

At PPPL THIS WEEK

TUESDAY, MARCH 25
**Suspect & Counterfeit Items
(S/CI) Awareness**

1:30 p.m. ♦ Room B-318

Roger Moerman simulcast from ORNL

WEDNESDAY, MARCH 26
**Suspect & Counterfeit Items
(S/CI) Awareness**

8:30 a.m. ♦ Room B-318

Roger Moerman simulcast from ORNL

PPPL Colloquium

3 p.m. ♦ MBG Auditorium

In Pursuit of Ignition on the National Ignition Facility

M. John Edwards, LLNL

UPCOMING EVENTS

Apr. 4
PPPL Service Awards

9:30 a.m. ♦ MBG Auditorium

Apr. 28
Spitzer Lecture

 4:30 p.m. ♦ Princeton University
Peyton Hall

Experimental techniques in high energy astrophysics

Fiona Harrison, Caltech

Apr. 29
Spitzer Lecture - Colloquium

 4:30 p.m. ♦ Princeton University
Peyton Hall

The Nuclear Spectroscopic Telescope Array (NuSTAR) High-Energy X-ray Mission: Bringing the High Energy Universe into Focus

Fiona Harrison, Caltech

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PPPL extends system for suppressing instabilities to long-pulse experiments on KSTAR

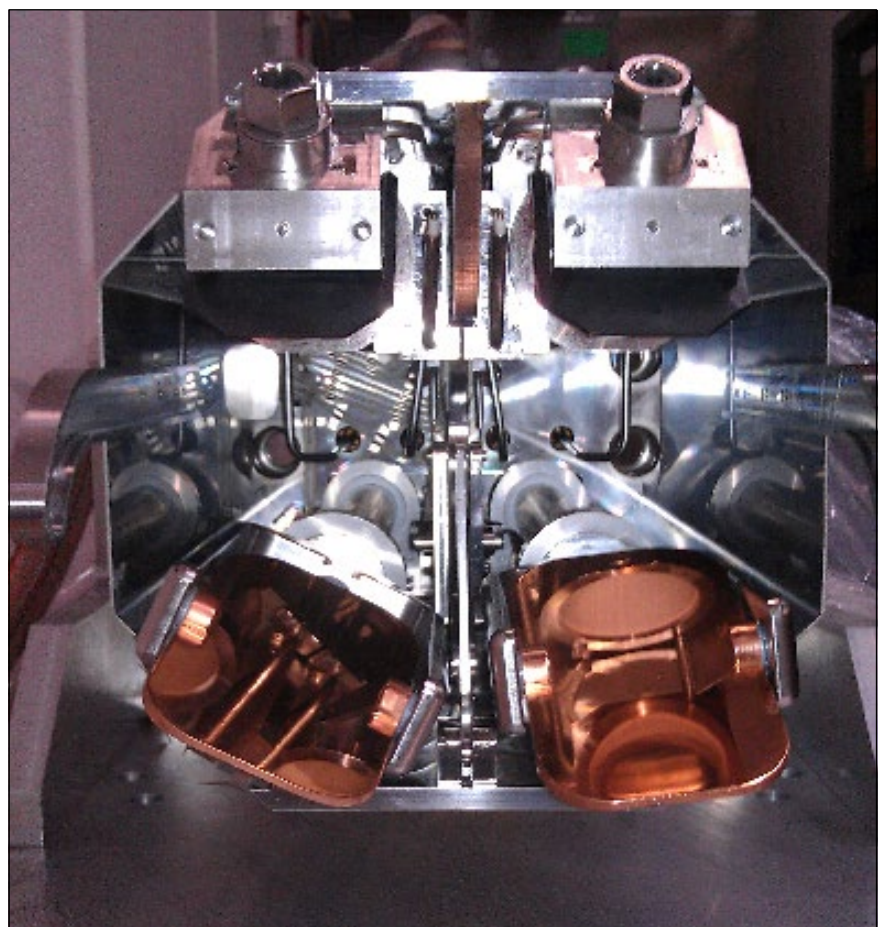
By John Greenwald

PPPPL collaborations have been instrumental in developing a system to suppress instabilities that could degrade the performance of a fusion plasma. PPPL has built and installed such a system on the DIII-D tokamak that General Atomics operates for the U.S. Department of Energy in San Diego and on the Korea Superconducting Tokamak Advanced Research (KSTAR) facility in South Korea — and now is revising the KSTAR design to operate during extended plasma experiments. Suppressing instabilities will be vital for future fusion facilities such as ITER, the huge international project under construction in France.

The original system developed on DIII-D and fabricated and installed on KSTAR aims high-power microwave beams at instabilities called islands and generates electrical current that eliminates the islands. The process links software-controlled mirrors to detection equipment, creating a system that can respond to instabilities and suppress them within milliseconds. “It works like a scalpel that removes the island,” said PPPL physicist Raffi Nazikian, the head of the Laboratory’s collaboration with DIII-D.

Revising the unit on KSTAR calls for adding a water-cooling system to keep the mirrors that direct the high-power microwaves into the plasma from overheating. KSTAR’s superconducting magnets can confine the plasma for up to 300 seconds during long-pulse experiments that reach temperatures far hotter than the 15-million degree Celsius core of the sun. “Once you get beyond 10 seconds you have to remove the heat as you put it in,” said PPPL engineer Robert Ellis, who designed the copper and copper-and-steel mirrors.

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A look into the microwave launcher showing the steering mirrors that guide the beam into the plasma.

System

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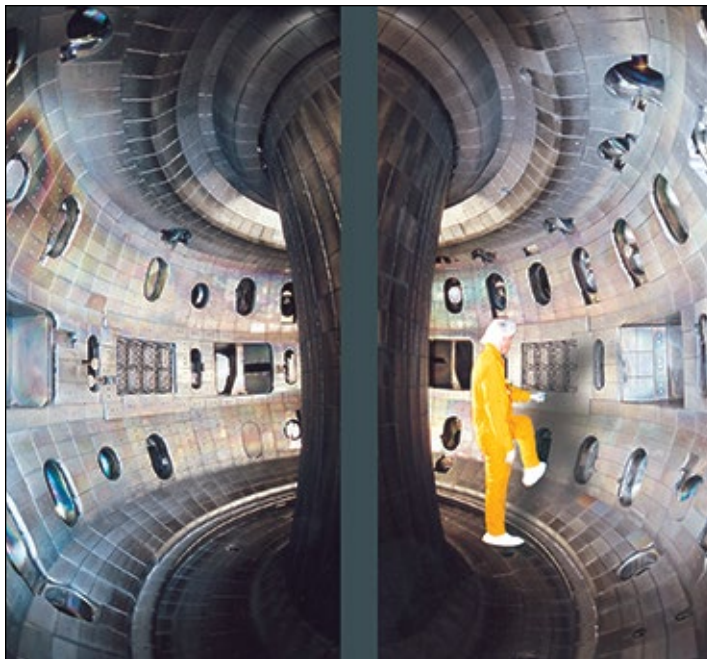
Ellis was part of a team of PPPL physicists and engineers who worked closely with their counterparts at General Atomics to develop the original system on DIII-D. PPPL Physicist Egemen Kolemen, an expert in plasma control, created much of the software that steers the mirrors and directs the microwave beams to their target. PPPL engineer Alexander Nagy also shared responsibility for the system, providing onsite support in San Diego.

The microwave beams not only remove instabilities, but enable researchers to mimic the way that the alpha particles produced by fusion reactions will heat the plasma in



The Korea Superconducting Tokamak Advanced Research (KSTAR) facility in South Korea.


— Photo courtesy of National Fusion Research Institute



Interior of the DIII-D tokamak.

— Photo courtesy of General Atomics

ITER. While current heating methods typically heat the ions in plasma, these microwave beams act on the electrons instead. This process parallels what will happen in ITER. “By putting microwave power into the electrons,” Nazikian said, “we can experimentally simulate and study how a fusion plasma will be heated in ITER.”

The revised KSTAR unit will extend such research to long-pulse plasma experiments when work on the water-cooled mirrors is completed later this year. 

Suspect & Counterfeit Items Awareness training


PPPL will hold Suspect & Counterfeit Items (S/CI) Awareness training via a simulcast on March 25 and 26. The training will give examples of items confiscated at various sites across the country that go beyond bolts and breakers. Speaker Roger Moerman was enthusiastically received when he brought S/CI training to PPPL and his presentation at Oak Ridge will be simulcast at PPPL.

S/CI awareness training is mandatory for the following personnel:

- QA/QC Staff
- Buyers & Subcontract Administrators
- Receiving Personnel
- System Engineers and Maintenance Technicians
- Personnel directly involved in installations
- Personnel involved in ordering or receiving hardware, including electrical items

This training must be renewed every three years.

There will be two sessions held in **B-318** on Tuesday, March 25, from 1:30 p.m. to 5 p.m. & Wednesday, March 26, from 8:30 a.m. to noon.

Contact Frank Malinowski at ext. 2203 or fmalinow@pppl.gov by 3/21 to register for one of the sessions. 



PPPL Annual “Green Machine” Awards

PPPL will celebrate Earth Day on April 23 with guest speakers, displays, activities for employees, and presentation of the annual PPPL Green Machine Awards.


Please submit award nominations for PPPL employees or employee teams that have contributed to PPPL's environmental performance during the past year by:

- Reducing greenhouse gas emissions
- Saving energy
- Saving water
- Reusing equipment or material
- Recycling materials or equipment
- Reducing the use of toxic or hazardous materials
- Sustainable acquisition (purchasing recycled content, biobased, and other "green" products)
- Reducing or eliminating pollution
- Other actions which help protect public health or the environment

Nominations should include:

- Nominee name(s)
- PPPL work group
- Description of the actions taken
- Estimated cost savings or environmental benefit

Please contact Margaret King mking@pppl.gov or Leanna Meyer lmeyer@pppl.gov if you have questions or would like information about past Green Machine awards.

Nominations are due by Monday March 31, 2014 by completing the online nomination form [here](#) or by email to Virginia Finley vfinley@pppl.gov. 



What's Happening at PPPL?

Rep. Rush Holt at PPPL



The congressman and former assistant director of PPPL greeted the audience during the March 8 Science on Saturday lecture and thanked the Laboratory for running the weekly winter program.

U.S. Generals visit PPPL



Adam Cohen, right, gave a Laboratory tour to retired Lt. Gen. Rhett Hernandez, left, and retired Brig. Gen. Jeffrey Smith Jr., center. The officers visited PPPL to discuss possible collaborations with the new Army Cyber Institute at the United States Military Academy at West Point. Hernandez, a former commanding general of the United States Army Cyberspace Command, chairs the new institute.

CUNY-TV Video Filmed at PPPL



Correspondent Max Gomez, right, of City University of New York-TV interviewed Adam Cohen for a video about renewable energy that is scheduled to air on Earth Day.

Japanese Visitors at PPPL



Members of the National Institute for Fusion Science in Japan visited PPPL to discuss collaboration with the Laboratory, and other matters of mutual interest. Shown here in the NSTX-U test cell are, front row from left, Masahiko Emoto, Osamu Kaneko, Shoichi Okamura; second row, Hayato Tsuchiya, Keisuke Matsuoka, Tomohito Taki, David Gates; third row, Juro Yagi, Suguru Masuzaki, Masayasu Hayashi, Kazuma Shimizu, Masa Ono, John DeLooper and Michael Zarnstorff.

Windows 7: Is Your National Instruments Environment Compatible?

Do you have data acquisition boards or software, or PLC-programming software that you have been using under Windows XP? If so, contact the vendor to determine a path forward to Windows 7. On or about April 8, XP-based computers will not be permitted on PPPL networks.



Information regarding National Instruments products are shown below:

The upgrade to Windows 7 could impact your NSTX run-time environment. Now is the time to check out your control & data acquisition setup.

NI Software: Is your copy of Labview older than Labview 2009? If so, you will need to upgrade. Renewing your current license of Labview saves you 50% on the cost of a new license.

Do you have a Labview license you no longer use? We may be able to use it on another project. Send an email to gzimmer@pppl.gov with your license number (pertains to any add-on kits, too).

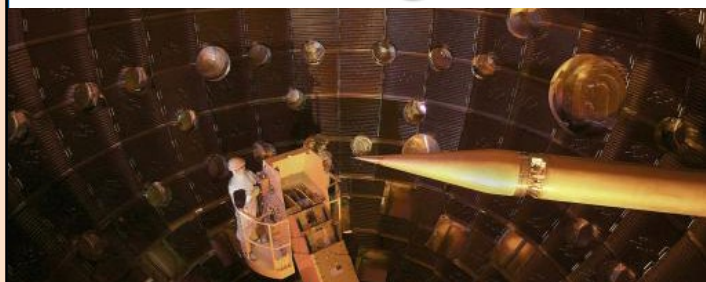
NI Hardware: Are your data acquisition boards & drivers compatible with Win7?

DAQmx 9.8 is the driver that is used with the current version of Labview running on a Windows 7 machine? The following webpage provides links to charts where you can check your particular board: <http://nstx.pppl.gov/nstx/Win7Upgrade/NIDeviceSupport.html>

For frame grabber boards used with cameras on NSTX, refer to this NI-IMAQ chart: <http://nstx.pppl.gov/nstx/Win7Upgrade/FrameGrabber.html>.

— Paul Sichta
Controls and Data Acquisition Division

COLLOQUIUM



IN PURSUIT OF IGNITION ON THE NATIONAL IGNITION FACILITY

DR. M. JOHN EDWARDS, LLNL

Wednesday, Mar. 26

3 p.m. (Coffee/Tea at 2:45 p.m.) • MBG Auditorium

Coming April 4



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. 24 MAR. 24	TUE. 25 MAR. 25	WED. 26 MAR. 26	THU. 27 MAR. 27	FRI. 28 MAR. 28
COMMAND PERFORMANCE CHEF'S FEATURE	 Louisiana Chicken Creole with Brown Rice Pilaf	 Baked Ziti with Tossed Salad & Garlic Bread	 Iron Chef Cookoff Choose between Asian Stir Fry or Italian Saute	 Porchetta Style Pork Loin with Sauteed Spinach, Chick Peas & Mango	 Penne Pasta Alfredo Primavera with Garlic Bread
EARLY RISER	Bistro Breakfast Burger	Mediterranean Egg White Omelet with Mushrooms, Spinach & Feta	Eggs In Purgatory	Blueberry Pancakes with Crispy Bacon	Chocolate Banana Pancakes
COUNTRY KETTLE	Cream of Broccoli	Tomato Soup	Chicken Noodle	Vegetarian Lentil	Hot Dog Stew
GRILLE SPECIAL	Veggie Burger with Blue Cheese & Spinach On Wheat Roll	Cheeseburger with Chimmichuri Slaw	Hot Corned Beef, Cheddar & Onions on French Bread	Fried Fish Taco with Cilantro Slaw and Black Bean Corn Salsa	Turkey Burger with Pork Roll & Cheddar Cheese
DELI SPECIAL	Grilled Tuna Caesar Wrap With Romaine, Tomato & Parmesan	Italian Hoagie Cut from a 3 Foot Hoagie Roll	Tuna Salad, Basil Pesto, Cucumber and Leaf Lettuce on Foccacia	Traditional Chef Salad Wrap	Tofu Parmesan Sub
PANINI	BBQ Pulled Chicken on a Kaiser Roll With Cheddar Cheese	Fried Catfish, Pepperjack, Tomato & Tartar Sauce on Ciabatta	Grilled Hawaiian Cordon Bleu	Caprese with Fresh Mozzarella, Tomato, Basil	Roast Beef & Bacon Pita with Avocado & Spring Mix With Chipotle Mayo

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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