convergence of the Columbia and Yakima rivers, an area that is known as the "Tri-Cities" along with two small communities, Pasco and Richland. She spent several years in Seattle, receiving a bachelor's degree in sociology from the University of Washington and working as a senior recruiter for TERRA Staffing Group. She received her maser's degree in organizational leadership from Gonzaga University in Spokane, Washington. When she decided to return to the Tri-Cities, she applied to just one place: the Pacific Northwest National Laboratory (PNNL) in Richland, a large facility managed by Battelle Memorial Institute. PNNL employs 4,200 people and is one of the U.S. Department Energy's 10 Office of Science national laboratories.

Worked at PNNL for 10 years

Vannoy worked at PNNL for a decade, most recently as the principal human resources manager for the National Security Directorate. She headed a team of seven people supporting a staff of 1,100 for the directorate, which is focused on research related to national security, cybersecurity and non-proliferation of nuclear materials. She was previously the diversity and inclusion manager for four years and a recruiting consultant for PNNL.

Vannoy is married to Michael Vannoy, a salesman for their family farm and packaging facility in Washington state, and the couple has a 5-year-old daughter named Saylor who will begin kindergarten in the fall. They are currently living in Princeton. In their spare time, the family enjoys outdoor activities of all kinds, including water skiing, snowboarding, and bicycling. Vannoy said she has found Easterners to be very friendly. "People have been very kind and generous," Vannoy said. "It's a beautiful area and we're just really enjoying ourselves."

She said she realizes PPPL is facing several challenges, including the effects of the recent departure of 38 people through a voluntary separation program. PNNL faced a similar reduction several years ago, Vannoy said. "Going through that process is hard but it can also be an opportunity because of the incredible growth and opportunities that come afterward," she said. "That growth period allows you to decide where you want to be in five, 10 years."

Strategic planning ideas

Vannoy said she has strategic planning ideas in several HR areas, including onboarding new employees, professional development, employee engagement programs, recruitment, and PPPL's organizational structure. "There are going to be some pushes and pulls to make these things happen but if it is good for the Laboratory, I am committed to seeing it through," she said.

Efforts to help staff appreciate the business case for diversity have to be linked with making PPPL more inclusive, Vannoy said. She said she believes that having a staff with a wide variety of backgrounds and points of view will help PPPL achieve its mission. "We're going to create a culture where people are free to be themselves and express their ideas without being treated differently," she said. "That's what it means to me, and that is how we create innovation," she said.

And while Vannoy said she has met PPPL's leadership team and is making her way through various reports, she is really looking forward to talking to staff members about their concerns. "As an HR person, I listen to the people, I go down and talk to the people in the cafeteria, in their office or on their turf," she said. "I like to build that trust so the staff can be open with me about the challenges they're facing."

Vannoy said she is happy and honored to join a laboratory that is devoted to research aimed at producing fusion energy as a source of electricity. "It really fascinates me," she said. "If we are successful, what an amazing thing that would be for this world. It's just phenomenal. The thought of being involved in something like that is just mind-blowing!"

Volunteer for the Young Women's Conference March 22

There will be 750 girls from all over New Jersey at this year's Young Women's Conference March 22 at Princeton University. Volunteers are needed to help out with PPPL and Liberty Science Center tables, registration, and other tasks.

Click here to register to volunteer.

Please contact Deedee Ortiz, dortiz@pppl.gov, ext. 2785, for more information

Ronald E. Hatcher

Science on Saturday LECTURE SERIES

March 17

On the Path to Clean Fusion Energy

Michl Binderbauer, TAE Technologies

Saturdays at 9:30 a.m., MBG Auditorium

American Red Cross Blood Drive

Wednesday, March 14
8 a.m.–1 p.m.

Appointments are preferred. Please call the OMO at ext. 3200 or go to redcrossblood.org and enter sponsor code PPPLPrinceton.

You can make a difference! Your blood donation matters!

Thank you!
—American Red Cross, Occupational Medicine Office and Human Resources

How many people at PPPL are trained in the STOP Program?

119 people are currently trained to participate in the STOP program. Are you one of them?

Contact Dorothy Strauss, dstrauss@pppl.gov, ext. 3072, if you would like training.

Safety first:
Use the STOP program!

Council Café Lunch

This Week:

Raffi Nazikian,

Head of ITER & Tokamaks

Wednesday, March 14
12 p.m., PPPL Café

March 21: Valeria Riccardo

BROCK

NICK PETTI
Chef Manager

Café at PPPL

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.

	Monday March 12	Tuesday March 13	Wednesday March 14	Thursday March 15	Friday March 16
Early Riser	**Western Omelette**	**Huevos Rancheros**	**Frittata Lorraine**	**Omelette Florentine** with Spinach, Tomato & Mozzarella	**Breakfast Tacos**
Country Kettle	**Vegetable**	**Beef Barley**	**Chicken and Mushroom**	**Potato**	**Seafood Chowder**
Deli Specialty	**Smoked Turkey Baguette**	**Greek Tuna Salad** over Lettuce with Pita Chips	**Tomato & Fresh Mozz** on Ciabatta with Roasted Garlic Hummus	**Seafood Salad Croissant**	**Southwest Turkey,** Peppers & Cheddar with Jalapeño Ranch Spread
Grill Specialty	**Italian Grilled Cheese**	**Buffalo Chicken Steak Sandwich** with Fries	**Pizza Burger**	**Chicken Zen Sandwich**	**Grilled Goat Cheese** with Arugula and Fried Green Tomato
COMMAND PERFORMANCE **Chef's Feature**	**Chicken Marsala** over Egg Noodles	**Pasta Bar** with Garlic Bread	**Roast Pork Sandwich** with Spinach and Provolone served with Fries	**Corned Beef** with Potatoes and Cabbage	**Fish and Chips**
Grilled Panini	**Buffalo Shrimp Wrap**	**Grinder Sandwich**	**Crab Cake** on a Kaiser with Lettuce & Tomato	**Kielbasa and Kraut**	**El Diablo:** Hot Ham, Pepperoni, Pepper Jack, Banana Peppers and Chipotle Sauce

MENU SUBJECT TO CHANGE WITHOUT NOTICE

HEART HEALTHY

VEGETARIAN OPTION

WEEKLY

Editor: **Jeanne Jackson DeVoe** ◆ Layout and graphic design: **Kyle Palmer** ◆ Photography: **Elle Starkman** ◆ Science Editor: **John Greenwald** ◆ Science Writer: **Raphael Rosen** ◆ Webmaster: **Chris Cane** ◆ Communications Director: **Larry Bernard**

The **PPPL WEEKLY** is published by the PPPL Office of Communications on Mondays throughout most of the year and biweekly during the summer, except for holidays.
DEADLINE for calendar item submissions is noon on WEDNESDAY. Other stories should be submitted no later than noon on TUESDAY.
Comments: commteam@pppl.gov ◆ **PPPL WEEKLY** is archived on the web at: http://w3.pppl.gov/communications/weekly/.