

## Calendar of Events

**NOV. 30-DEC. 16**

**Holiday Food Drive**  
LSB Lobby

**WEDNESDAY, DEC. 16**

**PPPL Colloquium**  
4:15 p.m. ♦ MBG Auditorium  
[Binary Black Hole and Neutron  
Star Collisions](#)  
Dr. Frans Pretorius, Princeton University

### UPCOMING

**WEDNESDAY, DEC. 23**

**PPPL Holiday Party**  
12 p.m. ♦ LSB Lobby and Cafeteria  
**Everyone working at the Lab  
is invited!**  
Interested in contributing a dessert?  
Contact [holidaypartycommittee  
@pppl.gov](mailto:holidaypartycommittee@pppl.gov).

**DEC. 24-JAN. 3**

**Laboratory Closed**

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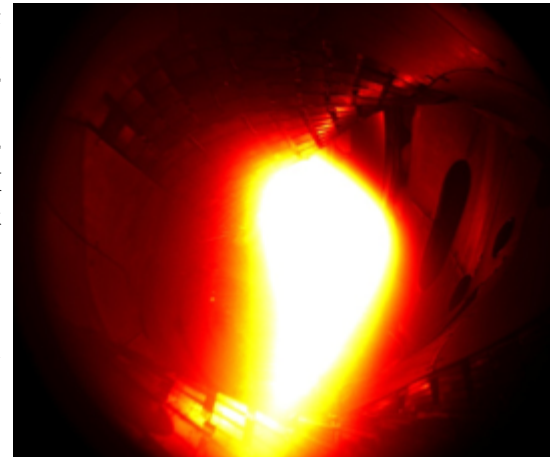
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## A collaboration bears fruit as W7-X celebrates first research plasma

By Jeanne Jackson DeVoe

Scientists from the U.S. Department of Energy's Princeton Plasma Physics Laboratory (PPPL) and other U.S. institutions joined colleagues from around the world at the celebration for the first plasma of the Wendelstein 7-X (W7-X) stellarator at the Max Planck Institute in Greifswald, Germany. The Dec. 10 event heralded the start of the largest and most advanced fusion experiment of its kind in the world and could yield promising solutions to some of the most difficult challenges in developing fusion energy.

PPPL physicists David Gates, Novimir Pablant, and Samuel Lazerson, who have collaborated on the machine for the past five years, were in Greifswald to witness the celebration firsthand. They joined dozens of researchers and a dozen news crews in the W7-X control room as it counted down from 10 to the first plasma. An image of the first plasma flashed briefly on a large overhead screen and then resolved into quadruple images of the white, glowing plasma. Meanwhile, a dozen or so staffers at PPPL got up early to watch the event, which was live-streamed to the Laboratory at 7 a.m.



An image of the first plasma in the Wendelstein 7-X stellarator (Photo courtesy of the Max Planck Institute).

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## Bernard named communications director of the Princeton Plasma Physics Laboratory

By John Greenwald

Larry Bernard, a proven developer of strategic communications programs, has been named director of communications for PPPL, effective Dec. 14. PPPL is the nation's leading center for the exploration of plasma science and magnetic fusion energy.



Larry Bernard

Bernard has developed highly successful internal and external communications programs in the life sciences industry. His positions have included senior communications manager at Amgen, a major biopharmaceutical company; senior manager for worldwide R&D and medical communications at pharmaceutical giant Pfizer Inc.; and most recently senior communications director at a national health care policy think tank.

His wide-ranging journalistic experience includes service as assistant director and senior science editor of the Cornell University News Service; science writer and reporter for the News/Sun-Sentinel in Fort Lauderdale, Florida; and science editor at the University of Illinois at Urbana-Champaign.

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# Schweickhard “Schwick” von Goeler, an inventor of groundbreaking devices used to analyze fusion experiments worldwide, dies

By Jeanne Jackson DeVoe

**S**chweickhard “Schwick” von Goeler, an award-winning physicist at the U.S. Department of Energy’s Princeton Plasma Physics Laboratory (PPPL) for more than 35 years and the inventor of numerous X-ray diagnostics used in fusion experiments worldwide, died of leukemia on Dec. 6 in Springfield, Massachusetts. He was 84.

Von Goeler invented the X-ray crystal spectrometer whose modern version, developed by PPPL physicists Ken Hill and Manfred Bitter, can be found on the new Wendelstein 7-X stellarator in Germany, the Large Helical Device in Japan, and the KSTAR and EAST superconducting tokamaks in Korea and China. It is also in use on, as well as the Alcator C-Mod tokamak at MIT and will be installed on PPPL’s recently completed National Spherical Torus Experiment-Upgrade and on the international fusion experiment ITER that is under construction in France.

“Schwick led the X-ray diagnostics branch at PPPL for very many years,” said Hill, who collaborated with von Goeler and Bitter on many of the devices. “He personally pioneered the use of many of the X-ray measurement techniques of the plasmas in tokamaks to determine what was happening inside. PPPL’s world leadership in the use of X-rays continues to this day.”

Von Goeler was a physicist at PPPL from 1964 to 1999 and a lecturer in Princeton University’s graduate program in plasma physics during most of that time. Starting in the 1970s, he pioneered the use of X-rays in diagnostics to get a clear picture of the inner workings of the super-heated ionized gas called plasma during fusion experiments. He invented diagnostics for most of PPPL’s major experiments, including the Symmetric Tokamak (ST), the Princeton Large Torus (PLT), the Poloidal Divertor Experiment (PDX), the Tokamak Fusion Test Reactor (TFTR), and the National Spherical Torus Experiment (NSTX).

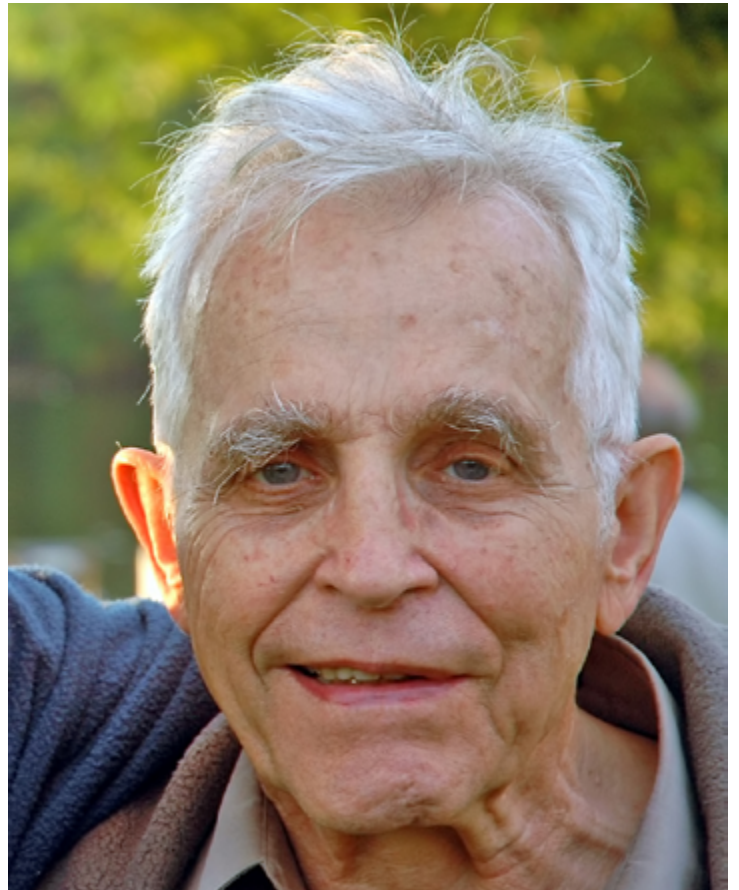
## Father of X-ray diagnostics

“He was not only the father of a lot of the X-ray diagnostics that are now universally used, but also a lot of the physics that went with it,” said physicist Brent Stratton, who worked with von Goeler on diagnostics for the NSTX. “He was not just an inventor but a strong physicist.”

Ned Sauthoff, the director of the US ITER Project Office, recalls working with Von Goeler and physicist Wolfgang Stodiek during Sauthoff’s first year of graduate school at Princeton University in 1971. Von Goeler was developing an X-ray pulse height analyzer (PHA) to measure the electron temperature and metallic impurity content in the ST that had been converted from the C-Stellarator.

“I remember sitting in that darkened control room, with the green glows from the screens of the oscilloscopes that were photographed following each shot to provide the data record, and the doorbell announcing the next shot,” he said in an email message. “It took very little time for me to realize that Schwick was truly exceptional, particularly in his ability to observe and to question. Schwick was meticulous in his design and analysis of instruments.”

Von Goeler and his colleagues used the PHA to analyze the level of metal impurities in the plasma, which can cool the plasma and halt fusion reactions. They found that the



Schweickhard “Schwick” von Goeler

amount of impurities in the plasma from the walls of the tokamak was 10 times higher than expected.

With von Goeler, Sauthoff developed an X-ray imaging system for the ST that the physicists used to discover the formation of magnetic islands and related instabilities in tokamak plasmas.

## Detecting sawtooth oscillations

The X-ray imaging system also allowed von Goeler, Stodiek and Sauthoff to detect for the first time a phenomenon called “sawtooth oscillations,” which signal internal plasma disruptions. The discovery led to a 1974 paper by von Goeler and his collaborators in *Physical Review Letters*. “Nobody had done a measurement like that – nobody,” said Bitter, who was recruited by von Goeler to PPPL and became a lifelong colleague and friend. “He had brilliant ideas.”

Building on his earlier PHA invention, von Goeler and Hill introduced the first X-ray crystal spectrometer, which allowed physicists to identify the spectra of metal impurity ions in the plasma. They next developed an improved X-ray crystal spectrometer with a very high spectral resolution, which also allowed researchers to measure the ion temperature of the hot core of the plasma through Doppler measurements — a feat that only a high-resolution device could achieve. The results led to another paper in *Physical Review Letters* by Bitter and von Goeler in 1979.

The spectra of highly charged ions that the physicists obtained from tokamak plasmas were also of great interest for astrophysicists, who observed those spectra in solar flares and used them to derive the electron temperature and other parameters of the flares.

In 1984, von Goeler was awarded the Prize for Excellence in Plasma Physics (now the John Dawson award) by the

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# Schwick von Goeler

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American Physical Society's Division of Plasma Physics. He was honored for his invention of an X-ray camera to analyze the high-energy X-rays that were emitted in experiments that injected radio frequency waves into the plasma to drive a current that could maintain the plasma without ohmic heating, and that raised the temperature high enough to create the conditions necessary for fusion.

With engineer Lane Roquemore, physicist Larry Johnson and Bitter, von Goeler invented a scintillator detector for a neutron collimator for TFTR that could accurately measure neutrons from deuterium-tritium fusion events. This detector led to the discovery of sawtooth oscillations. "They gave a real sense of the structure of plasma that the theorists could work with," said Ken Young, a retired PPPL physicist who worked with von Goeler when Young was head of the Diagnostics Division on TFTR.

"He had a very quiet manner but at the same time he was very engaging and very patient in explaining things to you," said David Johnson, former head of the ITER Fabrication Department at PPPL, who started his career in 1975 and worked with van Goeler.

## X-ray camera for NSTX

Even after his retirement, von Goeler continued inventing. Russ Feder, now the US ITER diagnostics team leader, recalls working on his first diagnostic job with von Goeler and Brent Stratton on a very fast X-ray camera with microsecond time resolution for NSTX. "He was very mild-mannered, very classy, very respectful," Feder said. "It's very clear that my job path at PPPL was very much helped by working with Schwick."

Von Goeler was born in 1931 in Berlin to Margaret and Karl Friedrich Goeler von Ravensburg. His father was a metal physicist and technical director of the Metallgesellschaft, one of Germany's largest industrial conglomerates based in Frankfurt. He was killed in 1944 in World War II.

Von Goeler grew up during wartime Germany and after high school won a scholarship to study gardening at Kent State

University in Ohio as part of a post-war "reeducation" project. As an undergraduate in physics at the University of Marburg in Germany he became interested in fusion energy and went on to get a Ph.D. in plasma physics from that school. He first came to PPPL when he received an offer of a postdoctoral fellowship. He remained at the Laboratory for the rest of his career, with the exception of sabbaticals in Italy in the late 1960s and in Germany in the late 1970s, and an Alexander von Humboldt fellowship in 1987 to do research at the Max Planck Institute in Germany.

"I think he really found a home at PPPL and felt like he had a lot of wonderful colleagues and was able to explore interesting questions and do important work," said his daughter Dorothea von Goeler.

A violinist who played chamber music and in orchestras throughout his life, von Goeler met his wife Adelheid when his quartet needed a cello player. The couple married in 1963 and had three daughters, Ruth and Dorothea, of Northampton, Massachusetts and Hanna, of Montclair, New Jersey, and five grandchildren.

The von Goelers lived in Princeton until 2004 when they moved to Haydenville, Massachusetts, to be closer to two of their daughters. They moved to nearby Florence last year. An avid gardener, von Goeler continued to use his early skills to grow beautiful and abundant gardens throughout his life. He was a member of the Pioneer Valley Symphony Orchestra and was active in the Adult Forum at the Immanuel Lutheran Church where he was a member.

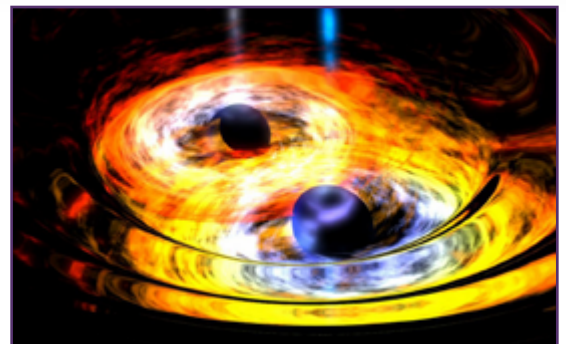
"Schwick's legacy lives on, sustained by those who worked with him, by those who were inspired by him, and by those who seek to gain a deeper understanding the physics of tokamak plasmas," Sauthoff said. "His passion for detailed observation and questioning is a model for all of us."

Services will be held on Saturday, Dec. 19, at 1 p.m. at Immanuel Lutheran Church in Amherst, Massachusetts. [D](#)

# COLLOQUIUM

## Binary Black Hole and Neutron Star Collisions

**Dr. Frans Pretorius**  
Princeton University



**Wednesday, Dec. 16**  
4:15 p.m., M.B.G Auditorium, Lyman Spitzer Building

# Procurement liaisons provide a guiding hand throughout purchasing process

By Jeanne Jackson DeVoe

**P**rocurement liaisons will help staff members in various departments at PPPL shepherd their purchases for projects through the system from the onset of the project through its completion.

Kristen Fischer, PPPL's chief financial officer and head of Business Operations, said she is happy to see the program revived after a recent survey found that most people working with the procurement staff don't know about it. "I think it's very important that we initiate this program," Fischer said at a lunchtime meeting introducing the program on Dec. 2. "I ask all of you to be patient with us as we rebuild our team and involve your liaisons early in the process."

Skip Schoen, the acting head of the Procurement Department, who started his career at PPPL in procurement 31 years ago, said he was "happy to be back" and was looking forward to making improvements, including to the liaisons program. "We're going to build a strong team starting in the next month or two and we'll grow from there," he said.

The liaisons program is aimed at making the procurement process more efficient by getting the liaisons involved in projects from the outset, said Arlene White, a supervising procurement specialist and small business liaison, who is heading the program and who has dubbed it, "A New Day."

"If we're allowed to collaborate with you and get in on the ground floor, we can cut the time and make the process more efficient," White told department and division heads at the Dec. 2 meeting.

The liaisons will meet with staff members early on to get a sense of what they need and will sit in on staff meetings, especially when they discuss purchases, White said. That will not only create stronger relationships between procurement staff and staff in other departments, it will also help ensure procurements are processed more quickly. The liaisons will make sure the contract is legal and that the best supplier and the best contract type is selected. The relationship between liaisons and staff will help procurement staff look ahead and plan for future purchases, White said.

## Start planning early

It's particularly important to start planning early for purchases because of tightening regulations by the Department of Energy, White said. The DOE is restricting sole source purchasing awards, in which a contract is awarded to a



Arlene White discusses the Procurement liaisons program at a Dec. 2 meeting.

single source without competition. This may apply even if the purchaser is facing a deadline, White said. "The federal government is stressing the point that failing to plan is not an excuse for non-competition," she said. She added that the DOE will also continue to enforce regulations requiring staff to maximize purchases from small businesses, which includes women-owned, HUB zone businesses, and disadvantaged, service-disabled veterans, whenever possible.

Hutch Neilson, head of Advanced Projects, said he likes the idea of the program. "We've always had good experiences with our procurements," he said. "The key is establishing contact between a project and procurement early on."

Neilson asked whether Procurement Department is adequately staffed after several staff members retired or resigned this year. White said that the division is hiring new staff and has hired some temporary staff in the meanwhile. "We're very keenly aware of it," she said. "As with the Laboratory, a lot of senior staff members have left and the workforce supports are new."

Another staff member said he had some concerns regarding problems with suppliers. White said the department is aware that such problems occur and would take steps to improve vetting of suppliers. "We have to make sure we're on top of that situation," she said. "We have to better vet our suppliers. You can trust that you'll have our attention and we'll make ourselves available. We'll be part of your pre-planning stages," White said. "If we're allowed to collaborate with you and get in on the ground floor, we can cut the time and make the process more efficient."

For a complete list of liaisons, please go to <http://procurement-int.pppl.gov/>.



Skip Schoen, left, the acting head of Procurement, introduces himself.

# W7-X first plasma

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Discussing the W7-X first plasma are from left to right: Sam Lazerson, Glen Wurden, of Los Alamos National Laboratory, Novimir Pablant, and David Gates.

The first helium plasma in the machine lasted a tenth of a second and achieved a temperature of 1 million degrees, according to the Max Planck Institute website. That was enough to declare success after more than 10 years of construction and nearly 20 years of planning as well as an investment of 1 billion Euros (1.09 billion dollars) and more than a million hours of assembly.

“The energy was intense,” said Lazerson, who has been working at the W7-X since March with a team that has been designing and analyzing experiments that map the stellarator’s magnetic field. “Everyone was hopeful and very excited every time there was a new pulse. So it was fun!”

Gates, the stellarator physics leader at PPPL, was equally excited. “It’s very gratifying to have the opportunity to work on such an exciting experiment,” he said. Added Pablant, who led PPPL’s development of an X-ray crystal spectrometer for W7-X: “They’ve been very welcoming to us as part of the team. It’s a very good feeling to be here.”

Glen Wurden, a physicist at Los Alamos National Laboratory (LANL) was also at the event. “It’s great!” he said. “It’s a beautiful lab and a wonderful machine and we’re excited to be part of it.”

## Nothing but a win-win

“W7-X is extremely important,” said Hutch Neilson, head of Advanced Projects at PPPL. “We are fortunate to be a part of it and they are fortunate to have us as a partner. This is nothing but a win-win. Stellarator research is that important and right now this is our opportunity to be involved at the world forefront of stellarator research.”

Stellarators are fusion devices that use twisting, potato chip-shaped magnetic coils to confine the plasma that fuels fusion reactions in a three-dimensional and steady-state magnetic field. The W7-X will be the first optimized stellarator to confine a hot plasma in a steady state for up to 30 minutes. In doing so, it will demonstrate that an optimized stellarator could be a model for future fusion reactors.

Donut-shaped tokamaks have traditionally been better than stellarators at confining plasma at the high temperature and density needed to create fusion energy. But the W7-X could potentially overcome this problem, Gates said. It can operate in a steady state and at high performance without disruptions and without needing to drive a current into the plasma, since its twisted internal coils provide the helical magnetic field. “Because we can now optimize stellarators for confinement, they have the potential of catching up to tokamaks in performance,” Gates said.

## PPPL leads U.S. effort

PPPL leads the U.S. collaboration with W7-X, which is funded at over \$4 million annually from the Department of Energy’s Fusion Energy Sciences office. The Laboratory built some key components of the machine, which was planned for nearly 10 years before construction began and cost 1 billion Euros to build. Collaborators include researchers from LANL and Oak Ridge National Laboratory, as well as researchers and students from MIT, the University of Wisconsin, Auburn University, and Xantho Technologies, LLC.

The first contribution to the experiment made by PPPL physicists and engineers was designing and delivering the five massive 2,400-pound trim coils that fine-tune the shape of the plasma in fusion experiments. Lazerson recently used the field coils to map the magnetic field on the device, proving that the main magnet system is working as intended.

Pablant said he would look at results from the first plasma measured by a diagnostic device called an X-ray imaging crystal spectrometer that he and PPPL engineer Michael Mardenfeld designed and built. It is one of several diagnostics created by U.S. researchers that will analyze experiments on W7-X.

PPPL engineers led by Doug Loesser are building a third major contribution by PPPL: two divertor scraper units. The devices, designed in collaboration with Oak Ridge, intercept heat coming from the plasma to protect the W7-X divertor targets from damage.

## Focus on different kind of stellarator

Neilson said research at PPPL has primarily focused on a different type of stellarator called a quasi-axisymmetric stellarator. PPPL built one such device several years ago but halted construction in 2008 due to funding issues. “Right now we’re just beginning to scope out the program requirements and what we call the mission-need case for a new stellarator initiative,” Neilson said.

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PPPLers watch a simulcast of the first plasma at the W7-X stellarator. (Photo by Chris Cane)

## W7-X first plasma

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W7-X will continue running until just before Christmas, when it will close for the holidays and reopen at the beginning of January. Its next task will be to extend the duration of the plasma and to do research to prepare for the first plasma from hydrogen fuel. Lazerson will remain at the site until March, 2016, to test the effect of the trim coils on the plasma.

Pablant, along with a student from Auburn University, will be traveling back and forth to W7-X until March to operate the X-ray crystal spectrometer. It will obtain high-resolution

measurements of the temperature and velocity of plasma ions that will be used to study the plasma physics. Gates will continue overseeing PPPL work on W7-X and other stellarator projects.

Champagne was poured in the W7-X control room on Dec. 10 and more parties were on tap before work continued on Dec. 11. The PPPL physicists savored the moment. "This is awesome," said Lazerson. "He just summarized what I said!" said Gates. "That was a very accurate summary," Pablant added. 🍾

# PPPL Holiday Party Luncheon

**Everyone working at the Lab is invited!**

- World Famous PPPL Skit in the MBG Auditorium
- Gift Raffle - donations made by PPPL Council

After the Skit - *you must be present to win!*

Interested in contributing a dessert?

Contact [holidaypartycommittee@pppl.gov](mailto:holidaypartycommittee@pppl.gov).



**Wednesday, Dec. 23 at 12 p.m. in the LSB Lobby and Cafeteria**

## Announcing a new opportunity for undergraduates, graduate students and postdocs: Princeton Research Day

Juniors, seniors, graduate students and postdoctoral researchers are encouraged to present at the inaugural Princeton Research Day, a celebration of research and creative works to be held **May 5, 2016** at Frist Campus Center. Presenters will gain valuable experience in communicating across disciplines to a nonspecialist audience. Resources — including workshops, practice sessions and technical help — will be available to help presenters prepare for the event. Types of presentations include posters, talks, performances, exhibitions and videos. See [researchday.princeton.edu](http://researchday.princeton.edu) for more information and to apply.

**Applications will be accepted Dec. 1 through Feb. 5, 2016**


## Larry Bernard

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“Larry arrives at an exciting time for the Laboratory,” said PPPL Director Stewart Prager. “We have completed construction of the National Spherical Torus Experiment-Upgrade, our major fusion facility, and are about to embark on an immensely compelling research program. Communicating its findings and those of our other cutting-edge programs will broaden and deepen awareness of the Laboratory. We also strive to communicate the progress in fusion and plasma science that occurs across the nation. We welcome Larry Bernard and are delighted to have his expertise to lead this vital effort.”

Bernard holds bachelor’s and master’s degrees from Northwestern University’s Medill School of Journalism. He will lead the PPPL communications team and create and implement a plan to increase the visibility of the Laboratory,

especially its leadership role in the science and technology of magnetic fusion energy research and the science of plasma physics. He will advise PPPL leadership on communications matters and serve as a spokesperson for the Laboratory.

“It’s truly an honor to work at such an illustrious laboratory with such distinguished scientists and staff,” Bernard said. “It’s an exciting opportunity, and a privilege, to be a part of something so special – creating the means for virtually limitless energy for all mankind. I’m looking forward to communicating the results of the research by the brilliant staff of the PPPL.” 

## Holiday outreach programs at Princeton University and in the community

**Princeton University has several programs that collect food, toys, and other items to help make the season bright for those in need:**

**Take part in the holiday food drive at PPPL by bringing non-perishable food items to the lobby. (See [page 8](#))**

- Bring two non-perishable food items to the Princeton University’s men’s basketball game versus Liberty University on Dec. 17 at 7 p.m. and receive free admission.
- Donate items to the Crisis Ministry of Princeton and Trenton for needy families. Donate home products for a Welcome Home package (new cleaning supplies, dish detergent, laundry detergent, bed supplies, baby supplies, etc.) or personal care products such as toothbrushes, toothpaste, feminine products, soaps, etc. Collection will be Monday through Thursday at the Crisis Ministry office at 161 Nassau St. in the basement of the Nassau Presbyterian Church.
- Donate personal care items, kitchen supplies, bedroom or bathroom items to Homefront, 1880 Princeton Ave., Lawrenceville, Mondays, Wednesdays, Thursdays and Fridays 9 a.m. to 5 p.m. and Tuesdays 11 to 6 p.m.
- For a complete list of programs, go to <http://www.princeton.edu/community/happenings/service/outreach/>.

# New training modules for PPPL travelers on the PPPL Travel Website

Attention PPPL travelers and administrators: Check out two new travel modules under the new training link on the PPPL Travel Website at <http://travel.pppl.gov>.

A voucher training module is designed to help you get reimbursed for your trips! The travel module leads you through all the steps you'll need to take to properly fill out the travel voucher.

[Click here for the Voucher Training module.](#)

A Foreign Travel Management System training module will assist you in filling out the documentation for any foreign travel.

[Click here for the Foreign Travel module.](#)

## Holiday Food Drive

PPPL will take part in the University's holiday food drive from **Nov. 30 through Dec. 16**. The food will go to the Mercer Street Friends Food Bank, which has been a leader in fighting hunger in the Mercer County area, supplying food to nearly 50 pantries, shelters and soup kitchens for nearly 20 years.

## Flu Vaccines Are Here!

Influenza is a contagious disease caused by a virus. It can be spread by coughing, sneezing or nasal secretions.

By getting the flu vaccine, you can protect yourself from influenza and may also avoid spreading this illness to others.

**Please call the OMO at extension 3200 to make an appointment.**

Thank you.

—The OMO Staff



# Get LinkedIn with PPPL!

Help promote PPPL to job seekers by following the Lab's LinkedIn page at <https://www.linkedin.com/company/princeton-plasma-physics-lab>

That's the message from PPPL's Office of Human Resources, which has given the Lab's LinkedIn page a new look with information about research, job openings, current events, and inspirational memes. The hope is to have more PPPL'ers join (or "follow") the LinkedIn page, and for all Lab employees to help spread the word about what makes the Lab a great place to work and learn.

**BROCK**

**MARK GAZO**  
Chef Manager



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 December 14	Tuesday December 15	Wednesday December 16	Thursday December 17	Friday December 18
<b>COMMAND PERFORMANCE Chef's Feature</b>	<b>Fried Chicken</b> served with Cheesy Mashed Potatoes	<b>Veggie Ravioli</b> in a Pink Primavera Sauce	<b>Chicken Marsala</b> with Mushrooms served with Stuffing and Vegetable	<b>Carved Roast Beef</b> with Mashed Potatoes, Gravy & Vegetable	<b>Salmon Piccata</b> with Vegetable & Rice Pilaf
Early Riser	<b>Huevos Ranchero Burrito</b>	<b>French Toast</b> with Glazed Apples	<b>Grilled Vegetable Quesadilla</b> with Spinach, Peppers, Onions, Tomatoes & Cheddar Cheese	<b>Chocolate Banana Pancakes</b>	<b>Steak, Egg &amp; Cheese Burrito</b>
Country Kettle	<b>Chicken Noodle</b>	<b>Tomato Spinach Lentil</b>	<b>Stuffed Cabbage Soup</b>	<b>Cheddar Cheese &amp; Broccoli</b>	<b>Beef Mushroom Barley</b>
Grille Special	<b>Grilled California BLT Burger</b> with Caramelized Chipotle Onions	<b>Turkey Reuben</b> with Swiss Cheese, Sauerkraut & Russian Dressing On Rye	<b>Salmon Burger</b> with Lettuce & Tomato on a Whole Wheat Roll	<b>Italian Sausage &amp; Peppers</b>	<b>Broccoli Cheddar Stromboli</b>
Deli Special	<b>Fresh Mozzarella, Tomato &amp; Basil</b> on Ciabatta with Orange-Honey Balsamic Drizzle	<b>Baked Glazed Ham &amp; Cheddar</b> on Ciabatta with Dijon Mustard	<b>Chicken Caesar Salad Wrapped</b> in a Tomato Tortilla	<b>Seafood Salad Croissant</b>	<b>Pork Carnita Soft Taco</b> with Red Cabbage Slaw, Avocado & Lime Sour Cream
Panini	<b>Buffalo Chicken &amp; Mushroom Quesadilla</b> with Bleu Cheese	<b>Parisian Tuna Salad</b> with Tomato, Onion, Artichoke, Olives, Arugula & Olive oil Dressing on Ciabatta Bread	<b>BBQ Chicken, Bacon &amp; Balsamic Onions</b> with Provolone on Ciabatta Bread	<b>Roasted Pesto Vegetables</b> with Fresh Mozzarella on Ciabatta Bread	<b>Italian Meatball Parmesan Torpedo</b>

MENU SUBJECT TO CHANGE WITHOUT NOTICE

VEGETARIAN OPTION

**WEEKLY**

Editor: **Jeanne Jackson DeVoe** ♦ Layout and graphic design: **Kyle Palmer**  
Photography: **Elle Starkman** ♦ Science Editor: **John Greenwald** ♦ Webmaster: **Chris Cane**

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 WEDNESDAY. Other stories should be submitted no later than noon on TUESDAY.**

Comments: [commteam@pppl.gov](mailto:commteam@pppl.gov) ♦ PPPL WEEKLY is archived on the web at: <http://w3.pppl.gov/communications/weekly/>.