

At PPPL THIS WEEK

WEDNESDAY, FEB. 5

PPPL Colloquium

4:15 p.m. ♦ MBG Auditorium

Black Holes and Strings

Juan Maldacena, Institute for Advanced Study

FRIDAY, FEB. 7

Wear Red Day

11 a.m. - 1 p.m. ♦ LSB Lobby

Blood pressure screening

SATURDAY, FEB. 8

Science on Saturday Lecture

9:30 a.m. ♦ MBG Auditorium

Uncovering Our Cosmic Origins: What We Know, What We Can Know, & What Limits We May Face

William Jones, Princeton University

UPCOMING EVENTS

Feb. 9

Andrew Zwicker Talk

1 p.m. - Princeton University
Lewis Sigler Institute

Innovations in Communication for the Non-Scientist

Feb. 14

Young Women's Conference Registration Deadline

School groups and daughters of PPPL employees can register for the Young Women's Conference on March 21 at Princeton University by going to <https://www.surveymonkey.com/s/CQK53PN>. For more information: dortiz@pppl.gov

Feb. 21 - 22

NJ Middle & High School Science Bowl Labwide

Volunteers needed.

Contact dortiz@pppl.gov, x2785

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PPPL's Kessel heads study for projected next step in the U.S. magnetic fusion energy program

By John Greenwald

The U.S. Department of Energy has named PPPL engineer Charles Kessel to lead a nationwide study that will detail options for a major next step on the country's path to magnetic fusion energy. Kessel's team will define the mission of the proposed Fusion Nuclear Science Facility (FNSF), which would pave the way for a demonstration fusion power plant, or DEMO, and then a commercial fusion plant.

The three-year study will address a broad range of formats for the FNSF — from a compact machine that will test how components interact with the neutrons produced by fusion reactions to a large, fully integrated device that will generate electricity. "We're going to look at the whole thing," said Kessel, an expert on fusion power-plant design and the leader of a 2011 fusion roadmapping study.

The FNSF study will help guide experiments on the National Spherical Torus Experiment Upgrade (NSTX-U), PPPL's major fusion project, which is completing a \$94 million renovation that will double its power when the work is completed this fall. Research on the upgraded facility, or tokamak, will test whether its spherical, cored apple-like shape — as compared to the circular, donut-like shape of conventional tokamaks — could serve as a model for the FNSF. "This is a topic critical to the future of the fusion program," PPPL Director Stewart Prager said of the FNSF study, "and one that's central to our responsibilities as a national Laboratory for fusion research."

Kessel's team will also consider the role of the FNSF in relation to ITER, the large international experiment now under construction in France to demonstrate the feasibility of fusion power. The FNSF could glean lessons from the research done on ITER and serve as a bridge from that international project to a demonstration reactor.

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Members of the FNSF workshop starting at front row from left: Laila El-Guebaly, University of Wisconsin (UW); Mark Tillack, consultant; Siegfried Malang, consultant; Lester Waganer, consultant; Charles Kessel, PPPL. Second row: Andrew Davis, UW; Jack Blanchard, UW; Dale Meade, PPPL; Arthur Rowcliffe, consultant; Andrei Khodak, PPPL. Standing: Hutch Neilson, PPPL; Robert Woolley, PPPL; Paul Humrickhouse, Idaho National Laboratory; Francesca Poli, PPPL; Peter Titus, PPPL. Inset, top left: A possible FNSF design.

The Plasma Hutch has moved!



The Plasma Hutch has a new location in the LSB lobby! Kim Mastromarino, pictured here, is now opening the Plasma Hutch for business from 8:30 to 9:30 a.m. before Science on Saturday and it's still open on Fridays between 11:30 a.m. and 12:30 p.m. You can also place your order online by clicking [here](#).

On Target



PPPL physicist Rob Goldston displays the British Test Object (BTO) that he, engineer Charles Gentile, and Princeton University Physicist Alex Glaser will use to test their design for a zero-knowledge nuclear warhead verification system. The technique calls for firing high-energy neutrons at warheads for the collection of verification measurements. The roughly 22-pound BTO will serve as a surrogate for determining the validity of this novel approach in non-proliferation verification. The BTO, which was manufactured in the United States, mimics material densities found in certain nuclear warhead systems.

FNSF Study

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The study kicked off last week with a three-day workshop at PPPL that brought together some 20 scientists and engineers from PPPL, the universities of California and Wisconsin and the Idaho, Oak Ridge and Lawrence Livermore national laboratories.


"We're laying out all the issues the study will deal with," said Kessel, "and outlining a set of deliverables" for Fusion Energy Sciences, the branch of the DOE's Office of Science that directs the U.S. fusion program and requested the study.

Goals set by the workshop included:

- Develop three advanced tokamak-based designs for the FNSF ranging from a component-testing device to a pilot plant that demonstrates electricity production.

- Develop similar scenarios based on the advanced tokamak and spherical tokamak designs.
- Detail the science and engineering steps that will be needed to move from the FNSF to a demonstration reactor.

This last point will be crucial since the larger and more ambitious the FNSF, the fewer technological gaps will remain to be bridged between it and DEMO. But plans for a large and fully developed FNSF would also entail greater expense and risk.

Either way, the FNSF would "constitute a very significant step forward," Kessel said. 

Welcome new PPPL employees

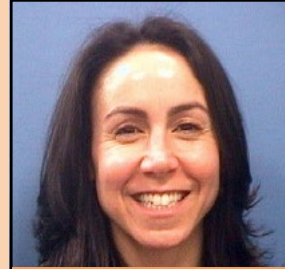
PPPL welcomes the following new employees:



SUSAN BERINGER
Staff Accountant
Business Operations



CHI MAN CHEUNG
Subcontract Administrator
Business Operations



DINA CHRISTIE
Administrative Assistant
ESH&S



SHANNON GRECO
Science Ed. Program Lead
Best Practices & Outreach



RENAUD GUEROULT
Associate Research Physicist
Office of the Director

Zwicker talk on Feb. 9 at 1 p.m.

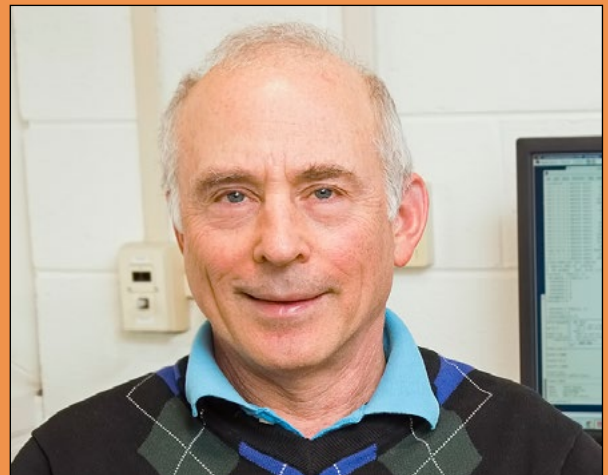
Andrew Zwicker, head of PPPL's Science Education Department, will discuss "Innovations in Communication for the Non-Scientist."

The talk is part of the program marking the release of the Princeton University student magazine "Innovation: Princeton Journal of Science and Technology," on Feb. 9 at 1 p.m. at Princeton University's Lewis Sigler Institute for Integrative Genomics on Washington Road.



Andrew Zwicker

Farewell to Harry Mynick



PPPL bids a fond farewell to Harry Mynick, a principal research physicist, who retired Feb. 1 after 32 years at PPPL.

New form for property transfers & excess property

PPPL's Material Services/Property Management Division has a new form that PPPL employees should use to transfer property or to dispose of excess property. The new form replaces the equipment transfer form and excess property tags that have been used up until now. The form, "U.S. Gov't Property Transfer and Excess Form," can be found on the internal website at <http://material-control.pppl.gov/TransferandExcessForm.pdf>.

Please use this new form to:

- Transfer property from one contact (the person holding the property) to another.
- Transfer property from a contact to the Help Desk to excess property.
- Document the transfer of property to excess property.
- Transfer a large list of property.
- Transfer multiple items at one time to another contact, the Help Desk or excess property.

The image shows a form titled "U.S. Gov't Personal Property (USGPP) Transfer & Excess Form" from PPPL Material Services/Property Management. The form includes sections for:

- PART 1 U.S. Gov't Personal Property Information:** Includes fields for Date, Current Property Contact Signature, and a table for listing property items with columns for Property #, Type, Item Name, Description (make and model), Serial #, Current Building/Room, and New Building/Room.
- PART 2 Help Desk Property Contact:** Includes fields for Help Desk Technician (Print name/Signature), Item #, Date, and Location.
- PART 3 Excess Property Condition Code:** A checklist with options: Excellent, Usable, Repairable, Scrap, Unknown, and Historical.
- PART 4 New Property Contact and Location:** Includes fields for New Property Contact #, Print Name & Signature, Date, and Item #.

Blood Pressure Screening for Wear Red Day

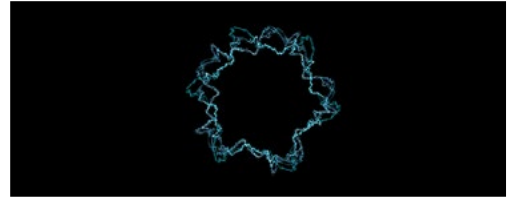
PPPL will offer blood pressure screening to all PPPL employees in honor of "WEAR RED DAY" on Feb. 7 from 11 a.m. to 1 p.m. in the LSB lobby. Wear Red Day is a day marked by the American Heart Association on the first Friday of February to draw attention to the fact that heart disease is the number one cause of death of women — killing more women than all forms of cancer combined.

For information about heart disease go to The American Heart Association at <http://www.heart.org/HEARTORG/>.

More information about WEAR RED DAY is also available [here](#).



COLLOQUIUM



BLACK HOLES AND STRINGS

JUAN MALDACENA

Institute for Advanced Study

Wednesday, Feb. 5

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

Science Bowl Volunteers Needed: Feb. 21 and Feb. 22

PPPL will host 48 teams of middle and high school students (about 250 students total) on Friday, Feb. 21 and Saturday, Feb. 22 for the New Jersey Regional Middle and High School Science Bowls.

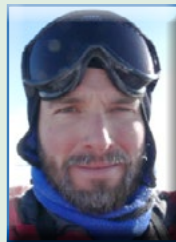
We need your help! Please volunteer to help out as moderators, science/rules judges, time/score keepers, lunch attendants etc. Lunch will be provided for competition day volunteers.

Please contact Deedee Ortiz at dortiz@pppl.gov or ext. 2785 to sign up or for more information.



2014 Science on Saturday

Princeton University Plasma Physics Laboratory Lecture Series



Uncovering our Cosmic Origins: What We Know, What We Can Know, And What Limits We May Face

PROF. WILLIAM JONES

Princeton University

Saturday, February 8

9:30 a.m. • MBG Auditorium

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*

	MON. 3 FEB.	TUE. 4 FEB.	WED. 5 FEB.	THU. 6 FEB.	FRI. 7 FEB.
COMMAND PERFORMANCE CHEF'S FEATURE	 Chicken Parmesan served with Pasta	 Potato Cheese Pierogies with Sauteed Onions, Sour Cream & Apple Sauce	 Build Your Own Burrito served with Chili	 Sausage, Chicken, Peppers and Onions served over Cheesy Grits	 Fettuccine Alfredo Day! Served With Choice of Chicken, Shrimp or Veggies
EARLY RISER	Corn Flake-Crusted French Toast with Strawberry Honey Butter	Mediterranean Egg White Omelet	National Pancake Day! Stack of Pancakes with Toppings	Scrambled Egg Wrap with Turkey Sausage	Smothered Hash Browns
COUNTRY KETTLE	Spinach & Chickpea	Ham, Cabbage, Potato Soup with Egg Noodles	Tuscan Vegetable Soup	Beef Chili	Mushroom Barley
GRILLE SPECIAL	Grilled Vegetable, Herb & Goat Cheese on French Bread	London Broil au Jus on Torpedo Roll with Baked Potato Wedges	Grilled Italian Sausage Sub served with Pasta Salad	Pub Style Fish & Chips with Tartar Sauce & Malt Vinegar	Cajun-Rubbed Turkey Breast with Remoulade Sauce on French Bread
DELI SPECIAL	Roast Beef Club Sandwich	Pastrami & Swiss Cheese on Pumpernickel with Coleslaw	Shrimp Nicoise Salad with Dijon Mustard	Tandoori Chicken Naan-wich with Masala Cabbage Slaw	Vegetarian Muffuletta on Naan
PANINI	The Cubano	Chicken Breast with Ham, Mozzarella & Arugula	Montana Smokehouse with Smoked Turkey, Bacon, Cheddar Cheese	Grilled Apple with Cheddar Cheese & Arugula on Ciabatta Bread	Hot Roast Beef with Caramelized Onions & Horseradish on Ciabatta

MENU SUBJECT TO CHANGE WITHOUT NOTICE

VEGETARIAN OPTION

[CLICK HERE FOR A PRINTABLE WEEKLY MENU](#)

WEEKLY

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