

At PPPL  
**THIS WEEK**

**WEDNESDAY, APRIL 4**

**GFDL Events and Seminars**

Noon - 1 p.m. ♦ GFDL  
Smagorinsky Seminar Room

Tropical Changes in 21st Century Projections from CMIP5: Roles of Greenhouse and Non-greenhouse Forcing

Gabriel Vecchi (GFDL)

[www.gfdl.noaa.gov/events](http://www.gfdl.noaa.gov/events)

(Gov't, Univ. or 2 other forms of I.D. needed)

**THURSDAY, APRIL 5**

**The Andlinger Center  
Highlight Seminar Series**

4:30 p.m. ♦ Main Campus  
Friend Center 006

Biocatalytic Conversion of Carbon Dioxide to Liquid Fuels

David Berry (Flagship Ventures)

**FRIDAY, APRIL 6 (Good Friday)**

**Theory Special Seminar**

10:45 a.m. - 12 p.m.

Gyrokinetic Particle Simulations of Kinetic-MHD Processes

Z. Lin (UC Irvine)

**DIII-D Science Meeting**

1 p.m. ♦ B-233

**SATURDAY, APRIL 7 (Passover)**



**SUNDAY, APRIL 8 (Easter)**



# Princeton, Max Planck Launch New Research Center for Plasma Physics

By John Greenwald

**P**inceton University and the Max Planck Society of Germany have joined forces in a scientific collaboration that is designed to accelerate progress in cutting-edge research ranging from harnessing fusion to understanding solar storms.

Princeton President Shirley M. Tilghman and President of the Max Planck Society Peter Gruss participated Thursday, March 29, in a signing ceremony in Whig Hall on the Princeton campus to officially start the Max Planck Princeton Research Center for Plasma Physics. The center will be a virtual facility in which researchers will work cooperatively on projects from their current locations. "This collaboration with Germany's distinguished Max Planck

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From left, Shirley M. Tilghman, A. J. Stewart Smith, and Peter Gruss at signing ceremony.



Members of the National Lab's Chief Communications Officers Working Group were given a private tour of the West Wing of the White House Tuesday, March 27, including: (left to right) Matt Howard (ANL); Kitta MacPherson (PPPL); David Behrman (PNNL); Amy Lientz (INL); David Anna (NETL); Jeff Miller (LBNL); Katie Yurkewicz (Fermilab); and Marge Lynch (BNL). At far right is Steve Ashby, deputy director of science and technology at PNNL, who spoke to the group earlier in the day.

Society is certain to enhance our common excellence in fusion and plasma astrophysical research and, more broadly, to advance the development of clean and abundant energy,” Tilghman said.

Such cooperation is coming at precisely the right time, according to Gruss. “It is essential that we pool our strengths and knowledge in the field of fusion research, in particular, so that we can develop nuclear fusion into something the world urgently needs for the years and decades to come: safe, clean and dependable energy technology,” Gruss said.

A. J. Stewart Smith, Princeton University’s Dean for Research and the Class of 1909 Professor of Physics, served as master of ceremonies and welcomed the guests from Germany in remarks delivered in German. Turning to the new research center, Smith said that “this new partnership with the Max Planck Society will establish a world-leading effort to link the studies of plasmas and fusion in the universe and on earth. This will continue the grand vision of Princeton astrophysics giant Lyman Spitzer, who more than 50 years ago initiated the Hubble Space Telescope and founded PPPL.”

Smith delivered a statement from William Brinkman, director of the DOE’s Office of Science, who was unable to attend. Brinkman noted that the DOE “welcomes the creation of this new center in such an exciting field as plasma astrophysics. From questions of the dynamics of accretion disks surrounding black holes, to the plasma dynamo processes that create interstellar magnetic fields, to the anomalous heating of the solar corona—these questions are challenges that need to be addressed and we are looking forward to the interaction with the institutes of the Max Planck Society on them.”

The new center will combine the research capabilities of Princeton’s Department of Astrophysical Sciences and PPPL with the Max Planck Society’s institutes for plasma physics, astrophysics and solar system research. The selected topics will focus on is-

ues that are crucial to both fusion and astrophysical plasmas. Such plasmas consist of superhot and electrically charged gases whose fusion powers the sun and stars.

James Van Dam, director of the research division of the DOE’s Office of Fusion Science, pointed out that, “We have had years of excellent collaboration with German scientists, and this brings it to a new level. The interconnectedness of plasma physics is just amazing, and we really appreciate that this new center is involved in the whole field.

The collaboration will benefit from the complementary strengths and research tools of this trans-Atlantic partnership. Both PPPL and the Max Planck Institute for Plasma Physics (IPP) operate major experimental fusion facilities, for example. “There is wonderful synergy between PPPL and the Max Planck IPP,” said PPPL Director Stewart Prager. “We are very enthused to combine the capabilities of the two labs to make otherwise unattainable advances in key problems in fusion and astrophysics.”

Insights gained from the study of astrophysical and laboratory plasmas are expected to be mutually reinforcing. “What is most exciting about the center to me is the focus on basic physical processes that are important in a diverse range of astrophysical systems,” said James Stone, a Princeton professor of astrophysical sciences and applied and computational mathematics who will oversee the U.S. side of the venture related to his own discipline. “I know the astrophysicists are going to learn a lot from their plasma physics colleagues, and I think the reverse is going to be true as well.”

The field of plasma astrophysics is growing in interest among researchers around the world. PPPL scientists are studying such astrophysical phenomena as the source of violent space weather and the formation of stars. This research is conducted on PPPL devices called the Magnetic Reconnection Experiment and the Magnetorotational Instability experiment, respectively.

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At the signing ceremony at Princeton University, front row: (seated left to right) Princeton University President Shirley M. Tilghman; Max Planck Society President Peter Gruss. Back row: (standing left to right) James Van Dam, director of the research division of the U.S. DOE Office of Fusion Science; Stewart Prager, director of the PPPL; James Stone, a Princeton University professor of astrophysical sciences; A. J. Stewart Smith, Princeton University Dean for Research; Busso von Alvensleben, consul general of the Federal Republic of Germany in New York; Sybille Gunter, director of the Max Planck Institute for Plasma Physics; and Sami Solanki, director of the Max Planck Institute for Solar System Research.



# Young Women's Conference Draws Many, Inspires All

By Patti Wieser

**E**mma Meyer has always been intrigued by science. As a little girl she enjoyed going to a nearby water source to take samples and now, as a Millstone Middle School eighth grader, she aspires to become a marine biologist.

During the PPPL-sponsored Young Women's Conference (YWC), held March 23 on the main campus of Princeton University, she was immediately drawn to the exhibit, "The Case for Ocean Acidification Monitoring and Research."

"I thought it was really cool," said Emma, the kid sister of PPPL environmental engineer Leanna Meyer. "You could see how carbon dioxide made water in the ocean more acidic." She went on to describe how Katrina Phillips from NOAA Headquarters demonstrated ocean acidification using a pH indicator dye and tap water. NOAA is the National Oceanic and Atmospheric Administration.

And with that — along with random testimonials from many of the nearly 300 participants — it was clear that the goal of the YWC was met: inspiring young women to consider careers in science.

The Young Women's Conference in Science, Mathematics, Technology and Engineering was created several years ago to provide female students with an opportunity to meet women working in scientific fields and to foster an awareness of varied career opportunities for women. The one-day annual event is geared for middle-school and high-school-aged girls — seventh through tenth grades — with the intention to introduce them to prominent female scientists and engineers from around the country in a variety of formats, including keynote addresses, small-group speaker presentations, hands-on activities, and tours of laboratories.

This year marks the eleventh YWC, and the first to be located on the main campus — at Frist Campus Center — rather than at the Laboratory. The move made room for more participants. "We made the change hoping to be able to reach more students," said PPPL postdoctoral researcher Stephanie Wissel,



PPPL postdoctoral researcher Stephanie Wissel, who served as the YWC director, addresses the conference attendees during the introduction.

the conference director. She noted that they were able to accommodate about 20 percent more students this year.

The 2012 YWC drew 295 young women from 31 area schools, who spent the day rotating in sessions that ranged from touring science labs, participating in hands-on science demonstrations and exhibits, listening to lectures, and joining in discussions during breakout meetings. "There is a certain amount of power in bringing together a large group of women and girls to both learn from each other and share their passions. Being able to see the research labs where people do science makes it all the more worthwhile, and we were able to do that for the first time this year," Wissel said.

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Eighth grader Emma Meyer (left) talks about watershed biological monitoring with Virginia Finley, Environmental Compliance Head at PPPL, while visiting exhibits at the Young Women's Conference. Behind them, PPPL's Patti Bruno (toward back in white shirt) provides hands-on demos for the conference participants.

## Women's Conference

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During a lab tour at Jadwin Hall, biophysics researcher Jason Puchalla mesmerized a group of 20 young women when, using an apparatus, he puffed fluid into large smoke-like rings that circled toward the students before dissipating. "It was cool," said Sarah, daughter of PPPLer Theresa Gillars.

Puchalla, who led tours in one of five lab areas featured, described his field to the girls as the "sticking together of physics and biology."

"Things in your body have to move around, and force is needed to move them around. We combine the tools of physics, engineering, chemistry, biology, and math to make up the study of biophysics," he told the young visitors. "I study how viruses move and behave in biosystems." Showing the tools he uses, he talked about the smallest things visible to humans. Imagine a quarter, then a dime, and finally a strand of hair. Cells, he said, are about 5 times smaller than the width of a strand of hair. And viruses are about 100 times smaller than this. Puchalla demonstrated a special microscope that he put together — "you get to do arts and crafts, too" — and how scientists use a laser to make things stand out, with the addition of a fluorescent dye to water. In addition to the lab tours and the exhibits featuring 31 displays, the day included a keynote address by Andrea Graham, a Princeton University professor in ecology and evolutionary biology, introductory talks by Wisel and PPPL plasma physicist Francesca Poli, and breakout session lectures by Heather Paul of the NASA Johnson Space Center and Bianca Bailey, a Howard University chemical engineering student recognized by the White House as a "Champion of Change."

So can science be fun? As Samantha, the daughter of PPPLer Marisol Ovalles, was leaving a tour, she responded with a



**Samantha, daughter of PPPL's Marisol Ovalles, gets a hair raising experience at the Van de Graaff generator in the exhibit area. The electrostatic generator was one of the PPPL demonstrations.**

hearty: "Yeah." Ovalles said she brought her daughter to the conference because, she said, she wants her to learn more about different kinds of science. Samantha's friend, Angelica Avalos, a North Burlington seventh grader and science enthusiast, said the day "shows the possibilities you have when you keep learning."

Quianna Boyd, a tenth-grader from Trenton High West who wants to be a pediatrician when she grows up, said she liked seeing how to get minerals out of rocks — how to separate iron from non-metal minerals — while visiting the exhibitors hall set up at Frist. And then she echoed the common mantra for the day: "It was cool." 📍

## Max Planck continued from page 2

Prager from PPPL, Stone from astrophysical sciences and Sibylle Günter, director of the Max Planck Institute for Plasma Physics, will form the new center's leading team. "The aim of the cooperation is to make greater use of the synergies between fusion research and the work carried out by the astrophysicists," Günter said. Among other German guests attending the ceremony were Sami Solanki, director of the Max Planck Institute for Solar System Research, and Busso von Alvensleben, consul general of the Federal Republic of Germany in New York.

The formation of the center will enhance already strong research collaborations between the groups, scientists said. For example, scientists at the Max Planck Institute for Plasma Physics in Greifswald, Germany, are building the Wendelstein 7-X Stellarator, which will confine plasma with a magnetic field that is shaped like a cruller — a spiral wrapped around a circle. The stellarator device, also called W7-X, is designed as one of two major configurations for experimental fusion facilities. Researchers at PPPL also plan to conduct experiments on W7-X. In addition, PPPL is providing components for W7-X known as "trim coils."

The barn door-size coils, being manufactured by Everson Tesla Inc. of Nazareth, Pa., will fine-tune the shape of the magnetic "bottle" confining the hot ionized gas studied in fusion. There are shared interests that could spark new partnerships, too. PPPL, for example, is currently involved in implementing a \$94 million upgrade on its largest research machine, the National Spherical Torus Experiment, and carries out laboratory experiments on general plasma physics. Max Planck scientists working in Greifswald are also researching this topic.

Eight postdoctoral fellows from PPPL and the Department of Astrophysical Sciences will staff the center, along with 13 postdoctoral fellows from Max Planck institutes. These researchers will work with senior scientists on both sides of the Atlantic who will oversee the fellows as part of the scientists' regular duties. Financial support for the center will come from the U.S. and Germany. Funding for the Princeton side will come from the DOE, the National Science Foundation and Princeton University. The Max Planck Society will fund its institutes' collaborative activities. 📍



# Prospect House Events

## Breakfast with the Easter Bunny

Saturday, April 7

9 a.m. to 11 a.m.

\$23.95 Adult

\$15.95 Children 5-12

Children under 5 are free



Spend the morning with the Easter Bunny at a special breakfast and arts and crafts. After your meal, hunt for Easter eggs on the front lawn, weather permitting. To ask about our special "Buy one get one free" promotion for this event, please call 258-3686.



## Easter Sunday Brunch

Sunday, April 8

10 a.m. — First seating

12:30 p.m. — Second seating

\$33.95 Adult

\$16.95 Children 5-12

Children under 5 are free



Reservations required for all events. Call 258-3455.  
[www.princeton.edu/prospecthouse/events](http://www.princeton.edu/prospecthouse/events)



## Volunteers Needed for PPPL Exhibit

Volunteers are needed to staff the PPPL exhibit at CommUniversity on Saturday, April 28, from noon to 5 p.m. CommUniversity is an annual town-gown community arts festival sponsored by Princeton University students and the Arts Council of Princeton. If you can volunteer for an hour or two at our table, please contact Patti Wieser at [pwieser@pppl.gov](mailto:pwieser@pppl.gov).

## From the PPPL Site Protection Division

### 5-Minute Lifesaver: ICE Your Cell Phone

Car accidents and medical emergencies happen all the time. If you were unconscious, how could the paramedics contact your family? How could they find out about your medications, allergies, or health conditions?

Fortunately, it takes five minutes and zero dollars to make sure first responders can reach your emergency contacts, simply program "ICE" in your mobile phone. "ICE" stands for "in case of emergency." If you add the prefix "ICE" to your emergency contacts in your phone's contact list, first responders will know to call them first. So if Jane Doe is your emergency contact, simply change the entry in your contact list from "Jane Doe" to "ICE: Jane Doe." To find out more about "ICE", click on this link: [ICE - Important Info to Save Your Life.](#)



# PPPL Café Menu

BREAKFAST ..... 7 a.m. - 10 a.m.  
 CONTINENTAL BREAKFAST..... 10 a.m. - 11:30 a.m.  
 LUNCH ..... 11:30 p.m. - 1:30 p.m.  
 SNACK SERVICE ..... until 2:30 p.m.

MONDAY, APRIL 2

TUESDAY, APRIL 3

WEDNESDAY, APRIL 4

THURSDAY, APRIL 5

FRIDAY, APRIL 6

COMMAND PERFORMANCE CHEF'S FEATURE	MONDAY, APRIL 2	TUESDAY, APRIL 3	WEDNESDAY, APRIL 4	THURSDAY, APRIL 5	FRIDAY, APRIL 6
<b>Buffalo Wings with Sauce and Fries</b>	<b>Spaghetti and Meatballs</b>	<b>Freshly Carved Roast Top Round</b>	<b>Turkey Meatloaf with Brown Rice</b>	<b>Seafood Newburg over Egg Noodles</b>	
<b>EARLY RISER</b>	Southwest Omelet with Home Fried Potatoes	Potato Pancakes with Sour Cream	Fresh Spinach and Sausage Scramble	Bacon Strip Pancakes	Bacon, Egg and Cheese Griddle Sandwich
<b>COUNTRY KETTLE</b>	Tomato Basil	Butternut Squash	Beef Chili	Split Pea with Ham	Cream of Turkey and Rice
<b>GRILLE SPECIAL</b>	Crispy Chicken BLT Wrap with Fries	2 Hot Dogs with Sauer Kraut and Fries	Buffalo Chicken Cheese Steak with Onion Rings	Freshly Stuffed Burger with Spinach and Blue Cheese	Taco Quesadilla with Sour Cream and Salsa
<b>DELI SPECIAL</b>	Egg Salad, Cheddar, Lettuce, Tomato on a Croissant	Fresh Mozzarella, Tomato and Basil	Pepperoni, Provolone, Lettuce, Tomato	Buffalo Chicken Salad on a Multi Grain Roll	Fresh Mozzarella, Capicola, Roasted Peppers
<b>PANINI</b>	Turkey Ranchero Flatbread Griller	Ham, Provolone, Peppers, Tomato and Spinach Pesto	The Corned Beef Flatbread Griller	Roast Beef, American Cheese, Mustard, Onion	The Napoli Vegetable Panini

MENU SUBJECT TO CHANGE WITHOUT NOTICE

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

# WEEKLY

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Deadline for calendar item submissions is noon on Thursday. Other stories should be submitted no later than noon on Wednesday.

Send to: [pwieser@pppl.gov](mailto:pwieser@pppl.gov) ♦ Comments: [commteam@pppl.gov](mailto:commteam@pppl.gov) ♦ PPPL WEEKLY is archived on the web at: <http://www.pppl.gov/ppplweekly.cfm>