

Calendar of Events

UPCOMING

WEDNESDAY, SEPT. 23

PPPL Colloquium

4:15 p.m. ♦ MBG Auditorium
**Probing the History and Dynamics
of the Universe with Polarized
Signatures in the Cosmic
Microwave Background**
Suzanne Staggs, Princeton University

SATURDAY, SEPT. 26

Community and Staff Day
Princeton University

Family Fun Fest

3:30 p.m. through halftime ♦
Princeton Stadium Concourse

Youth Sports Clinic

3:30-4:30 p.m. ♦ Weaver Track

Princeton vs. Lehigh Football Game

5 p.m. ♦ Princeton Stadium

WEDNESDAY, SEPT. 30

Patent Awareness Program Recognition Dinner

6-9 p.m. ♦ Prospect House,
Princeton University

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A Lab-wide party to celebrate NSTX-U's first test plasma

By Jeanne Jackson DeVoe

P PPL staff members celebrated the completion of the \$94 million National Spherical Torus Experiment-Upgrade (NSTX-U) and the achievement of the first test plasma with an ice-cream social on Sept. 9.

The party celebrated the Aug. 10 achievement, which met U.S. Department of Energy criteria for the completion of the NSTX Upgrade project. Dozens of PPPLers lined up for ice cream and sundae fixings and a piece of one of three sheet cakes with the inscription, "Congratulations in Celebration of NSTX-U First Plasma Shot." The event was organized by the Event Committee, which is co-chaired by Carol Ann Austin and Kate Harkness.

Laboratory Director Stewart Prager half-jokingly told the large crowd of staff members gathered in the LSB lobby that the party celebrates an event "that deserves more than ice-cream," he said, but "that's all you're getting today."

Prager said that NSTX-U is the newest fusion facility in the United States and will move research into spherical tokamaks "a huge step forward," leading to scientific discoveries that cannot be imagined today. "NSTX-U will secure the scientific future of the Laboratory," he said. "It is critically important for the Lab that this project is now beginning."

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Cynthia K. Phillips, a ground-breaking expert in plasma waves and Princeton graduate school lecturer, dies after long illness

by Jeanne Jackson DeVoe

Cynthia K. Phillips, a physicist at PPPL for 32 years and a former lecturer in Princeton's graduate program in plasma physics, died on Sept. 1 after a long battle with cancer. Phillips devoted her life's research to the study of radio frequency waves in plasmas and was a founder of a high-performance computing center to advance that research. She was 61.

"She was an extraordinarily talented individual who really cared about fusion research, cared about PPPL and did everything she could to move the Lab forward and keep the Lab in the forefront of fusion research," said J. Randy Wilson, the former head of the ITER and Tokamak Department at PPPL, who retired in 2013 and who worked with Phillips since she began her career at PPPL in 1983.



Cynthia K. Phillips

Using high-performance computers

Phillips' research centered on the behavior of radio frequency (RF) waves, which can be used to heat plasma to create fusion energy or control the plasma. Phillips and other researchers used high-performance computers to create computer models to predict the complex behavior of RF waves.

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Cynthia K. Phillips

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“Cynthia Phillips contributed greatly to the advancement of RF physics within the RF community at large,” said Joel Hosea, head of RF Science and Technology at PPPL. “She is a giant among RF physicists in the world community. She will be sorely missed.”

Phillips was a lecturer with the rank of professor who taught graduate courses in plasma physics for at least a dozen years. She was passionate about her research and continued working almost until the end of her life despite her illness.

She was named a fellow of the American Physical Society in 2005 and was an APS Division of Plasma Physics Distinguished Lecturer from 2001 to 2002. Among numerous other activities, she was a member of the Fusion Energy Sciences Advisory Committee for the DOE from 1998 to 2004.

Born in Holyoke, Massachusetts, Phillips grew up in Chicopee, Massachusetts, on the Connecticut River. An aspiring scientist even as a teenager, she wrote a letter to NASA inquiring about how to become an astronaut when she was in high school in the 1970s, only to be told that NASA only accepted male astronauts.

She received a bachelor’s degree of science from MIT in 1976. Phillips’ husband Michael recounts the story of Phillips’ admission interview for MIT. Phillips’ mother told her she should not go to the interview without bringing something, so Phillips brought a home-baked pie. “She always did what she thought was right,” Michael Phillips said. “She was the genuine article.”

A sharp wit and tough questions

Phillips went to graduate school in physics at the University of Wisconsin-Madison and there she met her husband, who is also a physicist. “I thought she was a little brash at first,” Michael Phillips recalled. “She had a very sharp wit and always had the tough questions ready.” His wife-to-be would call him up to ask a question about a topic they were studying and then answer her own question before she hung up, he said. He resolved to ask her out and the two were married the year Phillips graduated in 1982.

Phillips was a post-doctoral fellow at the University of Wisconsin for a short time before coming to PPPL, where she would remain the rest of her life.

She began her career at PPPL on the Princeton Large Torus. She went on to do “ground-breaking experiments and theory” on research into radio frequency waves with deuterium-tritium on the Tokamak Fusion Test Reactor (TFTR), Hosea said. She continued to study RF waves on the National Spherical Torus Experiment (NSTX) and was appointed acting head of Physics Analysis in 2002. “She had the rare quality of being able to bring together experimentalists and theorists/modelers to tackle the basic issues of RF physics and to bring her fundamental understanding to solving them,” Hosea said.

A founder of high-performance computing center

Phillips devoted a great deal of energy over the past decade to establishing a high-performance computing center devoted to RF wave research. Paul Bonoli, a senior research scientist at the Massachusetts Institute of Technology (MIT) Plasma Science and Fusion Center, credits Phillips and Don

Batchelor, a recently retired physicist at Oak Ridge National Laboratory (ORNL), with “pioneering” the effort to establish the Radio Frequency SciDAC, (Scientific Discovery through Advanced Computing), a multi-institution center at MIT funded by the U.S. Department of Energy (DOE), which is used by researchers at PPPL, MIT, ORNL and several smaller laboratories.

“Cynthia and Don really had a vision that our area of research, RF particle interactions, could benefit from high-performance computing advances and it turns out to be true,” Bonoli said. “I really relied on her not only for her scientific advice but also for her clear understanding. She had a good strategic view of the fusion program and she always seemed to understand where things were heading. It’s very valuable and something I will miss tremendously.”

Most recently, Phillips focused on a phenomenon that can occur in certain types of RF heating, which she first discovered through a computer model she developed of plasmas in PPPL’s National Spherical Torus Experiment (NSTX). The model and subsequent models showed that the original RF wave can convert into a slower short wave that could affect the process that heats the plasma and creates fusion. She is the first author of a paper on this subject due to be submitted this year to the journal *Physics of Plasmas*, along with coauthors Lee Berry and Fred Jaeger, of Oak Ridge.

Bringing experience into the classroom

A natural teacher, Phillips brought her experience as a scientist into the classroom in her graduate course on plasma waves. She taught for at least a dozen years until illness forced her to stop teaching a few years ago. “I saw that she would be an excellent addition to the program because she combined her research interests together with a real innate desire to teach and to mentor,” said Nat Fisch, director of the Program in Plasma Physics, who first recruited her. “She played a wonderful role within the teaching program and she was a role model for everyone, particularly for women in physics. The teaching program is just not the same without her.”

Phillips was often the only female physicist at the Laboratory and she made a special effort to mentor female graduate students. A member of the Women in Plasma Physics Division of the American Physical Society, “she was always willing to give some extra time to any of the inquiring females who might be interested in coming into our program,” said Barbara Sarfaty, the former administrator of the program and a friend of Phillips. “She was always interested in trying to boost women into physics, especially plasma physics.”

Sarfaty said Phillips’ students “adored her. I think they all looked up to her,” she said. “I think she was very honest with them and very forthcoming.”

Nicola Bertelli, a physicist at PPPL who worked with Phillips when he was a post-doctoral fellow, recalled first meeting her during interviews for the position. Like the other researchers, Phillips asked him numerous scientific questions but she also asked him what novel he was currently reading. “I think this memory describes Cynthia,” Bertelli said. “She was a very nice and very good person besides her clear scientific abilities and her career.”

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New user-friendly travel website becomes public Sept. 16

By Jeanne Jackson DeVoe

The Travel Office will unveil its new user-friendly, interactive travel website at PPPLtravel.gov on Sept. 16.

“The website will help travelers understand what they need to know when traveling on behalf of the Laboratory,” said Tony Bleach, head of the PPPL Accounting Division. “It is easy to navigate and was designed for travelers to use as their primary resource to answer their travel-related questions.”


The website is part of an overall effort by Kristen Fischer, CFO and head of Business Operations, to upgrade the Business Operations websites. It is one of several projects the Travel Office staff is undertaking aimed at increasing efficiency, improving services, enhancing communication and raising awareness of the travel requirements and procedures. “It is a one-stop resource,” said Lynda Lauria, the Travel Office manager.

The new website incorporates the recently updated Travel Manual, which is intended to provide clear guidance and requirements for all individuals who travel on behalf of PPPL. The website addresses trip approvals, foreign travel, making arrangements, and processing reimbursements.

“The primary focus when building the new travel website was to deliver an intuitive tool for travelers of PPPL,” said Kristen Fischer. Fischer said travelers will appreciate the information broken down by each stage of their trip. It includes tabs at the top that contain helpful information on the travel process (before you go, during your trip, getting reimbursed, guest travel, policies). A tab is also available where travelers can easily access required travel-related forms.

The site will be accessible from PPPL’s external and internal page so that both PPPL travelers and visitors coming to the Lab can get the necessary information and forms.

Lauria said she hopes that easy access to information will help travelers fill out their paperwork and plan their trips. The information about how to submit travel vouchers will help travelers and staff members who assist travelers fill out the forms more accurately. Lauria emphasized that travelers should still make reservations through the Travel Office after they have submitted all approved travel documents.

The travel site also has information about U.S. State Department alerts and other safety information under a tab on safety tips, as well as information about what to do in an emergency. 



Cynthia K. Phillips

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Cynthia and Michael, a former physicist at Nortrup Grumann Corp., lived in Princeton. Friends and family members say Phillips was devoted to her son Benjamin and was close to her sister and two brothers. A talented cook who had won the Betty Crocker homemaker award in high school for her cooking skills, she was known in her family for packing a picnic for even the shortest trips.

Michael Phillips said he most admired his wife’s ability to talk to anybody. “She could easily just go talk to the Department of Energy secretary and find something in common with him as well as anyone else,” he said.

A long battle with illness

Phillips had been ill for about a decade with carcinoids, a slow-growing type of neuroendocrine tumor that eventually spread to her liver and then her lungs. She fought hard

against the disease – researching the latest treatments and even traveling to Europe to find treatments that were not yet approved in the U.S. She lived to see Benjamin graduate from Princeton High School and then from Cornell University and get a job at Google in California.

She worked at PPPL until she wasn’t physically able to continue working, her husband said. “She loved PPPL. It was her life,” he said. “She enjoyed the people and her colleagues at PPPL and at other labs around the country and internationally too. It was a big part of her life and she would have missed it if she wasn’t involved in it.” 

CD-4 Ice Cream Party

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An excellent safety record

Prager noted that PPPL staff members maintained an excellent safety record during construction. "This project was delivered with technical excellence, safely, on time, and on budget," Prager said. "Everyone should feel a strong sense of pride."

Jon Menard, the NSTX-U program director, said the experiment will lead to scientific discoveries that will provide fresh insights into questions such as how tokamaks can create a steady-state plasma. Answers to such questions are critical to the success not only of NSTX-U but also of ITER, the international fusion experiment being built in Cadarache, France, he said. "I also want to thank the entire engineering and technical staff," Menard said. "Working very closely with you has been a great learning experience for me."

Masa Ono, the NSTX-U project director, promised the crowd he would keep his remarks brief. "I don't want to stand between you and your ice-cream," he said. He also thanked the PPPL staff. "Everyone in the Lab contributed in one way or another," he said.

An "amazing machine"

Ono compared the NSTX-U to a rocket ship. "It's going to take us to a place we've never been before," he said. "This is an amazing machine."

A.J. Stewart Smith, Princeton University vice president for PPPL, called NSTX-U "a tremendous achievement for the Laboratory," and said it will give PPPL "a clear role on the world science stage."

"On behalf of the University, it's really thrilling for us," Smith said, adding that Princeton University President Christopher L. Eisgruber "asked me to convey that to you."

Smith said the completion of NSTX-U allows PPPL's leadership to consider what the next large fusion experiment will be. "Now we can conceive of crafting a project to succeed NSTX-U," he said. "Now that's what the Lab has to do."

(Photos by Carol Ann Austin, Christopher Cane, Dana Eckstein, Jeanne Jackson DeVoe, and Carl Wojtkowiak.)

[more photos on page 5](#)



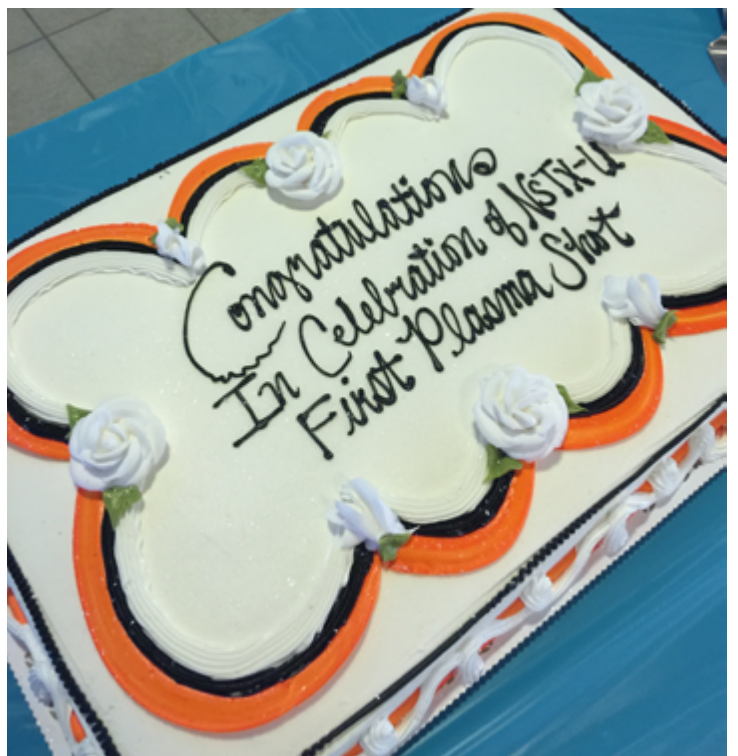
Masa Ono, the NSTX-U project director; Jon Menard, the NSTX-U program director; and Lab Director Stewart Prager each thanked the staff for their contributions to NSTX-U.



Masa Ono and A. J. Stewart Smith, Princeton University vice president for PPPL.



Marianne Tyrell and Kate Harkness take a moment before the crowds arrive.



One of three sheet cakes offers congratulations on first plasma.

CD-4 Ice Cream Party

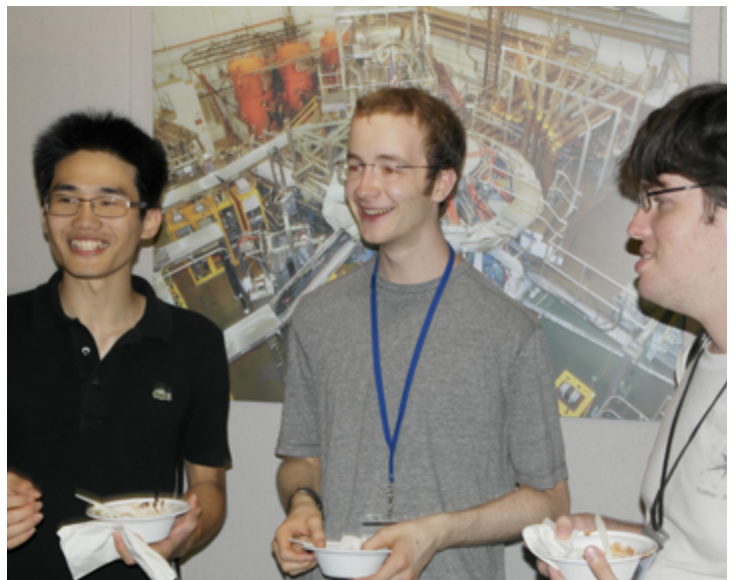
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Members of the event planning committee: From left to right: Dana Eckstein, Lena Scimeca, Richard Kovac, Terry Greenberg, Carol Ann Austin and Kate Harkness, with co-chairs of the committee, Deedee Ortiz, Marianne Tyrell, and Rich Torraca.



Arturo Dominguez and Shannon Greco dig into some cake.



Newly arrived graduate students join the party. From left: Derek Man Hon Hung, Elijah Kolmes, and David Smith.



Walter Guttenfelder, left, Devon Battaglia, who was physics operator for the first plasma, and Stefan Gerhardt, head of research operations.



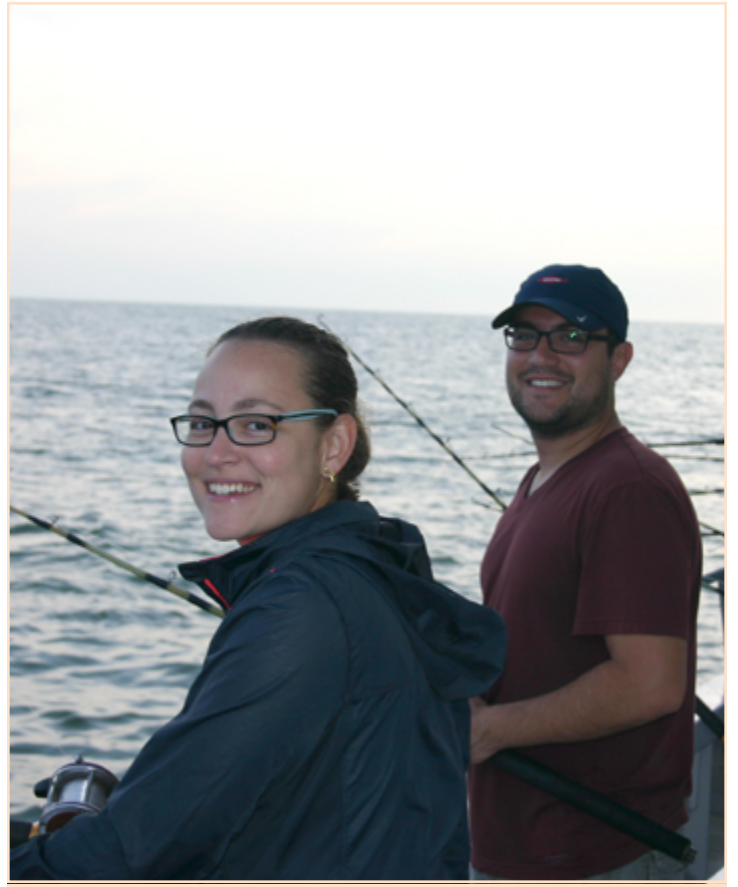
Enjoying the party are from left to right Van Snyder, Greg Schpakow, Brian Tomasko, and Kevin Gurbisz.

Goin' Fishing

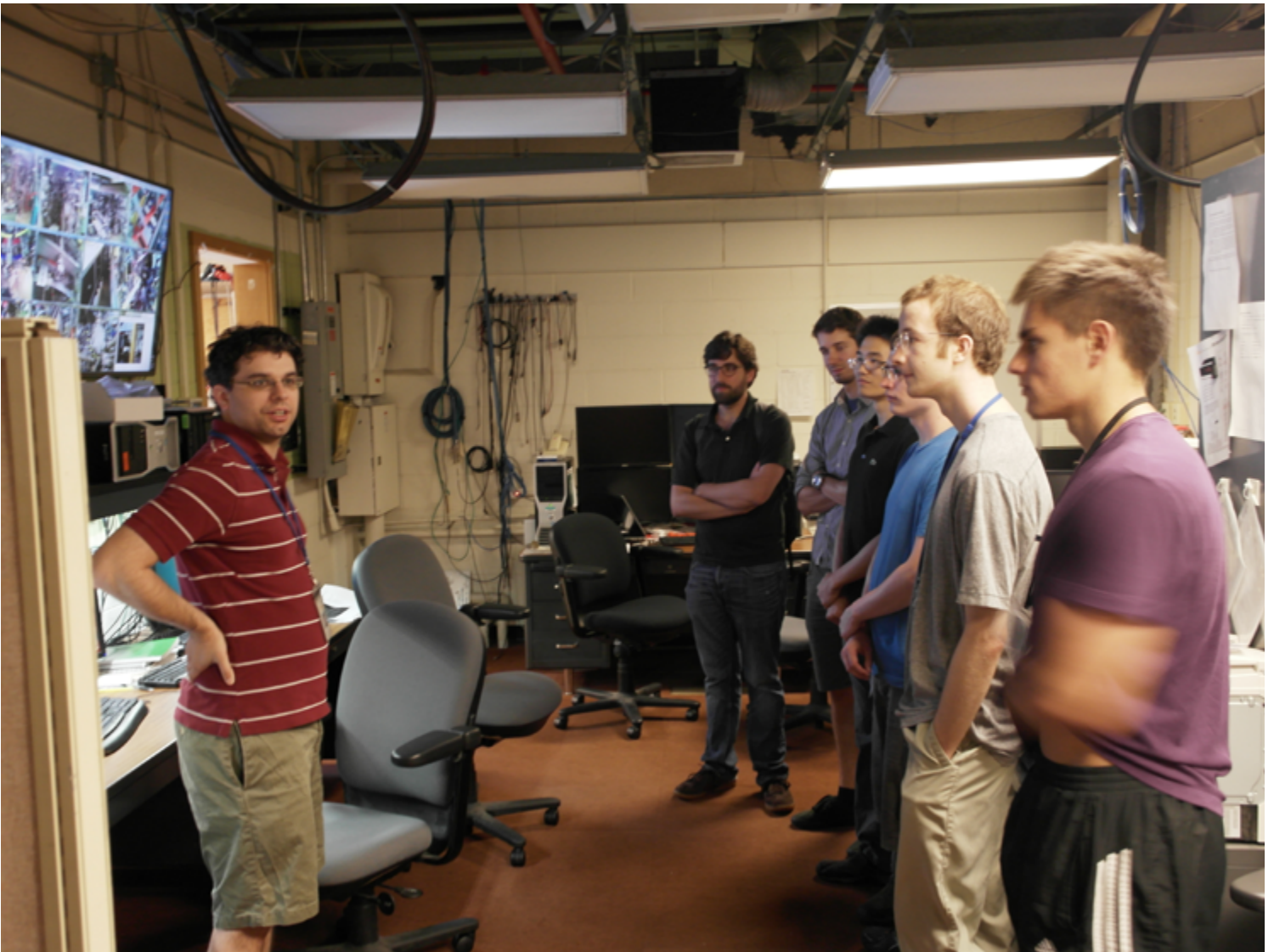
Some 51 people including PPPL'ers, friends, and family members hauled in dozens of fish during the annual PPPL fishing trip on Aug. 21. Nikolai and Marina Gorelenkov's 13-year-old son, Stephan, won the prize for the most fish with a total of 40 during the seven-hour trip out of the Belmar Marina but several people hauled in more than 30 fish. (Photos by Andy Carpe.) 📷



Tony Bleach, right, and his son-in-law Andrew.



Vinicius Njaim Duarte and his wife Maria Padua.



New graduate students in Princeton's plasma physics program get a tour of PPPL's Lithium Tokamak Experiment from current student Dennis Boyle. The tour was part of a day-long training session focusing on the Laboratory's safety requirements and culture. From left to right: Alexander Glasser, Ian Ochs, Derek Man Hon Hung, Andrew Alt, Elijah Kolmes, and Nicolas Lopez. (Photo by Raphael Rosen)

Community and Staff Day Sept. 26

Community and Staff Day features a day of free activities at Princeton University

PPPL proudly participates in this event each year with a table featuring our plasma, light, vacuum and electricity/magnetism demonstrations. If you've never engaged the public with these cool devices, this is a great introduction to the demos and to the rewarding experience of communicating our work to people outside the Lab.

To volunteer, please contact Shannon Greco (sgreco@pppl.gov) or Deedee Ortiz (dortiz@pppl.gov) in Science Education!

The Community and Staff Day schedule includes:

- Princeton Tigers football game versus Lehigh University. Kickoff is at 5 p.m. Get your free tickets online at www.GoPrincetonTigers.com/tickets or visit Human Resources at B172.
- Youth Sports Clinic for children ages 5 to 12, 3:30 to 4:30 p.m., Weaver Track
- Family Fun Fest: 3:30 p.m. through halftime - Games and activities from local non-profits and University departments.
- Postgame fireworks after the game.

For more info on the event, please call 609-258-5144 or go to

<http://www.princeton.edu/community/happenings/special/community-staff-day/>

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 September 14	Tuesday September 15	Wednesday September 16	Thursday September 17	Friday September 18
COMMAND PERFORMANCE Chef's Feature	Swedish Meatballs served over Egg Noodles	Ratatouille over Brown Rice	Rigatoni a la Vodka with Prosciutto & Peas served with Garlic Bread	HALF WAY TO ST. PATTY'S DAY Corned Beef, Cabbage & Potatoes	Grilled Salmon with Brown Sugar & Mustard Glaze with Vegetable Couscous
CELEBRATING NATIONAL BISCUIT & GRAVY WEEK Early Riser	The Philly Steak: American Cheese, Peppers & Onions on a Biscuit Smothered with Country Gravy	The Sicilian: Sausage, Pepperoni, Egg, Provolone, Tomato, Oregano on a Biscuit with Country Gravy	The Slovak: Kielbasa, Egg and Cheddar on a Biscuit with Country Gravy	The Borders: sausage, pepper jack, egg, salsa & avocado on a biscuit with country gravy	Biscuits with Sausage Gravy and 2 Eggs any style
Country Kettle	Pasta Fagioli	French Onion	Minestrone	Sausage Lentil	Summer Squash & Corn Chowder
Grille Special	Grilled Beef Torpedo with Chimichurri Sauce	Kielbasa & Sauerkraut Torpedo with Fried Pierogies	Grilled Salmon Sandwich	Buffalo Chicken Tender Sub served with Blue Cheese Dressing & Celery Sticks	Chicken Caesar Salad served with Garlic Texas Toast
Deli Special	Falafel	Roast Beef with Smoked Gouda Cheese on a Kaiser	Knockwurst & Sauerkraut on Dark Rye served with German Potato Salad	Seafood Salad with Melted Cheddar Cheese Torpedo	Chicken Sliders with Buffalo Ranch Dressing served with 3-Bean Salad
Panini	Open-Faced Tuna Melt on English Muffin	Chef Salad Wrap	Smoked Pulled Chicken on a Kaiser Roll	Balsamic Grilled Veggie Wrap served with Pesto Potato Salad	Roast Beef & Provolone Torpedo au Jus

MENU SUBJECT TO CHANGE WITHOUT NOTICE

VEGETARIAN OPTION

WEEKLY

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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 ♦ PPPL WEEKLY is archived on the web at: <http://w3.pppl.gov/communications/weekly/>.