

At PPPL

## THIS WEEK

MONDAY, JAN. 19

### MARTIN LUTHER KING DAY CELEBRATION

**1 p.m.** ♦ Princeton University  
Alexander Hall, Richardson Auditorium  
Keynote address by Cecelia Rouse, dean of  
the Woodrow Wilson School

[More information is available here.](#)

TUESDAY, JAN. 20

### PPPL Colloquium

**1:30 p.m.** ♦ MBG Auditorium

Who Will Save the Tokamak -  
Harry Potter, Arnold Schwarzenegger,  
Shaquille O'Neal, or Donald Trump?

**Jeffrey Freidberg - MIT**

WEDNESDAY, JAN. 21

### PPPL Colloquium

**4:15 p.m.** ♦ MBG Auditorium

Development of High Resolution X-Ray  
Spectroscopy at PPPL

**Kenneth Hill - PPPL**

SATURDAY, JAN. 24

### Ronald E. Hatcher Science on Saturday Lecture Series

**9:30 a.m.** ♦ MBG Auditorium

Using Physics to Understand the Genome

**Mary Jo Ondrechen,  
Northeastern University**

## UPCOMING EVENTS

January 31

### Ronald E. Hatcher Science on Saturday Lecture Series

**9:30 a.m.** ♦ MBG Auditorium

The Road to a Sustainable Energy Future

**Emily Carter, Princeton University**

## Inside...



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## Chris Brunkhorst and USDA engineers win patent for pasteurizing eggs in the shell

By John Greenwald


The U.S. Patent and Trademark Office has granted a patent to a novel technique and device for pasteurizing eggs developed by engineers at PPPL and the U.S. Department of Agriculture (USDA). The award marks the 27th patent granted to PPPL inventors since 1994.

"This is a unique experience for me," said Chris Brunkhorst, an expert in radio frequency (RF) heating at PPPL. "It's the first time I've had a patent awarded." Brunkhorst holds the patent with David Geveke, research chemical engineer and lead scientist at the USDA Agricultural Research Service in Wyndmoor, Pa., and Andrew Bigley, an engineering technician recently retired from the USDA.

The three inventors will share in any revenue that comes from licensing the invention. Princeton University holds joint rights to the technology with the USDA, which is in talks to license it to an industrial user.

The invention uses RF energy to transmit heat through the shell and into the yolk while the egg rotates. Streams of cool water simultaneously flow over the egg to protect the delicate white. Researchers then bathe the egg in hot water to complete the pasteurization process.

The invention can pasteurize shell eggs in one-third the time that current methods require, according to Geveke. And unlike such methods, which heat the eggs in water for about an hour, the invention doesn't affect the appearance of the egg white, he said. The aim is to produce a pasteurized egg "that is hardly discernible from a fresh, nonpasteurized egg," he noted.

Adam Cohen, deputy director for operations at PPPL, applauded the patent as an example of the high quality of the work of Laboratory staffers and encouraged researchers, engineers and technicians to disclose their inventions to the PPPL Office of Technology Transfer. "People here are incredibly creative and inventive," Cohen said, "and the process of finding out where their discoveries may lead starts with disclosure." 

## Science on Saturday lecture series kicks off with tribute to PPPL engineer and host

By Jeanne Jackson DeVoe

As hundreds of people gathered for the first day of the newly-named Ronald E. Hatcher Science on Saturday lecture series on Jan. 10, many of the regular attendees remembered the PPPL engineer who was the organizer and informal host of the series for almost 20 years.

"As soon as I read it I was devastated because I didn't know anything about it," said Gary Grubb, of Hightstown, about Hatcher's death last March at age 56. "Just to walk in here and hear kind words on a cold winter day is great."

Grubb wrote a letter to the editor published in the Times of Trenton about Hatcher and Science on Saturday in which he recalled seeing Hatcher's



Andrew Zwicker paid tribute to Ron Hatcher at the first lecture in the Ronald E. Hatcher Science on Saturday series on Jan. 10.

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# Science on Saturday

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smiling face every Saturday at the lectures. “Over the many years he and I entered, explored, and shared many thoughts together,” he said in the letter. “Ron will be sorely missed, but surely never forgotten.”

Carlo and Mary Alfare, of Roosevelt, who have been coming to PPPL since the series started 31 years ago, said the series wouldn’t be the same without Hatcher there. “He was such a good guy,” said Mary Alfare. “We all knew him, we all talked to him. He was wonderful,” said Mary Alfare.

The Alfares brought their daughter, Kathleen, to the Science on Saturday lectures starting at age 3. They give the lectures some of the credit for her going on to get her PhD in chemistry. Kathleen Alfare Garber is now a professor at Saint Norbert College in De Pere, Wisconsin.

Andrew Zwicker, head of PPPL’s Science Education, said the occasion was “bittersweet.” “For those of you who knew him, he loved everything he did for the Science on Saturday lecture series,” Zwicker said.

Zwicker told the audience that Hatcher was also “a very serious electrical engineer who was responsible for designing some of the most sophisticated power supply systems used all over the world.”

Zwicker said there is no way to know how many young people and science enthusiasts Hatcher inspired. “He loved his Science on Saturday,” he said. “He was genuinely the heart and soul of the program.”

Zwicker read an excerpt from a letter he received from a high school student who said she and her friends “couldn’t wait for Friday to end” so they could attend the weekly lectures. “Thank you for inspiring young nerds,” she wrote. “Thank you for making physics accessible to the public.”

“Ron may be missing but he’ll never be forgotten,” Zwicker said as the audience of 340 people gave a warm round of applause in Hatcher’s memory.



*Michael Graziano, a psychology professor at Princeton University, used his puppet “Kevin” to discuss “Consciousness and the Social Brain.”*

Zwicker said he would continue Hatcher’s tradition of questioning guest speakers about what led them into science. He asked speaker Michael Graziano, a neuroscientist and psychology professor at Princeton University, about what made him become a scientist. Graziano said his father was a psychologist and helped inspire his interest in the natural world.

Graziano gave a lively discussion on “Consciousness and the Social Brain,” in which he introduced the topic

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*Hundreds of people gathered in the MBG auditorium for the first day of the newly-named Ronald E. Hatcher Science on Saturday lecture series on Jan. 10*

# Science on Saturday

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with an orangutan puppet named “Kevin.” Graziano is an amateur ventriloquist and he used Kevin to discuss the idea of consciousness and the brain. “You look at that puppet and perceive a mind and emotions emanating from him,” Graziano said. Human beings evolved that consciousness and the ability to attribute consciousness to other beings, he said.

Neuroscience is currently a huge scientific revolution taking place in science that is equivalent to the revolutions that began with Copernicus and Darwin, Graziano said. Scientists are just beginning to understand how the mind relates to the brain and the mechanics and information in the brain, he said.

Graziano’s talk was so well received and there were so many questions that Zwicker eventually had to end the session and ask people to come talk to Graziano personally.

Among the people who stayed after the lecture was Ruth Levy, of Plainsboro, who said she has been coming to the lectures for 20 years. She was so excited to come to the first lecture that she arrived at PPPL’s gates at 7:40 a.m. “Coming here is like coming home,” she said. “I’ve been listening and enjoying the interesting lectures. People are sharing thoughts and it’s a very rewarding experience.”

The Science on Saturday lectures are videotaped and can be viewed a few days after the lecture. The Graziano lecture is available [here](#).

The Science on Saturday lectures are held each Saturday at 9:30 a.m. through March 14. (There is no Science on Saturday lecture on Feb. 21 due to the Department of Energy’s New Jersey High School Science Bowl®). A downloadable schedule is available [here](#). Visitors should plan to come early to ensure they get a seat in the auditorium and to enjoy coffee and bagels.

The Science on Saturday lectures can also be viewed live at [https://mediacentral.princeton.edu/id/1\\_rqmmkznx](https://mediacentral.princeton.edu/id/1_rqmmkznx). 📺



*Sophie Craver, 13, of Princeton, said she loves coming to the weekly lectures.*



*Gary Grubb, of Hightstown, said he would miss seeing Hatcher’s “smiling face” at the lecture series.*



*Mary and Carlo Alfaro, of Roosevelt, were two of many regular attendees at the lectures who were saddened by Hatcher’s death.*



# I am the Lab



**Name:**

John Desandro

John Desandro is a mechanical technician and a water systems operator for NSTX-U. He is also the lead tech for the second shift for the machine technicians on NSTX-U. He has been working about 60 hours and six days a week during the NSTX-U upgrade. He and his crew help install the various components and diagnostics on the machine. Desandro has worked at PPPL for 28 years. He worked first as a subcontractor from 1983 to 1997 when he was laid off. During that time he was the lead technician for the TFTR neutral beams. He returned as a permanent employee in 2000.

In addition to his job responsibilities, Desandro is the founder and manager of the Fusion Lounge at D Site. Dozens of PPPL'ers who work around the clock at PPPL often stop in to the lounge on their breaks and put their payments into a coffee can. It's a narrow room with Desandro's desk crammed into one end of the room. There's an old couch and a television, two refrigerators and shelves packed with every kind of snack you can imagine. A sign on the door says, "Fusion Lounge and Country Club."

Desandro and his wife Mary, a facilitator for the Bucks County Technical School, live in Langhorne, Pa. They have five grown children and six grandchildren ranging from 1 to 12 years old.

**What was your background before you came to PPPL?**

I worked for the family business (Ace Auto & Truck Parts Co., which sells reconditioned parts for trucks and tractor trailers) starting at age 5. Since I was a teenager, every time something broke I was able to fix it. It doesn't matter what it is, if you throw it in front of me, I'll be able to figure it out. I ran a home remodeling business on the side starting in the 1970s. I came here and worked 10 to 12 hours a day and did four to six hours a day of home repairs. I stopped doing that three or four years ago because I have my own house that's been neglected all these years.

**Can you describe what your job entails?**

Troubleshooting is my specialty. Trying to figure out how to fix what's broken or can't be installed in the proper area, that's where I shine. For example, to install new diagnostics and refabricate components that will be put back on the machine, you have to cut them off and re-weld them. We do all the prep work to cut them off. There were a lot of things that were taken off during the upgrade because they were inadequate or they were too small. Probably a thousand different items were removed.

Before something is removed, we have to secure the area and contain it. We built a bunch of containment areas for when they were doing plasma cutting, so they could cut the thing off with a plasma cutter and catch the debris. We fabricated the boxes, which were all made of stainless steel. Our biggest box was about 7 feet by four feet. The others were about a foot square. We had to make approximately 40 boxes throughout the operation.



Now we're putting on the last diagnostic components before we seal the machine up to pump down for the vacuum. We do whatever we have to do.

**What is the most rewarding part of your job?**

They tend to give me all the new guys. The new hires get put on my shift. I basically train them. I really do like the personal touch of dealing with people, training them on what the job entails.

**What can you tell us about the Fusion Lounge?**

I operate what we call "The Fusion Lounge" on D Site. We have no vending machines over there. We have a couch and tables and chairs. We have ovens, refrigerators and freezers, and a TV. It's a place for guys who are off shift to go. We have guys who work 24 hours. The cryogenic guys are here all the time, security is here all the time and the boiler guys are here all the time. We have every kind of ice cream, every kind of soup, every kind of sandwich, breakfast sandwiches, ice tea. We even have instant oatmeal.

It involves going to the store at least once or twice a week to keep it supplied. They pay as you go. It's all on the honor system and for the most part it works fairly well. I have a mailing list of 115 people. Everybody knows what the product is. You're not going there to be healthy.

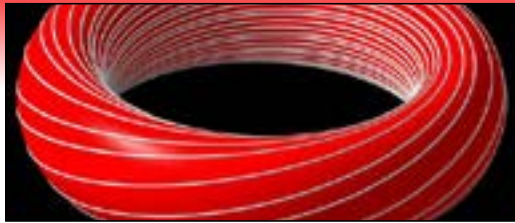
**What do you do when you're not at work?**

I like to tinker when I'm home, working on different technologies. I'm not home very often. I'm doing 18 hours of overtime right now. I worked all through the holidays. We're trying to get this machine up and running, so it's a big effort.

**How do you feel about contributing to the NSTX upgrade?**

I would never have joined this venture if I didn't want it to succeed. It's a big undertaking. I want to see it succeed and I put my full 100 percent into doing that. It's time. It's time and money everywhere we go with this.

# COLLOQUIUM



**Who Will Save the Tokamak - Harry Potter, Arnold Schwarzenegger, Shaquille O'Neal, or Donald Trump?**

**Jeffrey Freidberg**  
Massachusetts Institute of Technology

**Tuesday, January 20**

**1:30 p.m.** (Coffee/Tea at 1:15 p.m.)  
M.B.G Auditorium, Lyman Spitzer Building

## Registration Closed for Young Women's STEM Conference

Registration is closed for the Young Women's Science, Mathematics, Technology and Engineering Conference hosted by PPPL on March 19.



# COLLOQUIUM



**Development of High Resolution X-Ray Spectroscopy at PPPL**

**Kenneth Hill - PPPL**

**Wednesday, January 21**

**4:15 p.m.** (Coffee/Tea at 4 p.m.)  
M.B.G Auditorium, Lyman Spitzer Building

## RONALD E. HATCHER Science on Saturday Lecture Series



**Using Physics to Understand the Genome**

**Mary Jo Ondrechen**  
Northeastern Univ.

**Saturday, January 24**

**MBG AUDITORIUM** • Doors open at 8:15 a.m.  
Lectures begin promptly at 9:30 a.m.

## 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. 19 JAN.	TUE. 20 JAN.	WED. 21 JAN.	THU. 22 JAN.	FRI. 23 JAN.
<b>COMMAND PERFORMANCE CHEF'S FEATURE</b>	Chicken Parmesan served with Pasta and Garlic Bread	Macaroni & Cheese served with Stewed Tomatoes	Carla's Made to Order Pasta Bar	Braised Pork & Sauerkraut with Mashed Potatoes & Vegetable	Seafood Enchiladas served with Sweet Corn Cakes
<b>EARLY RISER</b>	Banana-Stuffed French Toast	Blueberry Maple Breakfast Bake	Eggs Benedict served with Hash Browns	Ham and Potato Hash with Fried Eggs	Sausage, Egg and Cheese Stromboli
<b>COUNTRY KETTLE GRILLE SPECIAL</b>	Navy Bean and Ham	Cheeseburger in Paradise Soup	New England Clam Chowder	Cream of Cauliflower	Chicken Sausage Gumbo
<b>DELI SPECIAL</b>	Meatball Parmesan Torpedo	Grilled 3-Cheese Sandwich with Ham on Texas Toast	Fish Baked Po' Boy	Chicken Breast with Goat Cheese on a Whole Wheat Roll	Grilled Cheddar, Apple & Spinach on Multigrain Bread
<b>PANINI</b>	Veggie Burger with Guacamole and Salsa on a Wheat Roll	Cheesy Pepperoni Bread served with Marinara Dipping Sauce	Texas Tommy Wrap Panini served with Onion Rings	California Crab Salad Wrap	Grilled Chicken, Spinach, Feta Cheese on Ciabatta Bread
	Chipotle Pork and Avocado Wrap with Salsa	4-Cheese Margherita Pizza	Grilled Chicken Breast on Ciabatta	Vegetarian Quesadilla	Slow-Cooked Italian Beef with Provolone Cheese on French Bread

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