

Calendar of Events

NOV. 16-20

**American Physical Society Division
of Plasma Physics conference**
Savannah, Georgia

TUESDAY, NOV. 17

Unicor Electronics Recycling
7:30-10 a.m. ♦ C Site Lower End
Parking Lot, Warehouse Access
Door Area

FRIDAY, NOV. 20

Public Tour
10 a.m.
tours@pppl.gov

UPCOMING

TUESDAY, NOV. 24

PPPL Colloquium
2:30 p.m. ♦ MBG Auditorium
[DIII-D Recent Results and Future
Direction](#)
Dr. Richard Buttery, General Atomics

PPPL Colloquium
4:15 p.m. ♦ MBG Auditorium
[Sustainability Economics](#)
James Morris, Rutgers University

NOV. 30-DEC. 16

Holiday Food Drive
LSB Lobby

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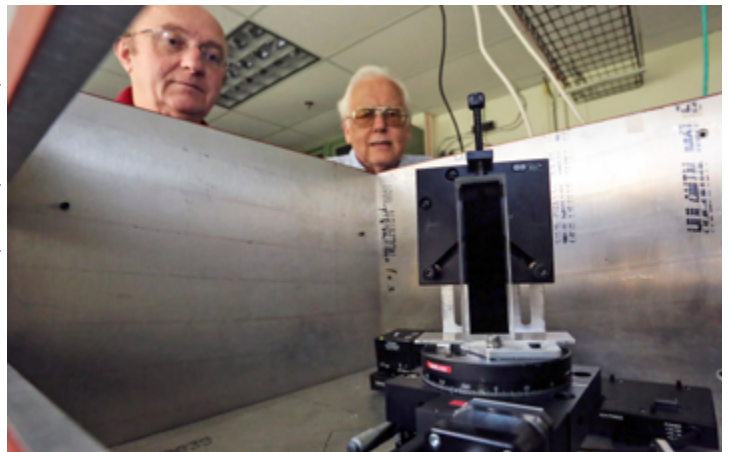
PPPL to design a high-resolution diagnostic system for the National Ignition Facility

By John Greenwald

Two U.S. Department of Energy (DOE) laboratories working on very different types of fusion experiments have begun a novel collaboration. Under the arrangement, PPPL will design a diagnostic system to provide high-resolution analysis of research on the National Ignition Facility (NIF) at Lawrence Livermore National Laboratory (LLNL). This work is supported by the DOE Office of Science and LLNL.

NIF is the world's most energetic laser. NIF is funded by the National Nuclear Security Administration (NNSA), the agency charged with ensuring our nation's nuclear security. The chief mission of NIF is to provide experimental insight and data for NNSA's science-based Stockpile Stewardship Program in the area of high-energy-density physics, a scientific field of direct relevance to nuclear deterrence and national nuclear security.

PPPL has used such diagnostic systems, called X-ray crystal spectrometers, for decades to study the data from the laboratory's magnetic fusion research. These experiments heat electrically charged plasma to tens of millions of degrees Celsius and confine it with magnetic fields to make the atomic nuclei — or ions — in the plasma merge and release their energy.



Kenneth Hill and Manfred Bitter inspect an X-ray crystal spectrometer to be used to study OMEGA EP laser-produced plasmas.

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A wealth of information on DOE's Powerpedia site

PPPPL has a page on an employee-created Wikipedia-like site with an encyclopedia of information about all things Department of Energy. Called Powerpedia, the site at <https://powerpedia.energy.gov> is available only to DOE and national laboratory employees.

The site has a wealth of information including a list of acronyms in use at DOE, and directories for DOE headquarters and the national laboratories. The main page has links to recent articles and links to employee resources, and Frequently Asked Questions, National Laboratory Highlights and favorite Powerpedia articles.

Powerpedia is meant to be a resource for the whole DOE complex that can be accessed by any DOE or national laboratory employee.

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X-ray crystal spectrometer

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NIF, by contrast, is developing a technique called inertial confinement fusion that is quite different. NIF fires 192 high-power lasers at tiny pellets of fuel to compress the target, thereby heating the plasma and causing the ions inside it to fuse. The PPPL spectrometer will analyze and record the data from these NIF experiments in high-resolution detail. Spectrometers now in use at NIF have lower resolution.


Creating the new spectrometer are physicists Kenneth Hill and Manfred Bitter, whose diagnostic designs are used in magnetic fusion experiments around the world.

“This is basically PPPL expanding its diagnostic equipment into high-energy-density physics,” said Phil Efthimion, head of the PPPL Plasma Science and Technology Department. “Ken and Manfred have the experience and knowledge to take the technology they developed more than 20 years ago and extend it to the very bright and high-energy X-rays that NIF produces.”


The spectrometer the two physicists are designing will fit into tight quarters. While the NIF lasers are housed in a building the size of three football fields, the pellet at which they aim is only a millimeter in diameter, or about 4 hundredths of an inch. The target shrinks to one-tenth of a millimeter when struck by the beams. To stay clear of the beams while recording the data, the spectrometer will be positioned in a narrow chamber and set inside a holder that is less than a foot in diameter.

This research is part of a multi-pronged effort in the ongoing inertial confinement (ICF) program, which is used to study ignition and burn in a laboratory setting, and which aims to tackle arguably the most challenging observable condition in ICF implosions—stagnation, the termination of the compression process before fusion takes place. The spectrometer will be used to identify the quantitative character of the implosion as it “stagnates” over a small volume for the very first time.

The spectrometer, which could be completed next fall, will collect data from ICF and other experiments to be conducted at NIF. For example, geophysicists studying the intense density and pressure at the core of the Earth will be able to use the NIF lasers to create laboratory conditions that produce similar extreme states of matter.

The spectrometer for NIF will be the second for high-energy-density physics that Hill and Bitter have designed. They previously collaborated in designing an X-ray crystal spectrometer, and evaluated one of the precision spherically bent crystals to be used in the spectrometer, for the OMEGA-EP laser system at the University of Rochester, which supports inertial confinement research. This spectrometer will now undergo a final design review, with testing and initial physics measurements on OMEGA scheduled for early 2016. 

An afternoon of science for Brownies in Science Education lab

A dozen Brownies from Girl Scout Troop #72807 in West Windsor Township learned all about plasma during an afternoon in the Science Education Laboratory on Nov. 10 hosted by Shannon Greco, a program leader in Science Education. 



The Brownies are fascinated as Greco shows them how a plasma ball can light up a fluorescent tube.




One of the Brownies has a big smile as she tries out the Van De Graaff generator.

Powerpedia

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PPPL's page, which is at https://powerpedia.energy.gov/wiki/Princeton_Plasma_Physics_Laboratory, includes an overall description of the Laboratory with links to its website, and a great deal of information on everything from PPPL's management and operating contract to the Laboratory's mission and history.

The site is similar to Wikipedia in that any employee can edit information on the site if he or she creates an account. The edits are not anonymous and are directly tied to whomever creates or edits content. FAQs are available at https://powerpedia.energy.gov/wiki/Frequently_Asked_Questions_about_Powerpedia#What_are_the_basic_concepts_I_should_know_about_Powerpedia.3F. 

4th Workshop on Magnetic Fields in Laboratory High Energy Density Plasmas



Researchers from the United States, Europe and Asia met on the Princeton main campus last week for the “4th Workshop on Magnetic Fields in Laboratory High Energy Density Plasmas.” The three-day event featured presentations that coupled such plasmas with magnetic fields in various domains, including plasma astrophysics, inertial fusion and laboratory high-energy density plasmas. Princeton physicists Will Fox, Lan Gao, and Hantao Ji hosted the workshop, which was held as a joint event for the Princeton Center for Theoretical Science and PPPL in Jadwin Hall.



Workers at ITER offload a 121-ton transformer for the Steady State Electrical Network (SSEN) that will power all the complex plant's electrical loads, except for the pulsed loads that will power the giant tokamak. The transformer was one of four purchased by PPPL engineer Charles Neumeyer and his team, which is responsible for the U.S. contributions to the SSEN. The team has now purchased 12 of the 16 procurement groups that PPPL will deliver to ITER for the SSEN, whose 120 megawatts could run a small city.

PPPL bids a fond farewell to retiring employees!




LANE ROQUEMORE
Principal engineer
36 YEARS



DOUGLAS LABRIE
Diagnostics technician
15 YEARS

Junior Shark Tank in Science Education Laboratory

A group of youngsters taking part in a Junior Jack and Jill Shark Tank competition, in which teams of students pitch their business ideas as a team, visited the Science Education Laboratory on Nov. 6. The students learned about robots and worked on their idea for a robot that would do household chores, such as dishes and making the bed with engineer Atiba Brereton and Science Education's Arturo Dominguez. 



Brereton with Saraiah Hoover, left, Mason Holley, and Niara Beckwith.



Mykaela Sanders, left, and Saraiah Hoover, are all smiles as Brereton shows them a Lego robot.



Members of the Jack and Jill junior Shark Tank competition with Brereton, left, and Arturo Dominguez. (Photo by Chandra Sanders)

PPPL Welcomes New Employees!



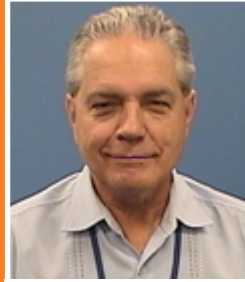
NICOLE ALLEN
Engineering
Associate mechanical engineer



LOUIS CLERVOYANT
Engineering
Heating systems technician



ALANA COLEMAN
Business Operations
Executive assistant to the CFO



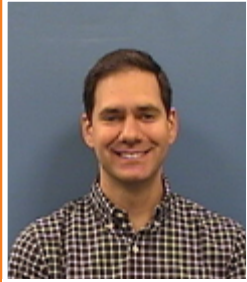
GEORGE DOROSHENKO
Engineering
QC receiving inspector



TIMOTHY EDMON
Engineering
Mechanical/CAD designer



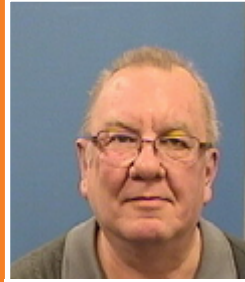
PHILIP EFTHIMION
Engineering
Technician



NATHANIEL FERRARO
Theory
Theoretical/computational physicist



ALEXANDER FINEHART
Engineering
Mechanical/CAD designer



JEAN-PIERRE FRA
Engineering
Mechanical/CAD



JAIME GAVILANES
Engineering
Heating systems technician



GARY GRAINGER
Engineering
Electrical/CAD designer



FRANK HOFFMAN
Engineering
Lead engineer



DONALD HOWE
Business Operations
Senior subcontract administrator



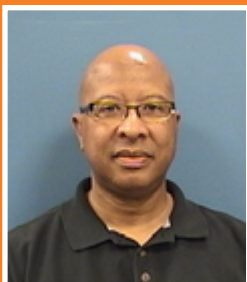
DANIELLE KAVULIC
Engineering
Electronics technician



LEO KONKEL
Engineering
Mechanical/CAD designer



MICHAEL KOZIC
Engineering
Power systems technician



MARSHALL LEWIS
ES&H
Health physics technician



ROBERT MILLER
Engineering
Mechanical technician



NATALIA OLEYNIKOVA
Engineering
Electrical/CAD designer



JAMES PERICH
Engineering
Mechanical technician



PATRICIA POTTS
Engineering/Material control
TITLE?



TORI SIKKEMA
Business Operations
Travel/account specialist



JULIA WEISS
Engineering
Electronics technician



JASON WOHLBERG
Engineering/Material Control
Shipping administrator



MICHAEL YAVOR
Engineering
Electrical/CAD designer

Numerous opportunities to go green as PPPL celebrates recycling

PPPL is celebrating America Recycles Day throughout November with the following events:

Week of Nov. 16

Get caught green-handed: Members of the Green Team will award prizes to people they catch “green-handed” for recycling and composting and using lunchboxes.

Nov. 17: 7:30 a.m. to 10 a.m.

Electronics collection by Unicorn next to the warehouse facing ESU.

Nov. 24 at 4:15 p.m.

Colloquium on the economics of sustainability given by James Morris, of Rutgers University, author of “Practical Recycling Economics.”

Personal protection equipment recycling by Terracycle

Bring old safety glasses and hard hats, as well as earplugs and gloves to the collection box next to the stockroom.

Office supply recycling by Terracycle

Bring old office supplies to the collection box in the lobby. Allowable items include tape desk organizers, card and document filers, binders, calendars, labels, staplers, hole punchers, dividers, paper cutters and correction supplies, as well as fasteners including paper clips, staples, and binder clips (Please do not discard paper, plastics or cans that could be placed in regular recycling, electronics, hazardous waste such as batteries or aerosol sprays or organic items).

Holiday Food Drive

PPPL will take part in the University’s holiday food drive from **Nov. 30 through Dec. 16**. The food will go to the Mercer Street Friends Food Bank, which has been a leader in fighting hunger in the Mercer County area, supplying food to nearly 50 pantries, shelters and soup kitchens for nearly 20 years.

Flu Vaccines Are Here!

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.

—The OMO Staff

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 November 16	Tuesday November 17	Wednesday November 18	Thursday November 19	Friday November 20
COMMAND PERFORMANCE Chef's Feature	Ota Ya Sushi	Baked Three Cheese Lasagna	Chicken Piccata served with Rice Pilaf	CELEBRATING THANKSGIVING Turkey, Gravy, Stuffing, Mashed Potatoes, Green Beans, Cranberry Sauce, Candied Yams & Pumpkin Pie	Seafood Newburg served Over Rice
Early Riser	Steak & Egg Cheese Quesadilla	Egg & Hash Brown Taco with Beans, Onions, Cheese, Avocado & Cilantro	Corned Beef Hash & 2 Eggs any Style	Cranberry Pancakes	Ham, Egg & Cheese Croissant
Country Kettle	Wen Dee's Chili	Manhattan Clam Chowder	Chicken Vegetable	Vegetarian Chili	White Bean & Ham
Grille Special	Big Mak	Kielbasa & Kraut Torpedo with Fried Pierogies	Blackened Tilapia Caesar Salad with Mango	Pierogies served with Sour Cream & Apple Sauce	Potato Pancakes served with Sour Cream & Apple Sauce
Deli Special	R B's Roast Beef & Cheddar Sandwich	BBQ Chicken Cobb Salad Wrap	The Cubano	Grilled Tuna Nicoise Salad with Olives, Potatoes, Green Beans & Hard Cooked Egg	Turkey & Cheddar Melt
Panini	Chick Filet Sandwich	Open-Faced Crab Bread with Cheddar Cheese	Greek-Style Chicken Salad served with Pita Chips	Eggplant Parmesan Ciabatta	Italian Meatball Sub with Provolone

MENU SUBJECT TO CHANGE WITHOUT NOTICE

VEGETARIAN OPTION

WEEKLY

Editor: **Jeanne Jackson DeVoe** ♦ Layout and graphic design: **Kyle Palmer**
Photography: **Elle Starkman** ♦ Science Editor: **John Greenwald** ♦ Webmaster: **Chris Cane**

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