

At PPPL THIS WEEK

WEDNESDAY, OCT. 1
PPPL Colloquium

4:15 p.m. ♦ MBG Auditorium

Superconductors for Fusion for the Next Ten Years

David Larbalestier - Florida State University
UPCOMING EVENTS
October 3
American Red Cross Blood Drive

8 a.m. - 1 p.m. ♦ Lower End Parking Lot

Please give blood - all blood types are needed.

October 15
PPPL Group Photo Shoot

11 a.m. ♦ Meet in Lobby at 10:50 a.m.

October 27-31
56th Annual Meeting of the APS Division of Plasma Physics New Orleans
<http://www.aps.org/>

A Lab at the Lab

By Jeanne Jackson DeVoe

Like many at PPPL, Xango attended meetings, spent some time in the cafeteria, and lots of time sitting in the office. But unlike most employees, he could usually be found sitting under the desk. And he's probably the only one at PPPL who wagged his tail every time he met someone new.

Xango is a black Labrador retriever guide dog in training. For several weeks this spring and summer, Xango stood, sat, or walked alongside Robert Sheneman, his "foster dad," as part of that training.

When Sheneman was working, Xango was working too. He was learning tasks such as stopping at a crosswalk in the hallway or the curb in the parking lot. He also was learning to focus on the directions he was given rather than on all the activity around him.

Sheneman said it was a valuable experience for Xango. "I appreciate the Lab letting me bring the dog because he's not a service dog yet," Sheneman said. "Going to work and having to sit quietly under the table or going to the cafeteria is very good work experience for him."

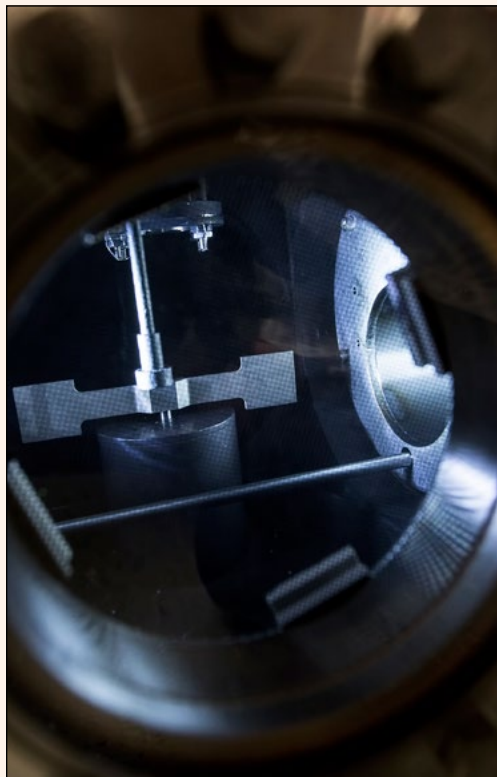


Rob Sheneman with his foster guide dog Xango in the LSB lobby.

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PPPL successfully tests system for mitigating instabilities called "ELMs"

By John Greenwald



Close-up view of the high-speed propeller inside the lithium injector.

PPPL has successfully tested a Laboratory-designed device to be used to diminish the size of instabilities known as "edge localized modes (ELMs)" on the DIII-D tokamak that General Atomics operates for the U.S. Department of Energy in San Diego. Such instabilities can damage the interior of fusion facilities.

The PPPL device injects granular lithium particles into tokamak plasmas to increase the frequency of the ELMs. The method aims to make the ELMs smaller and reduce the amount of heat that strikes the divertor that exhausts heat in fusion facilities.

General Atomics plans to install the PPPL-designed device, developed by physicist Dennis Mansfield and engineer Lane Roquemore, on DIII-D this fall. Previous experiments using deuterium-injection rather than lithium-injection have demonstrated the ability to increase the ELMs frequency on DIII-D, the ASDEX-Upgrade in Germany and the Joint European Torus in the United Kingdom.

Researchers at DIII-D now want to see how the results for lithium-injection compare with those obtained in the deuterium experiments on the San Diego facility. "We want to put them side by side," said Mickey Wade, director of the DIII-D National Fusion Program at General Atomics, a privately owned technology company.

The PPPL system could serve as a possible model for mitigating ELMs on ITER, the fusion facility under construction in France to demonstrate the feasibility of fusion energy. "ELMs are a big issue for ITER," Wade said. Large-scale ELMs, he noted, could melt plasma-facing components inside the ITER tokamak.

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Lab at the Lab

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A learning experience at the Lab

It was also a learning experience for people at the Lab who learned not to pet Xango when he was wearing his vest unless they were given the OK by Sheneman. "I'm hoping it's an opportunity for them to get used to having a guide dog in a work environment because once they're in the harness, they're working and should not be distracted."

Sheneman said he tried to be sensitive to some people in the office who are afraid of dogs. He always asked before bringing Xango to meetings. He said PPPL's managers, especially Paulette Gangemi of Human Resources, were very supportive.

The dogs arrive when they're 7 or 8 weeks old and stay until they're about a year old. They do everything with the family, attending family trips, local parades, sporting events, and religious services.

Trained 11 dogs

Through their local 4-H Club in Flemington, Sheneman, his wife Margaret, and their four sons have trained 11 dogs for the Seeing Eye Inc. in Morristown. The institution is the oldest guide dog school in the U.S. In 2007, when the family started training guide dogs, all four sons were home. Now Dave, 25, and Matt, 22, are grown and Andrew, 18, has started his freshman year in college. Only Ben, 15, is living at home.

The Shenemans have two other dogs at home. Angelo, an 8-year-old yellow Lab that is "nana to all the other dogs," was a Seeing Eye puppy that came back to them after it wasn't selected for the guide dog program because it didn't get along with other dogs. Whistler is a black Labrador that was also a Seeing Eye puppy. They took back Whistler when she wasn't selected because there were too many dogs that year. "I think she's insulted that she's back with us and not working," Sheneman says. "She jumps into the Seeing Eye van when the Seeing Eye coordinator comes to our house."

The Shenemans and other Puppy Raiser families meet each month with the 4-H Club to share tips and learn about training. A coordinator from the Seeing Eye comes to evaluate the dogs periodically and is on call when they need advice. The foundation pays for vet bills and other expenses.

The Shenemans and other Puppy Raiser families take the dogs on field tips, such as train and bus rides as part of their training. They also take the dogs to an airport, where they go through security and visit a fire station to get used to the sounds of fire engines, sirens and water hoses.

It can be challenging training a puppy. They are not housebroken when they arrive. They chew on everything in sight. By the time they leave, "they're housebroken and good citizens and then you have to give them up and do it again," Sheneman says ruefully.

Part of the family

Sheneman said he always tries to keep in mind that the dogs are not his to keep. When people at PPPL said, "I wish I could bring my dog to work," he replied, "This is not my dog." But it can still be difficult to part with the dogs. "We try not to get too attached to them but it doesn't always work," Sheneman says. "They're part of our family."

"Every seeing eye client we've talked to has said, 'We don't know how you give them up,'" Sheneman said. "For them, it's their eyes and ears. For us, it's a temporary addition to the family."

After the dogs leave their foster families, they go to the Seeing Eye for five to six months of intensive, full-time training. They learn to guide people around obstacles; they guide people through Morristown and on train trips to New York.

Half are chosen

Only about half of the dogs are chosen as guide dogs, Sheneman said. They must pass rigorous tests to be matched with a client. They have to be smart and confident. They also must have a quality the Seeing Eye calls "intelligent disobedience." This means, for example, they will refuse if their owner gives them a command to go into traffic.

After training, the foster families get to visit the Seeing Eye campus in Morristown. "They have the dog

there in harness ready to work and it's amazing to see how much they've grown up," Sheneman says. They also get to talk to the Seeing Eye clients and hear their stories. One man told Sheneman that he always bumped into things when using a cane because that's how you get around. "But with a guide dog, you walk around everything and are much more mobile and independent."

One of the dogs they raised ended up going to college in Florida with his client. Another works with a school counselor. One black Lab named "Saturn" works with a woman in Washington D.C. and travels throughout the country and overseas with its owner. "These dogs are raised to work," Sheneman said. "You're seeing them trained and you're seeing them work and their tail is up and they're ready to go."

After spending 13 months with the Sheneman family, including two months spent coming to work at PPPL, Xango left the Shenemans in mid-July. They learned recently that he has been assigned to a trainer. They're pretty confident he will be chosen as a guide dog but it's always unpredictable. Guide dogs can be disqualified for many reasons or there just might not be a good match for the dog.

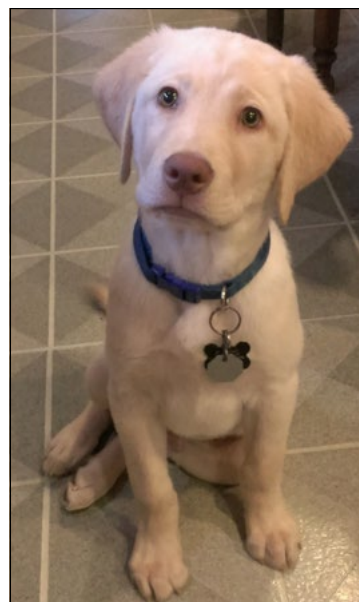
If Xango isn't chosen the Shenemans will be offered a chance to adopt him. Trained dogs that don't become guide dogs also have a number of other potential "careers" to look forward to, Sheneman said. They could be placed with one of 35 different law enforcement agencies to work with a variety of tasks from search and rescue teams to drug and bomb detection, and even cellphone detection in prisons.

A new member of the family

Just before Xango left, the Shenemans got a new puppy to train. The yellow Lab, named Avatar, has soft, gold fur and light-colored eyes. At four-and-a-half months old, Avatar has already traveled to Maine with Ben and Margaret Sheneman, when they went on a missionary trip. He has taken part in a booth on the Guide Dog program at the 4-H Fair. He even goes to band practices with Ben, who is the only child at home and Avatar's main caretaker.

Avatar is getting plenty of training at home. He's learning to walk on a leash, sit down on the floor and be quiet when it's time for a meal, for example, and to ignore other dogs he meets. The Seeing Eye consultant will determine when Avatar has earned the right to wear a green vest instead of his Seeing Eye bandanna. The vest is used mainly to identify guide dogs in training but also to signal the working dogs that they are ready to work.

If all goes well, PPPLers can expect to see a bit more wagging at certain meetings in a couple of months when Sheneman begins bringing Avatar to work with him as well. "Xango is off to puppy college," Sheneman says, "but we have another puppy who will be coming soon!" 🐾




Avatar, the new arrival, will come to work at PPPL in a couple of months.

ELMs

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PPPL-designed systems have proven successful in mitigating ELMs on the EAST tokamak in Hefei, China, and have been used on a facility operated by the Italian National Agency for New Technologies in Frascati, Italy. A system also is planned for PPPL's National Spherical Torus Experiment (NSTX), the Laboratory's major fusion facility, which is undergoing a \$94 million upgrade.

PPPL used salt grain-size plastic pellets as proxies for lithium granules in testing the system for DIII-D. The pellets fell through a pinhole-size opening inside a dropper to a high-speed propeller that thrust them onto a target precisely as planned.

Joining Mansfield and Roquemore for the tests were physicists Erik Gilson and Alessandro Bortolon, a former University of Tennessee researcher now at PPPL who will begin an assignment to the DIII-D tokamak at General Atomics this fall. Also participating were Rajesh Maingi, the head of research on edge physics and plasma-facing components at PPPL, and engineer Alexander Nagy, who is on assignment to DIII-D. 

Please fill out the Diversity & Inclusion Survey!

A reminder to please fill out the Diversity and Inclusion Working Group's Work Climate Survey at <https://www.surveymonkey.com/s/KJRT9TJ>. The survey will take just five minutes and will help the group learn more not only about diversity at PPPL but also about the work environment in general. The Diversity & Inclusion group will use the survey to develop a strategic plan in this area.

PPPL Summer Classic Tournament Winner



The PPPL Ping Pong League's "Summer Classic" Tournament concluded last Monday, with the title game between Gabe Rissman, a visiting undergraduate from Yale, and Jonathan Ng, a third year grad student in the Plasma Physics Program. In the best-of-5 match, Rissman defeated Ng three games to one. Pictured is Rissman, right, being congratulated by tournament commissioner Peter Bolgert, a third-year grad student at the lab. Twenty-two players participated in the tournament. Photo courtesy: Peter Bolgert.

PPPL to begin offering public tours in October

PPPPL will begin offering twice-monthly public tours starting on Oct. 10 and Oct. 24 as a way to show the Laboratory to more people in the surrounding community who are interested in science.

The public tours on the second and fourth Friday of the month will open the Laboratory to people who would like to visit but aren't affiliated with a large school group or other organization. PPPL receives numerous requests from individuals and small groups but currently mostly offers tours to schools, organizations and larger groups.

Visitors

Visitors to the Lab, according to Lab surveys, are interested in science, well informed and motivated to learn more. Part of PPPL's mission is to be accessible to the public and explain the science and technology of fusion and plasma science.


Last year, nearly 1,500 people toured PPPL. The Lab hosted 54 groups between July 1, 2013 and June 30 of this year despite the fact that tours were suspended for a few weeks during the federal funding lapse last year.

Groups

Groups that toured PPPL last year included high schools, foreign schools, Princeton University groups, physics and engineering professional groups, and several corporations, including executives from PSE&G, Exxon Mobil, Fidelity Investments and AMEX Environmental.

Public Tours

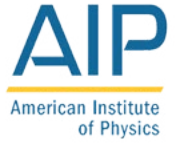
The public tours are part of an effort to expand and improve the already active tour program. Last summer, 17 new tour guides attended a tour training session and tour for the tour guides. The new tour guides bring the total number of tour guides to more than 50.

Members of the public, schools groups (middle school age and above) and organizations can register for tours by emailing tours@pppl.gov or call Jeanne Jackson DeVoe at ext. 2757 for more information. 



Andrew Zwicker, far right, head of PPPL Science Education, shows visitors the plasma machine in the LSB lobby.

AIP Seeks Applicants for State Department Fellowship



The American Institute of Physics (AIP) is now seeking applicants for its 2015-2016 State Department Science Fellowship. The application deadline is Nov. 3.

Issues involving S&T are an important part of America's diplomatic portfolio, making it essential for the U.S. Department of State to have knowledgeable scientific input. Through its State Department Science Fellowship program, the American Institute of Physics offers an opportunity for scientists to make a unique and substantial contribution to the foreign policy process by spending a year working at the U.S. State Department.

This is a unique opportunity for a scientist to contribute scientific and technical expertise to the Department and raise awareness of the value of scientific input. In turn, scientists broaden their experience by interacting with policymakers in the federal government and learning about the foreign policy process.

AIP Fellows have worked on topics as varied as critical infrastructure protection, export controls, use of remote sensing imagery, biotechnology and the safety of agricultural products, as well as European, Russian, and Chinese science policy.

AIP is grateful for annual contributions from the American Astronomical Society to help support its State Department Science Fellowship.

Application Information and Qualifications

Qualified scientists at any stage of their career are encouraged to apply. Applicants must be U.S. citizens, have a PhD in physics or a closely related field, be members of one or more of AIP's Member Societies and be eligible to receive an appropriate security clearance prior to starting the Fellowship. For information on AIP's Fellowship program qualifications and application instructions, please visit our website.

Final interviews will take place early in 2015 and the 12-month Fellowship term will begin in September 2015.

AIP does not take a role in the Fellow's placement, but does encourage its Fellows to seek opportunities beyond the traditional roles for scientists in the department when interviewing for an assignment to broaden the reach and visibility of scientific expertise within the Department.

Application components include a letter of intent, resume and three letters of recommendation. More information and a link to our online application portal are available at the [website](#).

PPPL holds Emergency Drill



PPPL Site Protection Head Fran White, right, leads an exit briefing following the Emergency Response Organization exercise on Sept. 18.

THE NEED IS CONSTANT. THE GRATIFICATION IS INSTANT. GIVE BLOOD.



**Princeton Plasma Physics Laboratory
American Red Cross Blood Drive**

FRIDAY, OCTOBER 3

8 a.m. - 1 p.m. • Lower End Parking Lot

Call Tricia Berran at x3200 for an appointment or sign up online at www.redcross.org
enter sponsor code PPPLPrinceton.



Travel Tip for International Travelers:



Links on Intercultural Communication and Intercultural Sensitivity

Please use the following links for information on communication:

Cultural Etiquette Around the World

- [World Business Culture](#)
- [Business Card Culture Guidelines](#)
- [Country Etiquette](#)
- [International Business Etiquette, Manners, & Culture](#)

SPD • TIP • OF • THE • WEEK •

Snake Bites

There have been recent reports of small snakes in the woods/pathways around the Laboratory. After a heavy rain, snakes may be forced from their natural habitats and move into areas where they are not normally seen. All staff members should take appropriate precautions when walking or working outdoors. If you see a snake, please notify ESU or Facilities. If you or someone else is bitten by a snake, contact ESU immediately (Ext. 3333).

Center for Disease Control preventive measures for snake bites:

- Be aware of snakes that may be swimming in water and those that may be hiding under debris.
- If you see a snake, back away from it slowly and do not touch it.
- If you see a snake in your home, immediately call the animal control agency in your county.
- Try to remember the color/shape of the snake, which can help in treating a victim.

For additional preventive measures information [click here](#).

Make your flu vaccine appointment today!

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

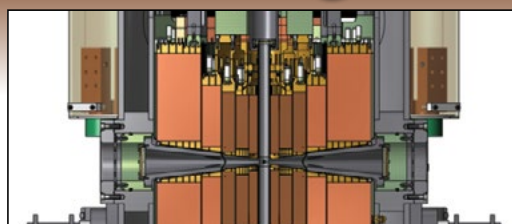
By getting the flu vaccine, you can protect yourself from influenza and may also avoid spreading this illness to others.

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



Thank you.
OMO Staff

COLLOQUIUM



Superconductors for Fusion for the Next Ten Years

DAVID LARBALESTIER

Florida State University - National High Magnetic Field Lab

Wednesday, October 1

4:15 p.m. (Coffee/Tea at 4 p.m.)

M.B.G Auditorium, Lyman Spitzer Building

BROCK Café 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*

COMMAND PERFORMANCE
CHEF'S FEATURE

	MON. 29 SEPT.	TUE. 30 SEPT.	WED. 1 OCT.	THU. 2 OCT.	FRI. 3 OCT.
EARLY RISER	Homemade Coffee Cake served with a 12 oz. Cup of Coffee	Multigrain Pumpkin French Toast with Caramelized Bananas	Eggs in Purgatory	Cornmeal Pancakes	Breakfast Tacos
COUNTRY KETTLE	Moroccan Chickpea & Eggplant Stew	French Onion Soup	Gingery Lentil Soup	Minestrone	Taco Soup
GRILLE SPECIAL	Chili Cheese Dog served with Jersey Disco Fries	Pork Roll with Swiss Cheese, Caramelized Onions on Torpedo	Krabby Kake Sandwich	Open-Faced Portobello Mushroom on Flat Bread	French Bread Chicken Steak Hoagie
DELI SPECIAL	Fresh Mozzarella, Tomato, Eggplant & Basil Torpedo	Hot Roast Beef with BBQ Sauce & Creamy Horseradish	BLT with Avocado, Ham & Chipotle Mayo	Tuna Salad Club Sandwich	Turkey French Dip with Provolone Cheese & Fries
PANINI	The Cubano	Open-Faced Ciabatta Crab Bread	Buffalo Chicken Pizza Panini served with a Side Salad	Broccoli & Cheddar Cheese Stromboli	Chicken Tacos

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** ♦ Webmaster: **Chris Cane**

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